Material Safety Data Sheet

DuPont™ Hyvar® X-L Herbicide

Version 2.0

Revision Date 04/12/2012 Ref. 130000023989

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™ Hyvar® X-L Herbicide
Tradename/Synonym	:	HYVAR® XL B10056778 Bromacil: (5-bromo-3-sec-butyl-6-methyluracil) Lithium Salt of Bromacil: 5-Bromo-3-sec-butyl-6-methylpyrimidine-2,4(1H,3H)-dione, lithium salt
MSDS Number	:	130000023989
Product Use	:	Herbicide
Manufacturer	:	DuPont 1007 Market Street Wilmington, DE 19898
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

Emergency Overview

Caution

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

Potential Health Effects

This section includes potential acute adverse effects which could occur if this material is not used according to the label.

Skin	:	May cause: Irritation with discomfort or rash.
Eyes	:	May cause: Irritation with discomfort, pain, redness, or visual impairment.

Inhalation

Ethylene Glycol	:	May cause irritation of respiratory tract.
Methanol	:	Toxic by inhalation. Causes damage to the kidneys/ liver/ eyes/ brain/ respiratory system/ central nervous system if inhaled. Impairment of vision, Blindness.

Ingestion

Ethylene Glycol	:	Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing.
Ethanol	:	Aspiration hazard if swallowed - can enter lungs and cause damage. Effects due to ingestion may include:, Incoordination, narcosis.
Methanol	:	Toxic if swallowed. Causes damage to the kidneys/ liver/ eyes/ brain/ digestive system/ central nervous system if swallowed. Impairment of vision, Blindness.

Repeated exposure

Ethylene Glycol	:	Kidney damage Liver effects altered blood chemistry
Ethanol	:	May cause harm to the unborn child.

Target Organs

Ethylene Glycol	:	Kidney Liver
Methanol	:	Central nervous system Eyes

Carcinogenicity

Material	IARC	NTP	OSHA
Ethanol	1	X	

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Bromacil lithium salt	53404-19-6	21.9 %

Other Ingredients		78.1 %

Acid Equivalent

Bromacil	314-40-9	21.4 %

Includes percentages of the following:

Ethylene Glycol	107-21-1	30 - 35 %
Ethanol	64-17-5	<10 %
Methanol	67-56-1	<5 %

SECTION 4. FIRST AID MEASURES

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.

Inhalation : No specific intervention is indicated as the compound is not likely to be hazardous. Consult a physician if necessary.

Ingestion	:	Call a poison control center or doctor for treatment advice. 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. Do not give anything by mouth to an unconscious person.
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.

SECTION 5. FIREFIGHTING MEASURES

Flammable Properties		
Flash point	:	44 °C (111 °F) Method : Setaflash closed cup - SCC
Autoignition temperature	:	410 °C (770 °F)
Suitable extinguishing media	:	Water spray, Dry chemical, Foam, Carbon dioxide (CO2)
Firefighting Instructions	:	Wear full protective clothing and self-contained breathing apparatus. Do not allow run-off from fire fighting to enter drains or water courses. Runoff from fire control may be a pollution hazard. Control Runoff. (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.

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)	:	Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus. Use personal protective equipment.
Spill Cleanup	:	Dike spill. If spill area is on ground near valuable plants or trees, remove top 2 inches of soil after initial cleanup. Sweep up and shovel into suitable containers for disposal.

Accidental Release Measures : Prevent material from entering sewers, waterways, or low areas.
Never return spills in original containers for re-use. Dispose of in accordance with local regulations.

SECTION 7. HANDLING AND STORAGE

Handling (Personnel) : Do not use or store near heat or open flame.
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. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Handling (Physical Aspects) : Combustible
Keep away from heat and sources of ignition.

Storage : Store in original container. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls : Use only with adequate ventilation. Keep container tightly closed. 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.

Personal protective equipment

Skin and body protection : Applicators and other handlers must wear:
Long sleeved shirt and long pants
Shoes plus socks
Chemical-resistant gloves

Protective measures : Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them. 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

Ethylene Glycol

TLV	(ACGIH)	100 mg/m3	TLV-C	Aerosol.
AEL *	(DUPONT)	50 ppm	8 & 12 hr. TWA	Vapor.
AEL *	(DUPONT)	10 mg/m3	8 & 12 hr. TWA	Particulate.

Bromacil

PEL:	(OSHA)	1 ppm	10 mg/m3	8 hr. TWA
TLV	(ACGIH)	10 mg/m3	TWA	
AEL *	(DUPONT)	10 mg/m3	8 & 12 hr. TWA	

Ethanol

PEL:	(OSHA)	1,000 ppm	1,900 mg/m3	8 hr. TWA
TLV	(ACGIH)	1,000 ppm	STEL	
AEL *	(DUPONT)	1,000 ppm	8 & 12 hr. TWA	

Methanol

PEL:	(OSHA)	200 ppm	260 mg/m3	8 hr. TWA
TLV	(ACGIH)	250 ppm Skin designation	STEL	
TLV	(ACGIH)	200 ppm	TWA	
AEL *	(DUPONT)	200 ppm	8 & 12 hr. TWA, Skin	

Skin designation

Biological Exposure Indices

Methanol		
BEI	(ACGIH)	15 mg/l methanol/Urine Sampling time: End of shift.

* 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

Form	:	liquid
Color	:	amber
Odor	:	alcohol-like
pH	:	11.2 - 12.2
Density	:	1.12 g/ml
Water solubility	:	soluble

SECTION 10. STABILITY AND REACTIVITY

Stability	:	Stable at normal temperatures and storage conditions.
Conditions to avoid	:	Heat, flames and sparks.
Incompatibility	:	Incompatible with acids. Amines
Hazardous decomposition products	:	Carbon oxides, Decomposes with heat.
Hazardous reactions	:	Heating can release vapours which can be ignited. Polymerization will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

DuPont™ Hyvar® X-L Herbicide

Inhalation 4 h LC50	:	> 2.0 mg/l , rat
Dermal LD50	:	> 5,000 mg/kg , rat
Oral LD50	:	3,927 mg/kg , male, rat
Oral LD50	:	1,414 mg/kg , female, rat
Skin irritation	:	Moderate skin irritation, rabbit
Eye irritation	:	Moderate eye irritation, rabbit
Sensitisation	:	Did not cause sensitization on laboratory animals., 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	:	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.
Mutagenicity	:	Did not cause genetic damage in cultured bacterial cells. Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others.

Did not cause genetic damage in animals.

Reproductive toxicity : 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.

Ethylene Glycol

Repeated dose toxicity : Oral
rat

Kidney damage

Inhalation
dog

Spleen effects

Carcinogenicity : Animal testing did not show any carcinogenic effects.

Mutagenicity : Animal testing did not show any mutagenic effects.

Reproductive toxicity : 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.

Ethanol

Repeated dose toxicity : Oral
rat

No toxicologically significant effects were found.

Carcinogenicity : No increased risk of cancer in humans has been shown in workplace-based studies.

Mutagenicity : Overall weight of evidence indicates that the substance is not mutagenic.

Reproductive toxicity : 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.

Methanol

Carcinogenicity	:	Overall weight of evidence indicates that the substance is not carcinogenic.
Mutagenicity	:	Overall weight of evidence indicates that the substance is not mutagenic. Did not cause genetic damage in animals. Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others. Genetic damage in cultured bacterial cells was observed in some laboratory tests but not in others.
Reproductive toxicity	:	Evidence suggests the substance is not a reproductive toxin in animals.
Teratogenicity	:	Evidence suggests the substance is not a developmental toxin in animals.

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
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

Ethylene Glycol

96 h LC50	:	Pimephales promelas (fathead minnow) > 100 mg/l
96 h EC50	:	Algae > 100 mg/l

48 h EC50	:	Daphnia > 100 mg/l
Ethanol		
96 h LC50	:	Pimephales promelas (fathead minnow) 13,480 mg/l
96 h EC50	:	Pseudokirchneriella subcapitata (green algae) 10,000 mg/l
48 h EC50	:	Daphnia magna (Water flea) 12,340 mg/l
Methanol		
96 h LC50	:	Pimephales promelas (fathead minnow) 28,100 mg/l
96 h LC50	:	Selenastrum capricornutum (green algae) 22,000 mg/l
48 h EC50	:	Daphnia > 10,000 mg/l

Environmental Fate

Ethanol		
Biodegradability	:	84 % Readily biodegradable.
Bioaccumulation	:	Bioconcentration factor (BCF) : 0.05 Does not bioaccumulate.
Methanol		
Biodegradability	:	Readily biodegradable.
Bioaccumulation	:	Bioaccumulation is unlikely.
Additional ecological information	:	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.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal	:	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.

Container Disposal	:	Container Refilling and Disposal: Refer to the product label for instructions. Do not transport if this container is damaged or leaking. In the event of a major spill, fire or other emergency, call 1-800-441-3637 day or night.

SECTION 14. TRANSPORT INFORMATION

DOT	UN number	:	1993
	Proper shipping name	:	Flammable liquids, n.o.s. (Ethanol, Methanol)
	Class	:	3
	Packing group	:	III
	Labelling No.	:	3
IATA_C	UN number	:	1993
	Proper shipping name	:	Flammable liquid, n.o.s. (Ethanol, Methanol)
	Class	:	3
	Packing group	:	III
	Labelling No.	:	3

Consult applicable regulation handbook for additional requirements.

IMDG	UN number	:	1993
	Proper shipping name	:	FLAMMABLE LIQUID, N.O.S. (Ethanol, Methanol)
	Class	:	3
	Packing group	:	III
	Labelling No.	:	3
	Marine pollutant	:	yes (Bromacil)

Note: Shipper may use the DOT provision found in 49 CFR, 173.120(b)(2) and transport as "Not Transport Regulated" by DOT for U.S. domestic transportation in non-bulk packages.

SECTION 15. REGULATORY INFORMATION

SARA 313 Regulated Chemical(s)	:	Bromacil , Methanol , Ethylene Glycol
Title III hazard classification	:	Acute Health Hazard: Yes Chronic Health Hazard: Yes Fire: Yes Reactivity/Physical hazard: No Pressure: No
EPA Reg. No.	:	352-346 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	:	Developmental toxin.Male reproductive toxin.Bromacil lithium salt
PA Right to Know Regulated Chemical(s)	:	Substances on the Pennsylvania Hazardous Substances List present at a concentration of 1% or more (0.01% for Special Hazardous Substances): Bromacil , Ethanol , Methanol , Ethylene Glycol

SECTION 16. OTHER INFORMATION

		NFPA	HMIS
Health	:	1	1
Flammability	:	2	2
Reactivity/Physical hazard	:	0	0

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

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