

GLYCOL ETHER EB

Gen. Variant: SDS_TW

Version 1.1

Revision Date 2015-09-14

Print Date 2015-10-28

SDS No.: 3396

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Trade name : GLYCOL ETHER EB
 CAS Number: : 111-76-2
 Chemical Name : 2-butoxyethanol
 Synonyms : Ethylene glycol monobutyl ether; Glycol butyl ether;
 Butyl glycol (BG); Ethylene glycol butyl ether (EGBE)

Identified uses : Solvent; Stabilizers; Intermediate

The manufacturer, importer or supplier's name, address and telephone number

Company Address

Equistar Chemicals, LP
 LyondellBasell Tower, Suite 300
 1221 McKinney St.
 P.O. Box 2583
 Houston Texas 77252-2583

Company Telephone

Customer Service
 888 777-0232
 Product Safety
 800 700-0946
 product.safety@lyb.com

Emergency telephone

EQUISTAR 800-245-4532

2. HAZARDS IDENTIFICATION**GHS-Classification**

Flammable liquids	Category 4
Acute toxicity; Oral	Category 4
Acute toxicity; Inhalation	Category 3
Acute toxicity; Dermal	Category 4
Serious eye damage/eye irritation	Category 2A
Skin corrosion/irritation	Category 2

GHS-Labeling

Symbol(s) :



Signal Word : Danger

Hazard Statements	:	H227	Combustible liquid.
	:	H302	Harmful if swallowed.
	:	H331	Toxic if inhaled.
	:	H312	Harmful in contact with skin.
	:	H315	Causes skin irritation.

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	H319	Causes serious eye irritation.
Precautionary Statements	Prevention:	
	P261	Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
	P264	Wash hands thoroughly after handling.
	P270	Do not eat, drink or smoke when using this product.
	P271	Use only outdoors or in a well-ventilated area.
	P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
	Response:	
	P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
	P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P337 + P313	If eye irritation persists: Get medical advice/ attention.
	P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
	P332 + P313	If skin irritation occurs: Get medical advice/ attention.
	P362	Take off contaminated clothing and wash before reuse.
	Storage:	
	P403 + P235	Store in a well-ventilated place. Keep cool.
	P405	Store locked up.
	Disposal:	
	P501	Dispose of contents/ container to an approved waste disposal plant.

Other hazards

No additional information available.

3. Composition/information on ingredients**Substances**

Chemical nature : Substance

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Ingredients

Chemical Name	CAS-No. EC-No.	Weight %	Component Type
2-Butoxyethanol	111-76-2	<99.5 %	A

Key:

(A) Substance

4. FIRST AID MEASURES

- General advice : Inhalation of high vapor concentrations can cause CNS-depression and narcosis.
Consult a physician/doctor if necessary.
Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid.
Show this material safety data sheet to the doctor in attendance.
- If inhaled : Call a physician or poison control center immediately.
Move to fresh air.
If unconscious place in recovery position and seek medical advice.
- In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.
Keep respiratory tract clear.
Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
Call a POISON CENTER or doctor/ physician.

Notes to physician

- Symptoms : irritant effects
Inhalation may cause CNS depression.

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Hazards	: Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. May cause drowsiness or dizziness.
Treatment	: Treat symptomatically. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media	: High volume water jet
Specific hazards during fire fighting	: Evacuate area. Eliminate all ignition sources if safe to do so. Flash back possible over considerable distance. Fight fire with normal precautions from a reasonable distance. Cool closed containers exposed to fire with water spray.
Special protective equipment for fire-fighters	: Wear self contained breathing apparatus for fire fighting if necessary.
Further information	: 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. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	: Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Use personal protective equipment. Ensure adequate ventilation. Eliminate all sources of ignition.
Environmental precautions	: Do not allow contact with soil, surface or ground water. Do not discharge product into the aquatic environment without pretreatment (biological treatment plant). Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up	: Eliminate all sources of ignition.

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Non-sparking tools should be used.
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE**Handling**

Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapors/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Provide sufficient air exchange and/or exhaust in work rooms.
Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material.
Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers : Prevent unauthorized access.
Keep away from open flames, hot surfaces and sources of ignition.
Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

Other data : No decomposition if stored and applied as directed.

8. Exposure controls/personal protection**Control parameters****Ingredients with workplace control parameters****Occupational Exposure Limits**

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Ingredients	CAS-No.	Type	Limit Value	Basis Revision Date	Additional Information
2-Butoxyethanol	111-76-2	TWA	20 ppm	US (ACGIH) 2012	
2-Butoxyethanol	111-76-2	TWA	25 ppm 121 mg/m ³	OEL (TW) January 26, 2010	
2-Butoxyethanol	111-76-2	STEL	37.5 ppm 151.25 mg/m ³	OEL (TW) January 26, 2010	

Consult local authorities for acceptable exposure limits.

Exposure controls**Engineering measures**

Ensure that eyewash stations and safety showers are close to the workstation location.
Handle only in a place equipped with local exhaust (or other appropriate exhaust).

Personal protective equipment

- Respiratory protection : In the case of vapor formation use a respirator with an approved filter.
- Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves.
- Eye and face protection : Wear eye protection appropriate to conditions of material use. Conditions may warrant the use of tightly fitting chemical goggles and possibly a face shield.
- Skin and body protection : Appropriate protective clothing should be worn to prevent skin contact.
- : Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Wear as appropriate:
Solvent-resistant apron and boots
Impervious clothing
- Hygiene measures : Avoid contact with skin, eyes and clothing.
When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and immediately after handling the product.

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9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

Physical state : liquid
Color : colorless
Odor : Mild odor.
: Ether-like odor.

Safety data

Flash point : 68 - 70 °C
at 1,013 hPa (760 mm Hg)
Method: Tag closed cup
Lower explosion limit : 1.1 vol%
Upper explosion limit : 10.6 vol%
Flammability (solid, gas) : Not applicable
Oxidizing properties : Not considered an oxidizing agent.
Autoignition temperature : 230 - 245 °C
Molecular weight : 118.17 g/mol
pH : no data available
Melting point/freezing point : -74.8 °C
Boiling point/boiling range : 171 - 173.5 °C
Vapor pressure : 0.8 - 1.0 hPa
at 20 °C
Density : 0.90 g/cm³
at 20 °C
Water solubility : Miscible
Partition coefficient: n-
octanol/water : log Pow: 0.81
at 25 °C
Viscosity, dynamic : 6.4 mPa.s
at 20 °C
Viscosity, kinematic : 20 mm²/s
at 20 °C

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	2.3 mm ² /s at 40 °C
Relative vapor density	: 4.1 (Air = 1.0)
Evaporation rate	: 0.1

10. STABILITY AND REACTIVITY

Conditions to avoid	: Heat, flames and sparks.
Materials to avoid	: Oxidizing agents Acids Bases Amines Ammonia Acid chlorides
Hazardous decomposition products	: Not expected to decompose under normal conditions.
Thermal decomposition	: Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).
Hazardous reactions	: No dangerous reaction known under conditions of normal use. Reacts with air to form peroxides.

11. TOXICOLOGICAL INFORMATION

Product Summary	: The below given information is based on the assessment of the product including impurities.
Acute toxicity	
Acute oral toxicity	: Classified Harmful if swallowed. : Ingestion may cause weakness, confusion, anxiety, decreased blood pressure, and CNS depression with collapse and coma. : LD50: 1,414 mg/kg Species: Guinea pig
Acute inhalation toxicity	: Classified Toxic if inhaled. : Exposure to very high concentrations of aerosols may cause irritation of the eyes, nose, and throat and depression of the

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central nervous system.

: LC0: > 3.1 mg/l
> 641 ppm
Exposure time: 1 HOURS
Species: Guinea pig

Acute dermal toxicity

: Classified
Harmful in contact with skin.

: LD50: > 2,000 mg/kg
Species: Guinea pig

Skin corrosion/irritation

: Classified
Causes skin irritation.

Serious eye damage/eye irritation

: Classified
Causes serious eye irritation.

Respiratory or skin sensitization

: Respiratory sensitization
Not classified
No study available.

: Skin sensitization
Not classified
No adverse effect observed.

Chronic toxicity

Carcinogenicity

: Not classified
Long-term exposure via inhalation at concentrations up to 125 ppm caused an increase in the incidence of liver tumors in male mice and forestomach tumors in female mice. A slight increase in adrenal tumors was observed in female rats. The NTP has determined that EGBE displays some evidence of carcinogenicity in mice, and equivocal evidence of carcinogenicity in female rats.

Germ cell mutagenicity

: Not classified
No adverse effect observed.

Reproductive toxicity

Effects on fertility /

: Not classified

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Effects on or via lactation	No adverse effect observed.
Effects on Development	: Not classified No adverse effect observed.
Target Organ Systemic Toxicant - Single exposure	: High concentrations may cause central nervous system depression.
Target Organ Systemic Toxicant - Repeated exposure	: Based on repeated exposure toxicity values, not classified. : Results from acute and repeat exposure studies in rats, mice and rabbits indicate that EGBE causes injury to red blood cells with subsequent intravascular hemolysis and anemia, and secondary changes in the liver and kidney. Human and guinea pig red blood cells are resistant to EGBE injury and therefore the effects noted in sensitive species are not relevant to humans.
Aspiration hazard	: Based on physico-chemical values or lack of human evidence, not classified.

12. ECOLOGICAL INFORMATION**Ecotoxicity effects**

Toxicity to fish	: Low acute toxicity to fish
Toxicity to daphnia and other aquatic invertebrates	: Low acute toxicity to aquatic invertebrates.
Toxicity to algae	: Low toxicity to algae.
Toxicity to bacteria	: Low toxicity to sewage microbes.
Toxicity to fish (Chronic toxicity)	: Chronic toxicity to fish is expected to be low.
Toxicity to daphnia and other aquatic invertebrates	: Chronic toxicity expected to be low.

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(Chronic toxicity)**Elimination information (persistence and degradability)****Bioaccumulation**

: Bioconcentration factor (BCF): 3.16
Method: (QSAR calculated value)
This material is not expected to bioaccumulate.

Distribution among environmental compartments

: Stability in water
Not expected to hydrolyze readily.
Contains no functional groups considered likely to be hydrolyzed in water.

: Stability in soil
Low absorption to soil particulates predicted

**Additional advice
Environmental fate and pathways**

: No additional information available.

Biodegradability

: 90.4 %
Rapidly degradable.
(After 28 days in a ready biodegradability test)

: Low mobility in soil. Expected to volatilize from dry or moist soil surfaces, although some adsorption to soil may occur. Volatilizes from water. May adsorb to sediment and organic matter.

Further information on ecology**Ecotoxicology Assessment**

Acute aquatic toxicity : Based on acute aquatic toxicity values, not classified.

Chronic aquatic toxicity : Not classified, based on readily biodegradability and low acute toxicity.

Results of PBT assessment

Not applicable.

Additional ecological information : No additional information available.

13. DISPOSAL CONSIDERATIONS

Product : Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Dispose of as hazardous waste in compliance with local and national regulations.

Contaminated packaging : Empty remaining contents.

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Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

14. TRANSPORT INFORMATION

Refer to section 15 for specific national regulation.

UN number : 2810
Description of the goods : Toxic liquid, organic, n.o.s.
(ETHYLENE GLYCOL MONOBUTYL ETHER)
Class : 6.1
Packing group : III
Labels : 6.1

15. REGULATORY INFORMATION**Toxic Chemical Substances Control Act**

Not relevant

Taiwan - Labor Safety & Health Law**Taiwan - Traffic Regulation****Other international regulations****Global Inventory Status**

The ingredients of this product are compliant with the following chemical inventory requirements or exemptions.

*Additional Explanatory Status Statements follow the table, as necessary.

Country/Region	Inventory	Status Description
Australia	AICS	Compliant
Canada	DSL	Compliant
China	IECSC	Compliant
Europe	REACH	See REACH Compliance Statement
Japan	ENCS	Compliant
Korea	KECI	Compliant
New Zealand	NZIoC	Compliant
Philippines	PICCS	Compliant
United States of America	TSCA	Compliant
Taiwan	TCSCA	Compliant

REACH status

If the product has been purchased from any company of the LyondellBasell group of companies registered in the European Union, we confirm that the chemical substance in this product has been pre-

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registered or, where required under REACH, registered, and that we have the intention to proceed with any required registration in accordance with the deadlines set forth in REACH. (Regulation (EU) No. 1907/2006)

16. OTHER INFORMATION**Further information****Material safety datasheet sections which have been updated:**

Revised Section(s): 1 2 3 4 10 11 12 15 Revision Date September 17 2015

SDS Preparation Date: 2015-09-14**SDS Prepared by:** Equistar Chemicals, LP, HSE Department, LyondellBasell Tower, Suite 300, 1221 McKinney St., P.O. Box 2583, Houston , Texas , 77252-2583, Customer Service, 888 777-0232, Product Safety, 800 700-0946,**SDS Prepared by:** Kevin Kung, Manger Quality Management and Product Stewardship**Version No:** 1.1

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Information is correct to the best of our knowledge at the date of the SDS publication.

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Numerical Data Presentation

The presentation of numerical data, such as that used for physical and chemical properties and toxicological values, is expressed using a comma (,) to separate digits into groups of three and a period (.) as the decimal marker. For example, 1,234.56 mg/kg = 1 234,56 mg/kg.

Language Translations

The information presented in this document has been translated from English by a vendor LyondellBasell believes to be reliable. LyondellBasell and its vendor have made a good-faith effort to verify the accuracy of the translation, but assume no liability or other responsibility for any errors that may have occurred. Please refer to our web site (www.lyondellbasell.com) for the original document written in English.

End of Material Safety Data Sheet