

GLYCOL ETHER EB

Gen. Variant: SDS_US_GHS

Version 1.1

Revision Date 05/08/2014

Print Date 08/26/2015

SDS No.: 3396

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

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

Use of the Substance/Mixture : Solvent, Stabilizers, Intermediate

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

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Part #: B1044

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

Flammable Liquids	Category 4
Acute toxicity, Oral	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Specific target organ systemic toxicity - single exposure, Central nervous system	Category 3

GHS Classification Scale (1= severe hazard; 4= slight hazard)

Label Elements**Hazard Symbols** :**Signal Word** : Warning

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Hazard Statements : H227 Combustible liquid.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precautionary Statements : **Prevention**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
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.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
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.
P330 Rinse mouth.
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.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
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

Repeated exposure may cause skin dryness or cracking.

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**Hazardous ingredients**

Component	CAS-No.	Weight %
2-Butoxyethanol	111-76-2	<99.5 %

SECTION 4. FIRST AID MEASURES**First aid procedures**

- General advice : Consult a physician/doctor if necessary.
Inhalation of high vapor concentrations can cause CNS-depression and narcosis.
Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. For specific information refer to the Emergency Overview in Section 2 of this SDS.
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

- Hazards : Causes skin irritation.
Moderate to severe eye irritant.
Inhalation may cause CNS symptoms like headache,

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dizziness, fatigue, muscular, weakness, drowsiness and lack of coordination.

Treatment

: In vitro results with human red blood cells suggest that humans are more resistant to the hemolytic effects of EGBE than laboratory test animals such as mice, rats, and rabbits. These results suggest that hemolysis and secondary effects observed in laboratory animals are unlikely to occur in humans except in extreme cases when exposure is severe and/or prolonged. Indicators for treatment and observation include metabolic acidosis, urinary excretion of 2-butoxy acetic acid (BAA), hemolysis, or hematuria. Treat symptomatically. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5. FIRE-FIGHTING MEASURES**Flammable properties**

Flash point : 154 - 158 °F (68 - 70 °C)
at 1,013 hPa (760 mm Hg)
Method: Tag closed cup

Autoignition temperature : 446 - 473 °F (230 - 245 °C)

Lower explosion limit : 1.1 vol%

Upper explosion limit : 10.6 vol%

Flammability (solid, gas) : not applicable

Fire fighting

Suitable extinguishing media : SMALL FIRE: Use dry chemicals, CO₂, water spray or alcohol-resistant foam. LARGE FIRE: Use water spray, water fog or alcohol-resistant foam.

Unsuitable extinguishing media : Do not use solid water stream.

Protective equipment and precautions for firefighters

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 positive pressure self-contained breathing apparatus (SCBA).
Structural firefighter's protective clothing will only provide

limited protection.

SECTION 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 containment /
Methods for cleaning up** : Eliminate all sources of ignition.
All equipment used when handling this product must be grounded.
Do not touch or walk through spilled material.
Stop leak if you can do it without risk.
Prevent entry into waterways, sewers, basements or confined areas.
A vapor suppressing foam may be used to reduce vapors.
Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
Use clean non-sparking tools to collect absorbed material.

SECTION 7. HANDLING AND STORAGE

Handling

- Advice on safe handling** : Containers, even those that have been emptied, will retain product residue and vapor and should be handled as if they were full. Do not eat, drink or smoke in areas where this material is used.
After handling, always wash hands thoroughly with soap and water.
Do not handle near heat, sparks, or flame. Avoid contact with incompatible agents. Use only with adequate ventilation/personal protection. Avoid contact with eyes, skin and clothing. Do not enter storage area unless adequately ventilated. Metal containers involved in the transfer of this material should be grounded and bonded.

Storage

- Requirements for storage** : Prevent unauthorized access.

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areas and containers

No smoking.
 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.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Ingredients with workplace control parameters**

Ingredients	CAS-No.	Value	Control parameters	Update	Basis
2-Butoxyethanol	111-76-2	TWA	20 ppm	2012	US (ACGIH)
2-Butoxyethanol	111-76-2	IDLH	700 ppm	September 2007	NIOSH
2-Butoxyethanol	111-76-2	TWA	50 ppm 240 mg/m ³	June 23, 2006	US (OSHA)

Engineering measures

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

Eye protection : Wear safety glasses as minimum eye protection. Conditions may warrant the use of chemical goggles and possibly a face shield. Consult your standard operating procedure or safety professional for advice. Use protective eye and face devices that comply with ANSI Z87.1-1987.

Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Skin and body protection : Appropriate protective clothing should be worn to prevent skin contact.

Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

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Hygiene measures : Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

Physical state : liquid

Color : colorless

Odor : Mild odor.
: Ether-like odor.

Safety data

Flash point : 154 - 158 °F (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 : 446 - 473 °F (230 - 245 °C)

Molecular weight : 118.17 g/mol

Decomposition temperature : not determined

pH : no data available

Melting point/freezing point : -102.6 °F (-74.8 °C)

Boiling point/boiling range : 340 - 344.3 °F (171 - 173.5 °C)

Vapor pressure : 0.8 - 1.0 hPa (0.6 - 0.8 mm Hg)
at 68 °F (20 °C)

Density : 0.90 g/cm³

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	at 68 °F (20 °C)
Water solubility	: Miscible
Partition coefficient: n-octanol/water	: log Pow: 0.81 at 77 °F (25 °C)
Viscosity, kinematic	: 20 mm ² /s at 68 °F (20 °C)
	2.3 mm ² /s at 104 °F (40 °C)
Relative vapor density	: 4.1 (Air = 1.0)
Evaporation rate	: 0.1
Explosive properties	: Not explosive

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: May form peroxides in the presence of air.
Chemical stability	: Stable under recommended storage conditions.
Conditions to avoid	: Heat, flames and sparks.
Materials to avoid	: Oxidizing agents Acids Bases Amines Ammonia Acid chlorides
Hazardous decomposition products	: Carbon oxides
Thermal decomposition	: Carbon monoxide, carbon dioxide and unburned hydrocarbons.
Hazardous reactions	: No dangerous reaction known under conditions of normal use. Reacts with air to form peroxides.

SECTION 11. TOXICOLOGICAL INFORMATION

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- 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
- Test substance: Ethyl tertiary butyl ether
- Acute inhalation toxicity** : Based on acute toxicity values, not classified.
- : High doses may cause CNS depression (fatigue, dizziness and possibly loss of concentration, with collapse, coma and death in cases of severe over-exposure).
Exposure to vapor may cause irritation of the eyes, nose, or throat.
Inhalation may result in dizziness, headache, weakness, nausea and vomiting.
- : LC0: > 3.1 mg/l
> 641 ppm
Exposure time: 1 HOURS
Species: guinea pig
- Acute dermal toxicity** : Based on acute toxicity values, not classified.
- : 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** : 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 /
Effects on or via lactation** : Not classified
No adverse effect observed.

Effects on Development : Not classified
No adverse effect observed.

**Target Organ Systemic
Toxicant - Single exposure** : Routes of exposure: Inhalation
Target Organs: Central nervous system
Classified, May cause drowsiness or dizziness.

: 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.

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12. ECOLOGICAL INFORMATION**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.

Toxicity to fish :
Acute toxicity to fish is very low.

Toxicity to daphnia and other aquatic invertebrates : Acute toxicity to freshwater and marine invertebrates is very low.

Toxicity to algae : Acute toxicity to aquatic plants very low.

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) : Chronic toxicity expected to be low.

Persistence and degradability

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

Bioaccumulative potential

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

Mobility in soil

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

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Low absorption to soil particulates predicted

Additional advice : No additional information available.
Environmental fate and pathways

Results of PBT and vPvB assessment

Not applicable.

Other adverse effects

Additional ecological information : No additional information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Further information : 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.

SECTION 14. TRANSPORT INFORMATION**DOT**

UN number : NA1993
Description of the goods : Combustible liquid, n.o.s.
(ETHYLENE GLYCOL MONOBUTYL ETHER)
Class : CL
Packing group : III
Labels : 3

SECTION 15. REGULATORY INFORMATION

If identified components of this product are listed under the TSCA 12(b) Export Notification rule, they will be listed below.

SARA 302/304

This product contains no known chemicals regulated under SARA 302/304.

SARA 311/312

Based upon available information, this material is classified as the following health and/or physical hazards according to Section 311 & 312:

Fire Hazard.
Immediate (Acute) Health Hazard.

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SARA 311/312**SARA 313**

This product contains the following chemicals subject to the reporting requirements of SARA Title III, Section 313 and 40 CFR 372:

<u>Component</u>	<u>Reporting Threshold</u>
2-Butoxyethanol	1%

State Reporting

This material is not known to contain a chemical substance known to the State of California to cause cancer, reproductive, or developmental toxicity under California Proposition 65. However, LyondellBasell has not tested for the presence of listed chemical substances.

This product contains the following chemicals regulated by New Jersey's Worker and Community Right to Know Act:

111-76-2 2-Butoxyethanol

This product contains the following chemicals regulated by Massachusetts' Right to Know Law:

111-76-2 2-Butoxyethanol

This product contains the following chemicals regulated by Pennsylvania's Right to Know Act:

111-76-2 2-Butoxyethanol

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

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-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)

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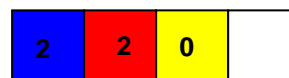
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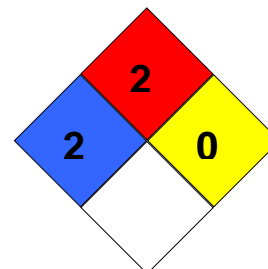
Contact product.safety@lyondellbasell.com for additional global inventory information.

SECTION 16. OTHER INFORMATION**Further information****HMIS Classification**

: Health Hazard: 2
Flammability: 2
Physical hazards: 0

**NFPA Classification**

: Health Hazard: 2
Fire Hazard: 2
Instability: 0

**Other Information**

HMIS rating scale (0 = minimal hazard; 4 = severe hazard)

NFPA rating scale (0 = minimal hazard; 4 = severe hazard)

Material safety datasheet sections which have been updated:

Revised Section(s): 2 to 15 Revision Date April 9 2014

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

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Language Translations

The information presented in this document has been translated from English by a vendor

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