

**DuPont™ Krovar® I DF Herbicide**

Version 2.0

Revision Date 07/14/2015

Ref. 130000023993

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : DuPont™ Krovar® I DF Herbicide
Tradename/Synonym : DPX-M2574
B10048033
Bromacil: [5-Bromo-3-sec-butyl-6-methyluracil]
Diuron: [3-(3,4-Dichlorophenyl)-1,1-dimethylurea]

Product Use : Herbicide

Restrictions on use :
Do not use product for anything outside of the above specified uses

Manufacturer/Supplier : DuPont
4417 Lancaster Pike
Wilmington, DE 19805, USA

Product Information : 1-800-441-7515 (outside the U.S. 1-302-774-1000)
Medical Emergency : 1-800-441-3637 (outside the U.S. 1-302-774-1139)
Transport Emergency : CHEMTREC: +1-800-424-9300 (outside the U.S. +1-703-527-3887)

SECTION 2. HAZARDS IDENTIFICATION**Product hazard category**

Carcinogenicity	Category 2
Specific target organ toxicity - repeated exposure	Category 2

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Label content

Pictogram :



Signal word : Warning

Hazardous warnings : Suspected of causing cancer.
May cause damage to organs through prolonged or repeated exposure. (Blood, Bladder, Respiratory system, Kidney)

Hazardous prevention measures : Do not handle until all safety precautions have been read and understood.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Use personal protective equipment as required.
IF exposed or concerned: Get medical advice/ attention.
Store locked up.
Dispose of contents/ container to an approved waste disposal plant.

Other hazards

If you mill or grind this product you may change its toxicological properties.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Bromacil	314-40-9	40 %
Diuron	330-54-1	40 %


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Sodium alkylnaphthalene sulfonate		1 - 5 %
Other Ingredients		15 - 19 %

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

- General 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 1-800-441-3637. See Label for Additional Precautions and Directions for Use.
- Inhalation : Move 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 treatment advice.
- Skin contact : Take off all contaminated clothing immediately. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
- Eye contact : 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.
- Ingestion : Call a physician or poison control centre immediately. Have person sip a glass of water if able to swallow. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person.
- Most important symptoms/effects, acute and delayed : No applicable data available.
- Protection of first-aiders : No applicable data available.
- Notes to physician : No applicable data available.

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SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray, Foam, Dry chemical, Carbon dioxide (CO₂)
- Unsuitable extinguishing media : High volume water jet, (contamination risk)
- Specific hazards : Dust may form explosive mixture in air.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.
- Further information : Prevent fire extinguishing water from contaminating surface water or the ground water system. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
(on small fires) If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. Cool containers/tanks with water spray.
Control Runoff.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

- Safeguards (Personnel) : No applicable data available.
- Environmental precautions : Prevent material from entering sewers, waterways, or low areas.
- Spill Cleanup : Shovel or sweep up. Scoop into bags or boxes with plastic or aluminium shovel. Never return to container for reuse. If spill area is on ground near valuable plants or trees, remove top 2 inches of soil after initial cleanup.
- Accidental Release Measures : Follow applicable Federal, State/Provincial and Local laws/regulations.

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SECTION 7. HANDLING AND STORAGE

- Handling (Personnel) : Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/PPE immediately if material gets inside. Wash thoroughly and put on clean clothing. Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.
- Handling (Physical Aspects) : No applicable data available.
- Dust explosion class : No applicable data available.
- Storage : Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in original container. Store in a cool, dry place. Keep out of the reach of children.
- Storage period : No applicable data available.
- Storage temperature : No applicable data available.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Engineering controls : Ensure adequate ventilation. 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. Refer to the product label for additional Engineering Controls.
- Personal protective equipment
- Skin and body protection : Pilots, flaggers and groundboom applicators must wear:
Long sleeved shirt and long pants
Shoes plus socks
Groundboom applicators must wear:
Chemical resistant gloves made of any waterproof material
Mixers, loaders, applicators and other handlers must wear:
Long sleeved shirt and long pants
Shoes plus socks
Chemical resistant gloves made of any waterproof material
Polyvinylchloride
A NIOSH approved dust/mist filtering respirator with any N, R, P, or HE filter or with approval number prefix TC-21C.
Chemical resistant apron when mixing, loading, or cleaning equipment or spills.


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

**Exposure Guidelines
Exposure Limit Values**

Bromacil			
TLV	(ACGIH)	10 mg/m ³	TWA
AEL *	(DUPONT)	10 mg/m ³	8 & 12 hr. TWA
Diuron			
TLV	(ACGIH)	10 mg/m ³	TWA
AEL *	(DUPONT)	1 mg/m ³	8 & 12 hr. TWA Total dust.
Sodium alkylnaphthalene sulfonate			
AEL *	(DUPONT)	0.05 mg/m ³	8 & 12 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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES
Appearance

Physical state : solid
Form : solid, granules
Color : brown

Odor : none

Odor threshold : No applicable data available.

pH : No applicable data available.

Melting point/range : No applicable data available.

Boiling point/boiling range : No applicable data available.

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Flash point	: no data available
Evaporation rate	: No applicable data available.
Flammability (solid, gas)	: No applicable data available.
Upper explosion limit	: No applicable data available.
Lower explosion limit	: 0.135 g/l
Vapour Pressure	: No applicable data available.
Vapour density	: No applicable data available.
Specific gravity (Relative density)	: No applicable data available.
Water solubility	: dispersible
Solubility(ies)	: No applicable data available.
Partition coefficient: n-octanol/water	: No applicable data available.
Auto-ignition temperature	: No applicable data available.
Ignition temperature	: 420 °C
Decomposition temperature	: No applicable data available.
Viscosity, kinematic	: No applicable data available.
Viscosity, dynamic	: No applicable data available.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No applicable data available.
Chemical stability	: Stable at normal temperatures and storage conditions.
Possibility of hazardous reactions	: Hazardous polymerisation does not occur.
Conditions to avoid	: No applicable data available.


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Incompatible materials : None reasonably foreseeable.

Hazardous decomposition products : No applicable data available.

SECTION 11. TOXICOLOGICAL INFORMATION

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Inhalation 4 h LC50 : > 5.2 mg/l , Rat

Dermal LD50 : > 2,000 mg/kg , Rabbit

Oral LD50 : 2,300 mg/kg , Rat

Skin irritation : No skin irritation, Rabbit
Minimal effects that do not meet the threshold for classification.

Eye irritation : No eye irritation, Rabbit
Minimal effects that do not meet the threshold for classification.

Sensitisation : Animal test did not cause sensitization by skin contact., Guinea pig

Bromacil

Repeated dose toxicity : The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.

Oral

Rat

-

Liver effects, Organ weight changes, Thyroid effects, Reduced body weight gain

Inhalation

Rat

-

Increased liver weight, altered blood chemistry

Carcinogenicity : Not classifiable as a human carcinogen.
The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.
An increased incidence of tumours was observed in laboratory animals.


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- Mutagenicity : Weight of evidence does not support classification as a germ cell mutagen.
- Reproductive toxicity : No toxicity to reproduction
Animal testing showed no reproductive toxicity.
- Teratogenicity : Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.

Diuron

- Repeated dose toxicity : The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.

Oral
Rat

-

Red blood cell destruction causing abnormal decrease in number of red blood cells (anaemia), Spleen effects, bone marrow changes, Kidney effects, Bladder effects, Reduced body weight gain

Oral
Dog

-

Red blood cell destruction causing abnormal decrease in number of red blood cells (anaemia), Spleen effects, bone marrow changes, Reduced body weight gain

Inhalation
Rat

-

Red blood cell destruction causing abnormal decrease in number of red blood cells (anaemia), Spleen effects

- Carcinogenicity : Suspected human carcinogens
An increased incidence of tumours was observed in laboratory animals.
Target(s):
Bladder
Kidney

- Mutagenicity : Weight of evidence does not support classification as a germ cell mutagen.


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Reproductive toxicity : No toxicity to reproduction

Teratogenicity : Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.

Sodium alkyl naphthalene sulfonate
Repeated dose toxicity

: Inhalation
Rat
-
Target Organs: Respiratory Tract
Respiratory tract damage, Pathologic changes

Oral
Rat
-
Target Organs: Kidney
Kidney effects, Reduced body weight gain

Reproductive toxicity : No toxicity to reproduction
Animal testing showed effects on reproduction at levels equal to or above those causing parental toxicity.

Teratogenicity : Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.

Carcinogenicity

The carcinogenicity classifications for this product and/or its ingredients have been determined according to HazCom 2012, Appendix A.6. The classifications may differ from those listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or those found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition).

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

SECTION 12. ECOLOGICAL INFORMATION
Aquatic Toxicity
Bromacil

96 h LC50 : Lepomis macrochirus (Bluegill sunfish) 127 mg/l

96 h LC50 : Oncorhynchus mykiss (rainbow trout) 36 mg/l

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72 h ErC50 : Pseudokirchneriella subcapitata (green algae) 0.017 mg/l

NOEC : Algae 0.001 mg/l

48 h EC50 : Daphnia magna (Water flea) 119 mg/l

Diuron

96 h LC50 : Oncorhynchus mykiss (rainbow trout) 17.4 mg/l

72 h EC50 : Algae 0.018 mg/l

72 h NOEC : Algae 0.01 mg/l

48 h EC50 : Daphnia magna (Water flea) 1.4 mg/l

Additional ecological information : 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 cleaning equipment or disposing of equipment washwaters or rinsate. See product label for additional application instructions relating to environmental precautions.

SECTION 13. DISPOSAL CONSIDERATIONS

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

Waste disposal methods - Container : Refer to the product label for instructions.
In the event of a major spill, fire or other emergency, call 1-800-441-3637 day or night.

Contaminated packaging : No applicable data available.

SECTION 14. TRANSPORT INFORMATION

IATA_C UN number : 3077


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	Proper shipping name	: Environmentally hazardous substance, solid, n.o.s. (Diuron, Bromacil)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9MI
IMDG	UN number	: 3077
	Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Diuron, Bromacil)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9
	Marine pollutant	: yes (Diuron, Bromacil)

Not regulated by DOT in single packages containing less than 100 pounds Diuron.

Marine Pollutants assigned UN number 3077 and 3082 in single or combination packaging containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 KG or less for solids may be transported as non-dangerous goods as provided in section 2.10.2.7 of IMDG code, IATA special provision A197, and ADR/RID special provision 375.

SECTION 15. REGULATORY INFORMATION

Other regulations : This Safety Data Sheet is for a pesticide product registered by the US Environmental Protection Agency (USEPA) and is therefore also subject to certain labeling requirements under US pesticide law (FIFRA). These requirements differ from the classification criteria and hazard information required by OSHA for safety data sheets, and for workplace labels of non-pesticide chemicals. The following is the mandatory hazard information required by USEPA on the pesticide label:

CAUTION!

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

SARA 313 Regulated Chemical(s) : Bromacil, Diuron

Title III hazard classification : Acute Health Hazard: Yes
Chronic Health Hazard: Yes


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Fire: No
 Reactivity/Physical hazard: No
 Pressure: No

CERCLA Reportable Quantity : 250 lbs
 Based on the percentage composition of this chemical in the product.:
 Diuron

EPA Reg. No. : 352-505
 In the United States this product is regulated by the US Environmental Protection Agency (EPA) under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read and follow all label directions. This product is excluded from listing requirements under EPA/TSCA.

California Prop. 65 : WARNING! This product contains a chemical or chemicals known to the State of California to cause cancer.

SECTION 16. OTHER INFORMATION

	NFPA
Health :	1
Flammability :	1
Reactivity/Physical hazard :	0

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Contact person : DuPont Crop Protection, Wilmington, DE, 19898, Phone: 1-888-638-7668

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any



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other materials or in any process, unless specified in the text.

Significant change from previous version is denoted with a double bar.