

**DuPont™ Hyvar® X-L Herbicide**

Version 2.0

Revision Date 07/14/2015

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
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

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**

Flammable liquids	Category 3
Acute toxicity (Oral)	Category 4
Acute toxicity (Inhalation)	Category 4
Serious eye damage/eye irritation	Category 2B
Specific target organ toxicity - single exposure	Category 1
Specific target organ toxicity - single exposure	Category 3
Specific target organ toxicity - repeated exposure	Category 2

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Label content

Pictogram

:



Signal word

: Danger

Hazardous warnings

: Flammable liquid and vapour.
Harmful if swallowed or if inhaled
Causes eye irritation.
May cause respiratory irritation.
May cause drowsiness or dizziness.
Causes damage to organs. (Central nervous system, Eyes)
May cause damage to organs through prolonged or repeated exposure.
(Kidney)



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Hazardous prevention measures

- : Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- Keep container tightly closed.
- Ground/bond container and receiving equipment.
- Use explosion-proof electrical/ ventilating/ lighting/ equipment.
- Use only non-sparking tools.
- Take precautionary measures against static discharge.
- Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
- Wash skin thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Use only outdoors or in a well-ventilated area.
- Wear protective gloves/ eye protection/ face protection.
- IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
- IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- IF exposed: Call a POISON CENTER or doctor/ physician.
- Rinse mouth.
- If eye irritation persists: Get medical advice/ attention.
- In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
- Store in a well-ventilated place. Keep container tightly closed.
- Store in a well-ventilated place. Keep cool.
- Store locked up.
- Dispose of contents/ container to an approved waste disposal plant.

Other hazards

No applicable data available.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration


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Bromacil lithium salt	53404-19-6	21.9 %
Ethane-1,2-diol	107-21-1	30 - 35 %
Methanol	67-56-1	1 - 5 %
Hydroxide Salt		1 - 5 %
Ethanol	64-17-5	5 - 10 %
Other Ingredients		23.1 - 41.1 %

Acid Equivalent

Bromacil	314-40-9	21.4 %
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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.

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- 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 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.
- 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.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray, Dry chemical, Foam, Carbon dioxide (CO₂)
- Unsuitable extinguishing media : No applicable data available.
- Specific hazards : No applicable data available.
- Special protective equipment for firefighters : Wear full protective clothing and self-contained breathing apparatus.
- Further information : 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.

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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.
- Environmental precautions : Prevent material from entering sewers, waterways, or low areas.
- 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 : 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.
- Dust explosion class : No applicable data available.
- 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.
- Storage period : No applicable data available.
- Storage temperature : No applicable data available.



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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

Bromacil				
TLV	(ACGIH)	10 mg/m3		TWA
AEL *	(DUPONT)	10 mg/m3		8 & 12 hr. TWA

Ethane-1,2-diol				
TLV	(ACGIH)	100 mg/m3		TLV-C Aerosol.
AEL *	(DUPONT)	10 mg/m3		8 & 12 hr. TWA Particulate.
AEL *	(DUPONT)	50 ppm		8 & 12 hr. TWA Vapor.

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


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Hydroxide Salt
AEL * (DUPONT) 1 mg/m3 8 & 12 hr. TWA Lithium

Ethanol
Permissible exposure limit: (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

Bromacil lithium salt
No applicable data available.

Other Ingredients
No applicable data available.

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

Appearance

Physical state : liquid
Form : liquid
Color : amber

Odor : alcohol-like

Odor threshold : No applicable data available.

pH : 11.2 - 12.2

Melting point/range : No applicable data available.

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Boiling point/boiling range	: No applicable data available.
Flash point	: 44 °C Method: Setafash closed cup - SCC
Evaporation rate	: No applicable data available.
Flammability (solid, gas)	: No applicable data available.
Upper explosion limit	: No applicable data available.
Lower explosion limit	: No applicable data available.
Vapour Pressure	: No applicable data available.
Vapour density	: No applicable data available.
Specific gravity (Relative density)	: No applicable data available.
Water solubility	: soluble
Solubility(ies)	: No applicable data available.
Partition coefficient: n-octanol/water	: No applicable data available.
Auto-ignition temperature	: 410 °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	: Heating can release vapours which can be ignited. Polymerization will not occur.
Conditions to avoid	: Heat, flames and sparks.



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Incompatible materials : Incompatible with acids. Amines

Hazardous decomposition products : Carbon oxides, Decomposes with heat.

SECTION 11. TOXICOLOGICAL INFORMATION

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

Eye irritation : Mild eye irritation, Rabbit

Sensitisation : Did not cause sensitisation on laboratory animals., Guinea pig

Ethane-1,2-diol

Repeated dose toxicity : Oral
Rat
-
Target Organs: Kidney
Kidney damage

Carcinogenicity : Not classifiable as a human carcinogen.
Animal testing did not show any carcinogenic effects.

Mutagenicity : Animal testing did not show any mutagenic effects.
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Reproductive toxicity : No toxicity to reproduction
No effects on or via lactation
Animal testing showed no reproductive toxicity.

Teratogenicity : Evidence suggests the substance is not a developmental toxin in animals.

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Methanol

- Carcinogenicity** : Not classifiable as a human carcinogen.
Overall weight of evidence indicates that the substance is not carcinogenic.
- Mutagenicity** : Animal testing did not show any mutagenic effects.
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
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** : No toxicity to reproduction
Evidence suggests the substance is not a reproductive toxin in animals.
- Teratogenicity** : Evidence suggests the substance is not a developmental toxin in animals.

Ethanol

- Repeated dose toxicity** : Oral
Rat
-
No toxicologically significant effects were found.
- Inhalation
Rat
-
No toxicologically significant effects were found.
- Carcinogenicity** : Not classifiable as a human carcinogen.
Overall weight of evidence indicates that the substance is not carcinogenic.
- Mutagenicity** : Animal testing did not show any mutagenic effects.
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
- Reproductive toxicity** : No toxicity to reproduction



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		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.
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.
	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.

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).


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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
Ethane-1,2-diol

96 h LC50	:	Pimephales promelas (fathead minnow) 72,860 mg/l
96 h ErC50	:	Pseudokirchneriella subcapitata (green algae) 6,500 mg/l
48 h EC50	:	Daphnia magna (Water flea) > 100 mg/l OECD Test Guideline 202

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 (water flea) > 10,000 mg/l

Ethanol

96 h LC50	:	Pimephales promelas (fathead minnow) 14,200 mg/l
96 h ErC50	:	Pseudokirchneriella subcapitata (green algae) 675 mg/l OECD Test Guideline 201
48 h EC50	:	Daphnia magna (Water flea) 5,012 mg/l
30 d	:	NOEC Fish (unspecified species) 245 mg/l

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

Environmental Fate


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Ethane-1,2-diol

Biodegradability : Readily biodegradable 90 - 100 % OECD Test Guideline 301

Bioaccumulation : Bioaccumulation is unlikely.

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 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 : 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.

Contaminated packaging : No applicable data available.

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


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	Proper shipping name	: Flammable liquid, n.o.s. (Ethanol, Methanol)
IMDG	Class	: 3
	Packing group	: III
	Labelling No.	: 3
	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

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, Methanol , Ethylene Glycol

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

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


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Fire: Yes
 Reactivity/Physical hazard: Yes
 Pressure: Yes

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

SECTION 16. OTHER INFORMATION

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

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Revision Date : 07/14/2015

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

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



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