



M0000074 "KROVAR" I DF Herbicide Revised 17-JUN-1998 Printed 2-JUL-1998

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"KROVAR" is a registered trademark of DuPont.

Corporate MSDS Number : DU005711

Company Identification

MANUFACTURER/DISTRIBUTOR

DuPont
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-441-7515
Transport Emergency : CHEMTREC 1-800-424-9300
Medical Emergency : 1-800-441-3637

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
*BROMACIL (5-BROMO-3-SEC-BUTYL-6-METHYLURACIL)	314-40-9	40
*DIURON (3-(3,4-DICHLOROPHENYL)-1,1-DIMETHYLUREA)	330-54-1	40
INERT INGREDIENTS		20

* 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

Potential Health Effects

CAUTION! Harmful if swallowed. Harmful if absorbed through skin. Causes eye irritation.

ANIMAL STUDIES:

Acute Oral (rat) LD50 >2,500 mg/kg. Low order of toxicity.

Acute Dermal (rabbit) LD50 >2,000 mg/kg. Low order of toxicity.

(HAZARDS IDENTIFICATION - Continued)

Skin irritation and sensitization - In skin irritation tests with rabbits, product was a primary skin irritant. It was not a skin sensitizer in tests with guinea pigs.

Eye (rabbit) - A mild eye irritant with eyes normal within 7 days after treatment.

CHRONIC STUDIES - BROMACIL:

The compound is a moderate skin irritant, is a mild to moderate eye irritant, but is not a skin sensitizer. Rabbits acutely exposed via dermal route demonstrated no clinical signs of toxicity, and no gross tissue changes were observed, at the highest practical dose, 5,000 mg/kg.

INHALATION: Acute exposure of rats resulted in only general signs of distress, rapid and deep respiration, at the highest dose tested, 4.8 mg/L. Toxicity described in animals repeatedly exposed to 0.1, 0.5 or 2.0 mg/L of the compound for two weeks include slightly increased platelet counts, and lower serum cholesterol in the group exposed to 2.0 mg/L. Slightly increased liver weights were noted in the groups exposed to 0.5 or 2.0 mg/L. All remaining animals were normal after a 14 day recovery period.

INGESTION: When a massive dose was administered to the dog (5,000 mg/kg), incoordination, salivation, vomiting, weakness, lacrimation and dilated pupils were observed. Toxicity described in animals repeatedly exposed to near lethal doses included liver changes, increased liver, adrenal and heart weights, and decreased kidney and spleen weights. In another study, body weights were lower and changes were noted in the liver, kidneys and thyroids in rats repeatedly fed 2,500 ppm in the diet for 90 days. Dogs fed 50, 250 or 1,250 ppm of the compound for two years had no evidence of toxicity in any exposure group. Rats fed the same doses of the compound for two years had lower weight gain, and there were suggestions of slight thyroid effects, focal hyperplasia, in the high dose group. Mice that were administered 250, 1,250 or 5,000 ppm in the diet for 18 months demonstrated reduced growth rates at 1,250 ppm in females and at 5,000 ppm in males. Higher mortality was noted among female mice in the high dose group. Increased incidences of naturally occurring changes in aging mice, including testicular tubule atrophy and liver effects, were observed at the higher doses. An increase in total liver tumors that was above the normal background incidence was observed in high-dose male mice. This response in male mice is considered only as limited evidence of a carcinogenic response in the species. The weight of the scientific data for bromacil suggests that this is not indicative of a similar response in female mice, other laboratory animals or in man.

(HAZARDS IDENTIFICATION - Continued)

Additional animal testing indicated that this compound was not teratogenic and was not uniquely toxic to the conceptus. No reproductive effects were observed in rats exposed to 250 ppm in the diet for three generations. The compound does not produce heritable genetic damage in animals. Most studies for genetic damage in mammalian and bacterial cells in culture were also negative.

HUMAN HEALTH EFFECTS OF OVEREXPOSURE TO BROMACIL:

Skin contact may initially cause irritation or rash. Eye contact may initially include irritation, tearing, or blurring of vision.

Significant skin permeation, and systemic toxicity, after contact appears unlikely. There are no reports of human sensitization.

CHRONIC STUDIES - DIURON:

The compound is a skin irritant, is an eye irritant, and is not a skin sensitizer in animals. Toxic effects described in animals from short exposures by inhalation, ingestion, or skin contact include: blood effects, spleen effects, thyroid effects, methemoglobinemia, and nonspecific effects such as weight loss and irritation. Tests in some animals indicate that the compound may have embryotoxic activity. Animal testing indicates that this compound does not have mutagenic, or reproductive effects.

HUMAN HEALTH EFFECTS OF OVEREXPOSURE TO DIURON:

Overexposure by inhalation, ingestion, or skin or eye contact may initially include: skin irritation with discomfort or rash; eye irritation with discomfort, tearing, or blurring of vision; liver enlargement; spleen and thyroid effects; red blood cell destruction; or reduction of the blood's oxygen carrying capacity with cyanosis (bluish discoloration), weakness, or shortness of breath by formation of methemoglobin. Significant skin permeation after contact appears unlikely. There are no reports of human sensitization.

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

INHALATION

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT

In case of contact, immediately wash skin with soap and water. Wash contaminated clothing before reuse.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

If swallowed, immediately give 2 glasses of water and induce vomiting. Never give anything by mouth to an unconscious person. Call a physician.

FIRE FIGHTING MEASURES

Flammable Properties

Autoignition : 420 C (788 F)

May be ignited by heat or open flame.
Lower Explosive Limit: 0.135 g/L

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

Extinguishing Media

Water Spray, Foam, Dry Chemical, CO2.

Fire Fighting Instructions

Wear self-contained breathing apparatus. Wear full protective equipment. Use water spray. Runoff from fire control may be a pollution hazard.

If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the contamination hazard.

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.

Spill Clean Up

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

Accidental Release Measures

If spill area is on ground near valuable plants or trees, remove top 2 inches of soil after initial clean up.

HANDLING AND STORAGE

Handling (Personnel)

Avoid breathing vapors or mist. Avoid breathing dust. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling. Wash clothing after use. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.

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

Storage

Store in a well ventilated place. Keep container tightly closed. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use only with adequate ventilation. Keep container tightly closed.

Personal Protective Equipment

Always follow label instructions when using this product.

Applicators and other handlers must wear:

Long-sleeved shirt and long pants
Waterproof gloves
Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining

(EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

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

Coveralls
Waterproof gloves
Shoes plus socks

Exposure Guidelines

Applicable Exposure Limits

BROMACIL

PEL (OSHA) : None Established
TLV (ACGIH) : 10 mg/m³, 8 Hr. TWA, A3
AEL * (DuPont) : 10 mg/m³, 8 & 12 Hr. TWA

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

* 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

Solubility in Water : Dispersible
Odor : None
Form : Solid
Color : Brown

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

None reasonably foreseeable.

Polymerization

Polymerization will not occur.

DISPOSAL CONSIDERATIONS

Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Remove nonusable solid material and/or contaminated soil, for disposal in an approved and permitted landfill. Do not flush to surface water or sanitary sewer system.

TRANSPORTATION INFORMATION

Shipping Information

DOT/IMO
Proper Shipping Name : NOT REGULATED *

* IF 100 LBS DIURON OR MORE PER PKG:

Proper Shipping Name : Other Regulated Substance, Liquid,
N.O.S. (diuron)
Hazard Class : 9
NA No. : NA3082
Packaging Group : III

REGULATORY INFORMATION

U.S. Federal Regulations

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

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

ADDITIONAL REGULATORY INFORMATION

SARA/CERCLA Reportable Quantity
Diuron (100 lbs)

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating
Health : 1
Flammability : 1
Reactivity : 0

(Continued)

NPCA-HMIS Rating

Health	: 1
Flammability	: 1
Reactivity	: 0

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

Additional Information

This product is registered and controlled under EPA/FIFRA regulations.

EPA Reg. No. 352-505

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
Address	: Agricultural Products Wilmington DE 19898
Telephone	: 800-441-7515

End of MSDS