



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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M0000485 "DuPont" "K-4" Herbicide
Revised 29-JAN-2008

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"DuPont", "K-4" are trademarks of DuPont.

Tradenames and Synonyms

DuPont K-4

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	%
*DIURON 3-(3,4-Dichlorophenyl)-1,1-dimethylurea	330-54-1	46.8
*HEXAZINONE [3-Cyclohexyl-6-(dimethylamino)-1-methyl-1,3,5- triazine-2,4(1H,3H)-dione]	51235-04-2	13.2
INERT INGREDIENTS		40.0

* 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. Wash thoroughly with soap and water after handling.

Potential Health Effects

Based on animal tests, eye contact with DuPont K-4 may cause eye irritation with discomfort, tearing, or blurring of vision.

Based on animal data from components, repeated or excessive exposures by ingestion may cause liver enlargement; abnormal liver function as detected by laboratory tests; spleen effects; abnormal blood forming system function with anemia; red blood cell destruction; methemoglobinemia (reduced oxygen carrying capacity of the blood), with headache, weakness, cyanosis (bluish discoloration of the skin) possibly progressing to dizziness, incoordination, shortness of breath, increased pulse rate and loss of consciousness.

Individuals with preexisting diseases of the liver or bone marrow may have increased susceptibility to the toxicity of excessive exposures.

Carcinogenicity Information

The following components are listed by IARC, NTP, OSHA or ACGIH as carcinogens.

Material	IARC	NTP	OSHA	ACGIH
DIURON				A4

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 INHALED: No specific intervention is indicated as the product is not likely to be hazardous by inhalation. Consult a physician if necessary.

IF ON SKIN OR CLOTHING: No specific intervention is indicated as the product is not likely to be hazardous to the skin. Consult a physician if necessary.

IF IN EYES: No specific intervention is indicated as the

(FIRST AID MEASURES - Continued)

product is not likely to be hazardous to the eyes. Consult a physician if necessary.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-441-3637 for medical emergencies involving this product.

Notes to Physicians

Absorption of diuron may lead to the formation of methemoglobin, which, in sufficient concentration, causes cyanosis. Thorough cleansing of the entire contaminated area including scalp and nails is of utmost importance. Moderate cyanosis can be treated by supportive measures such as, bed rest and oxygen inhalation. Severe cyanosis may require intravenous injection of methylene blue, one milligram per kilogram of body weight. Cyanocobalamin (Vitamin B12), one milligram intramuscularly, may speed recovery. Intravenous fluids and blood transfusions may be indicated in very severe exposure. Methylene blue is contraindicated if the patient has confirmed or suspected glucose-6-phosphate dehydrogenase deficiency. Ascorbic acid has been suggested in such cases.

FIRE FIGHTING MEASURES

Flammable Properties

Hexazinone

Autoignition : >350°C (>662°F)

Diuron

Flammable limits in Air, % by volume

LEL : 0.096 g/L
Autoignition : 440°C (824°F)

Like most organic powders or crystals, under severe dusting conditions, this material may form explosive mixtures in air. May be ignited by heat or open flame. Hazardous gases/vapors produced in fire are highly toxic.

Extinguishing Media

Water, Water spray, Foam, Dry Chemical, CO2.

(FIRE FIGHTING MEASURES - Continued)

Fire Fighting Instructions

Wear self-contained breathing apparatus. Wear full protective equipment. Runoff from fire control may be a pollution hazard. Use water spray. Cool tank/container with water spray. Control runoff.

If area is exposed to fire and conditions permit, let fire burn itself out. Burning chemicals may produce by-products more toxic than the original material.

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.

Emergency Response - Chemical resistant coveralls, waterproof gloves, waterproof boots and face / eye protection. If dusting occurs use NIOSH approved respirator protection.

Initial Containment

Dike spill. Prevent material from entering sewers, waterways, or low areas.

Spill Clean Up

Shovel or sweep up.

Never return to container for reuse. Scoop into bags or boxes with plastic or aluminum shovel.

HANDLING AND STORAGE

Handling (Personnel)

USER SHOULD: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Handling (Physical Aspects)

Avoid dust generation.

Storage

Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in a cool, dry place.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use only with adequate ventilation. Keep container tightly closed.

Personal Protective Equipment

Applicators and other handlers must wear:
Long-sleeved shirt and long pants.
Shoes plus socks.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. 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
Shoes plus socks

Exposure Guidelines

Applicable Exposure Limits

DIURON

PEL (OSHA) : None Established
TLV (ACGIH) : 10 mg/m³, 8 Hr. TWA, A4
AEL * (DuPont) : 1 mg/m³, 8 & 12 Hr. TWA, total dust

HEXAZINONE

PEL (OSHA) : None Established
TLV (ACGIH) : None Established
AEL * (DuPont) : 10 mg/m³, 8 Hr. TWA

* 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

Color : Light Brown
Physical State : Solid, granules
Odor : Slight
pH : 8.0
Bulk Density (tap) : 0.714 g/mL

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

Hexazinone : Incompatible with strong acids or bases.
Diuron : None reasonably foreseeable.

Decomposition

Decomposition temperature: 180-190°C (356-374°F)

Hexazinone:
Decomposition will not occur.

Diuron:
Decomposition temperature: 180-190°C (356-374°F)

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

DuPont K-4
Inhalation 4 hour LC50: > 5.5 mg/L in rats
(Very low toxicity by inhalation)
Skin absorption LD50: > 5000 mg/kg in rats
(Slightly to moderately toxic by contact)
Oral LD50: 4888 mg/kg in male rats
Oral LD50: 2073 mg/kg in female rats
(Slight toxicity by ingestion)

DuPont K-4 is not a skin irritant or skin sensitizer, but is a slight eye irritant in animal tests.

DIURON

Effects in animals from short inhalation exposure to Diuron include lethargy, incoordination, and nonspecific effects such as weight loss and irritation.

Repeated ingestion of Diuron led to increased hemolysis (destruction) of red blood cells and hemolytic anemia after continued exposure to high doses. Secondary effects as a result of excessive red blood cell hemolysis included enlarged spleens, pigment deposits in the spleen, changes in the bone marrow and kidney. Decreased body weights were also related to repeated ingestion of high doses of Diuron.

(TOXICOLOGICAL INFORMATION - Continued)

In addition to the effects described above, long-term effects observed in rodents after repeated ingestion of high doses also included thickening of the urinary bladder and kidney epithelium and liver toxicity. In chronic feeding studies, an increase in urinary bladder and renal pelvic tumors was observed in high-dose rats. A borderline increase in mammary tumors was observed in high-dose female mice, which is considered equivocal.

The weight of evidence indicates that Diuron does not produce genetic damage in bacterial or mammalian cell cultures, or in animals. Diuron is not considered a developmental toxicant. There was no evidence of developmental toxicity in rabbits. In rats, developmental effects occurred at doses higher than those which produced maternal toxicity. Testing in rats demonstrated no reproductive toxicity.

HEXAZINONE

Repeated skin applications indicated no irritation or systemic activity.

Repeated dosing by ingestion of excessive dietary levels of Hexazinone resulted in weight loss, alterations in liver weights, alterations in blood chemical measurements, and alterations in enzyme activities. No evidence of pathological organ damage was observed. Long-term dosing produced decreased weight gain, alterations in hematology, clinical chemistry, and blood enzyme levels, increased liver weights in some species, and pathological liver changes.

Animal data showed that chronic, excessive dietary exposure to Hexazinone produced a slight, equivocal increase in liver tumors in female mice.

Animal data show developmental effects only at exposure levels producing other toxic effects in the adult animal. Animal testing indicates Hexazinone does not have reproductive effects. The weight of evidence from a battery of cell culture and laboratory animal tests indicates Hexazinone does not cause genetic toxicity.

ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:

Diuron

- 96-Hour LC50 - Bluegill sunfish: 25 mg/L
- 96-Hour LC50 - Rainbow trout: 14.7 mg/L
- 48-Hour EC50 - Daphnia magna: 1.4 mg/L
- EC50 - Algae - 0.018 mg/L

AVIAN TOXICITY:

Diuron

- LD50 - Bobwhite Quail: 1104 mg/kg

(ECOLOGICAL INFORMATION - Continued)

AQUATIC TOXICITY:

Hexazinone

96-Hour LC50 - Fathead minnows: 274 mg/L

96-Hour LC50 - Bluegill sunfish: > 370 mg/L

96-Hour LC50 - Rainbow trout: > 320 mg/L

AVIAN TOXICITY:

Hexazinone

LD50 - Bobwhite quail: 2258 mg/kg

DISPOSAL CONSIDERATIONS

Waste Disposal

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

ENVIRONMENTAL HAZARDS:

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 contaminate water when disposing of equipment washwaters.

The active ingredient, hexazinone, in this product 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 table is shallow may result in ground-water contamination.

Container Disposal

For Fiber Sacks: Completely empty fiber sack by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into manufacturing or application equipment. Then dispose of sack in a sanitary landfill or by incineration if allowed by State and local authorities.

For Fiber Drums with Liners: Completely empty Liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by State and local authorities. If drum is contaminated and cannot be reused, dispose of in the same manner.

For Paper and Plastic Bags: 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.

TRANSPORTATION INFORMATION

Shipping Information

DOT

Proper Shipping Name : Not Regulated if <100 lb/pkg. (see
*NOTE)

DOT/IMO

Proper Shipping Name : Not Regulated by IMO

*NOTE: If 100 lbs. Diuron or more per package:

Proper Shipping Name: Environmentally Hazardous Substance,
Solid, N.O.S. (Diuron)

Hazard Class : 9
UN/NA No. : UN 3077
Packaging Group : III

REGULATORY INFORMATION

U.S. Federal Regulations

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.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

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

EPA Reg. No. 352-618

ADDITIONAL REGULATORY INFORMATION

SARA/CERCLA Reportable Quantity:
Diuron (100 lb)

State Regulations (U.S.)

CALIFORNIA PROP 65:

This material contains Diuron, a chemical known to the State
of California to cause cancer in laboratory animals.

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating

Health : 2
Flammability : 1
Reactivity : 0

NPCA-HMIS Rating

Health : 2
Flammability : 1
Reactivity : 0

Personal Protection rating to be supplied by user depending
on use conditions.

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