SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier
Trade name HYVAR® X-L HERBICIDE
Product code (UVP) 84078778
SDS Number 102000030321
EPA Registration No. 432-1548

Relevant identified uses of the substance or mixture and uses advised against
Use Herbicide
Restrictions on use See product label for restrictions.

Information on supplier
Supplier Bayer Environmental Science
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
United States
Responsible Department Email: SDSINFO.BCS-NA@bayer.com

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
Skin irritation, Specific target organ toxicity - single exposure, Specific target organ toxicity - repeated exposure: Category 2

Eye irritation: Category 2B

Acute toxicity(Oral, Inhalation): Category 4

Flammable liquids: Category 3

Labelling in accordance with regulation HCS 29CFR §1910.1200
Signal word: Warning

Hazard statements
May cause damage to organs through prolonged or repeated exposure.
Causes skin and eye irritation.
Flammable liquid and vapour.
Harmful if inhaled.

Precautionary statements
Do not breathe spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/ eye protection/ face protection.
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.
Use only outdoors or in a well-ventilated area.
IF exposed or concerned:
Call a POISON CENTER/doctor/physician if you feel unwell.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/
shower.
Specific measures (see supplemental first aid instructions on this label).
If skin irritation occurs: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present
and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/ attention.
IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.
Rinse mouth.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Store locked up.
Store in a well-ventilated place. Keep cool.
Dispose of contents/container in accordance with local regulation.

Hazards Not Otherwise Classified (HNOC)
No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS
SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice
When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

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 physician or poison control center immediately.

Skin contact
Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.

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 physician or poison control center immediately.

Ingestion
Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. 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. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms
To date no symptoms are known.

Indication of any immediate medical attention and special treatment needed

Treatment
Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable
High volume water jet
SAFETY DATA SHEET

HYVÄR® X-L HERBICIDE

Special hazards arising from the substance or mixture
Dangerous gases are evolved in the event of a fire.

Advice for firefighters
Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Special protective equipment for firefighters

Further information
Evacuate personnel to safe areas. Keep out of smoke. Fight fire from upwind position. Remove product from areas of fire, or otherwise cool containers with water in order to avoid pressure being built up due to heat. Do not allow run-off from fire fighting to enter drains or water courses.

Flash point
44 °C

Auto-ignition temperature
410 °C / 770 °F

Lower explosion limit
No data available

Upper explosion limit
No data available

Explosivity
Not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Precautions
Remove all sources of ignition. Evacuate and isolate spill area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up
Methods for cleaning up
Dike area to prevent runoff. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Decontaminate tools and equipment following cleanup. Contaminated soil may have to be removed and disposed.

Additional advice
Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal. Do not allow product to contact non-target plants.

Reference to other sections
Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling
Advice on safe handling
Use only in area provided with appropriate exhaust ventilation. Handle and open container in a manner as to prevent spillage.
Advice on protection against fire and explosion

Keep away from heat and sources of ignition. Vapours may form explosive mixture with air. Take measures to prevent the build up of electrostatic charge.

Hygiene measures

Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove contaminated clothing immediately and dispose of safely. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Store in original container and out of the reach of children, preferably in a locked storage area. Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromacil</td>
<td>314-40-9</td>
<td>10 mg/m3 (TWA)</td>
<td>02 2012</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Bromacil</td>
<td>314-40-9</td>
<td>10 mg/m3/1 ppm (REL)</td>
<td>2010</td>
<td>NIOSH</td>
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<td>Bromacil</td>
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<td>US CA OEL</td>
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<td>------------</td>
<td>---------------</td>
<td>---------</td>
<td>--------------</td>
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<td>Ethanol</td>
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<td>260 mg/m3/200 ppm</td>
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<td>OSHA Z1</td>
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</table>
## Exposure controls

### Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Concentration</th>
<th>Date</th>
<th>Standard</th>
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<td>260 mg/m3/200 ppm (TWA)</td>
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<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>325 mg/m3/250 ppm (STEL)</td>
<td>06 2008</td>
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<td>Methanol</td>
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<td>260 mg/m3/200 ppm (TWA)</td>
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<td>08 2010</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>1,000 ppm (CEILING)</td>
<td>08 2010</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>260 mg/m3/200 ppm (TWA PEL)</td>
<td>08 2010</td>
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<td>Lithium hydroxide</td>
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<td>1 mg/m3 (CEILING)</td>
<td>2014</td>
</tr>
</tbody>
</table>

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

**Respiratory protection**

When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

**Hand protection**

Chemical resistant nitrile rubber gloves

**Eye protection**

Safety glasses with side-shields
or
Goggles

Skin and body protection
Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures
Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance                  light brown to yellow
Physical State             liquid
Odor                       alcohol-like
Odour Threshold            No data available
pH                         11.2 - 12.5 at 100 %
Vapor Pressure             No data available
Vapor Density (Air = 1)    No data available
Density                    1.12 g/cm³
Evaporation rate           No data available
Boiling Point              No data available
Melting / Freezing Point   No data available
Water solubility           soluble
Minimum Ignition Energy    Not applicable
Decomposition temperature  No data available
Partition coefficient: n-octanol/water Not applicable
Viscosity                  No data available
Flash point                44 °C
Auto-ignition temperature  410 °C / 770 °F
Lower explosion limit      No data available
Upper explosion limit      No data available
Explosivity                Not applicable
SECTION 10: STABILITY AND REACTIVITY

Reactivity
Thermal decomposition: No data available
Chemical stability: Stable under normal conditions.
Possibility of hazardous reactions: Vapours may form explosive mixture with air.
Conditions to avoid: Heat, flames and sparks.
Incompatible materials: Acids, Amines
Hazardous decomposition products: Thermal decomposition can lead to release of:
  - Carbon oxides
  - Methanol
  - Ethanol

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes: Ingestion, Skin Absorption, Eye contact, Inhalation
Immediate Effects
Eye: Causes eye irritation.
Skin: May be harmful if absorbed through skin.
Ingestion: Harmful if swallowed.

Information on toxicological effects
Acute oral toxicity: LD50 (male/female combined Rat) 1,414 mg/kg
Acute inhalation toxicity: LC50 (Rat) > 1.25 mg/l
  Exposure time: 4 h
  Determined in the form of liquid aerosol.
Acute dermal toxicity: LD50 (Rat) > 5,000 mg/kg
Skin irritation: Moderate skin irritation. (Rabbit)
Eye irritation: Moderate eye irritation. (Rabbit)
Sensitisation: Non-sensitizing. (Guinea pig)

Assessment repeated dose toxicity
Methanol did not cause specific target organ toxicity in experimental animal studies.
Ethanol did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity
Methanol was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
Ethanol was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.
Assessment carcinogenicity
Methanol was not carcinogenic in lifetime feeding studies in rats and mice.
Ethanol: This information is not available.

ACGIH
Bromacil 314-40-9 Group A3
Ethanediol 107-21-1 Group A4
Ethanol 64-17-5 Group A3

NTP
None.

OSHA
None.

Assessment toxicity to reproduction
Methanol did not cause reproductive toxicity in a two-generation study in rats.
Ethanol caused reproduction toxicity in generation studies in rats only at dose levels also toxic to the parent animals.

Assessment developmental toxicity
Methanol caused developmental toxicity only at dose levels toxic to the dams.
Ethanol caused developmental toxicity only at dose levels toxic to the dams.

Further information
Only acute toxicity studies have been performed on the formulated product.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish
LC50 (Lepomis macrochirus (Bluegill sunfish)) 127 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient bromacil.
LC50 (Oncorhynchus mykiss (rainbow trout)) 36 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient bromacil.

Toxicity to aquatic invertebrates
EC50 (Daphnia magna (Water flea)) 119 mg/l
Exposure time: 48 h
The value mentioned relates to the active ingredient bromacil.

Toxicity to aquatic plants
ErC50 (Raphidocelis subcapitata (freshwater green alga)) 0.017 mg/l
Exposure time: 72 h
The value mentioned relates to the active ingredient bromacil.

Biodegradability
Methanol: rapidly biodegradable
Ethanol:
SAFETY DATA SHEET

HYVAR® X-L HERBICIDE

Version 3.0 / USA
102000030321

r<br>apidly biodegradable

Koc
Methanol: Koc: 1
Ethanol: No data available

Bioaccumulation
Methanol: Bioconcentration factor (BCF) < 10
Does not bioaccumulate.
Ethanol:
Does not bioaccumulate.

Mobility in soil
Methanol: Highly mobile in soils
Ethanol: soluble in water

Environmental precautions
Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark.
Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.
Do not apply when weather conditions favor runoff or drift.
Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods
Product
Do not contaminate water, food, or feed by disposal.
Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility.
Dispose of contents/container in accordance with local regulation.

Contaminated packaging
Empty residue into application equipment.
Puncture container to avoid re-use.
Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning.
If burned, stay out of smoke.
Follow advice on product label and/or leaflet.

RCRA Information
Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

SECTION 14: TRANSPORT INFORMATION

49CFR
NA-Number 1993
Packaging group III
Proper shipping name COMBUSTIBLE LIQUID, N.O.S.
(ETHANOL, METHANOL)
RQ Reportable Quantity is reached with 15,576 lb of product.

IMDG
UN number: 1993  
Class: 3  
Packaging group: III  
Marine pollutant: YES  
Proper shipping name: FLAMMABLE LIQUID, N.O.S. (ETHANOL, METHANOL, BROMACIL SOLUTION)

IATA  
UN number: 1993  
Class: 3  
Packaging group: III  
Environm. Hazardous Mark: NO  
Proper shipping name: FLAMMABLE LIQUID, N.O.S. (ETHANOL, METHANOL, BROMACIL SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

SECTION 15: REGULATORY INFORMATION

EPA Registration No.: 432-1548  
US Federal Regulations

TSCA list
- Ethanediol: 107-21-1
- Ethanol: 64-17-5
- Methanol: 67-56-1

US Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
None.

SARA Title III - Section 302 - Notification and Information
None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting
- Bromacil: 314-40-9 1.0%
- Ethanediol: 107-21-1
- Methanol: 67-56-1 1.0%

US States Regulatory Reporting
CA Prop65
This product does not contain any substances known to the State of California to cause cancer.

This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
- Ethanediol: 107-21-1  Developmental toxin.
- Methanol: 67-56-1  Developmental toxin.

US State Right-To-Know Ingredients
- Bromacil: 314-40-9 CA, MN, NJ, RI
- Ethanediol: 107-21-1 CA, IL, MN, NJ, RI
- Ethanol: 64-17-5 CA, CT, MN
- Methanol: 67-56-1 CA, CT, IL, MN, NJ, RI
Lithium hydroxide 1310-66-3 MN

**Canadian Regulations**
**Canadian Domestic Substance List**
None.

**Environmental**
**CERCLA**
Ethanediol 107-21-1 5,000 lbs
Methanol 67-56-1

**Clean Water Section 307 Priority Pollutants**
None.

**Safe Drinking Water Act Maximum Contaminant Levels**
Ethanediol 107-21-1
Methanol 67-56-1

**EPA/FIFRA Information:**
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information required on the pesticide label:

**Signal word:**  Caution!

**Hazard statements:**
Harmful if swallowed or absorbed through skin.
Moderate eye irritation.
Avoid contact with skin, eyes and clothing.

**SECTION 16: OTHER INFORMATION**

**Abbreviations and acronyms**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
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<td>49CFR</td>
<td>Code of Federal Regulations, Title 49</td>
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<td>ACGIH</td>
<td>US. ACGIH Threshold Limit Values</td>
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<td>Chemical Abstracts Service number</td>
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<tr>
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<td>European inventory of existing commercial substances</td>
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<td>ELINGCS</td>
<td>European list of notified chemical substances</td>
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<tr>
<td>IARC</td>
<td>US. IARC Monographs on Occupational Exposures to Chemical Agents</td>
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<td>International Air Transport Association</td>
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<td>International Maritime Dangerous Goods</td>
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<td>NTP</td>
<td>US. National Toxicology Program (NTP) Report on Carcinogens</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
</tr>
<tr>
<td>TDG</td>
<td>Transportation of Dangerous Goods</td>
</tr>
<tr>
<td>TWA</td>
<td>Time weighted average</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>WHO</td>
<td>World health organisation</td>
</tr>
</tbody>
</table>
NFPA 704 (National Fire Protection Association):
Health - 1    Flammability - 2    Instability - 0    Others - none

Health - 1    Flammability - 2    Physical Hazard - 0    PPE -
0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Reviewed and updated for general editorial purposes. The following sections have been revised: Section 2: Hazards Identification. Section 3: Composition / Information on Ingredients. Section 8: Exposure Controls / Personal Protection.

Revision Date: 05/09/2016

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