SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	GLYCOL ETHER DB
CAS Number:		112-34-5
Chemical characterization	:	Glycol Ethers
Chemical Name	:	2-(2-Butoxyethoxy) ethanol
Synonyms	:	Diethylene glycol monobutyl ether; Butoxyethoxy ethanol; Butyl carbitol; Butyl diglycol (BDG); Diethylene glycol butyl ether (DEGBE)
Identified uses	:	Solvent; Use in Cleaning Agents; Uses in Coatings
Company	:	Equistar Chemicals, LP LyondellBasell Tower, Suite 300 1221 McKinney St. P.O. Box 2583 Houston Texas 77252-2583
Telephone	:	Customer Service 888 777-0232 Product Safety 800 700-0946
Emergency telephone	:	CHEMTREC USA 800-424-9300 EQUISTAR 800-245-4532
E-mail address		product.safety@lyb.com

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Eye irritation Category 2A

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

Label elements

Hazard symbols :

Signal Word : Warning

Hazard Statements : H319 Causes serious eye irritation.

Precautionary Statements : **Prevention**
P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response
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.
P312 Call a POISON CENTER or doctor/ physician if you feel unwell.

Other hazards

Hazards Not Otherwise Classified (HNOC)
May cause dermatitis by defatting the skin from prolonged or repeated contact.

3. Composition/information on ingredients

Substances

Chemical nature : Substance

Ingredients

Chemical Name	CAS-No. EC-No.	Weight %	Component Type
Diethylene glycol monobutyl ether	112-34-5	>= 99.0 %	A
2-Butoxyethanol	111-76-2	<=0.5 %	C

Key:
(A) Substance
(C) Impurity

SECTION 4. FIRST AID MEASURES

First aid procedures

General advice : 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 : If symptoms are experienced, move victim to fresh air.
Seek medical attention if discomfort persists.

In case of skin contact : Immediately remove excess chemical and contaminated clothing; thoroughly wash contaminated skin with mild soap

and water. If irritation persists after washing, seek medical attention. Thoroughly clean contaminated clothing before reuse; discard contaminated leather goods (gloves, shoes, belts, wallets, etc.).

In case of eye contact : Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, seek medical attention.

If swallowed : If product is ingested, do not induce vomiting and contact a physician or Poison Control Center.

Notes to physician

Symptoms : irritant effects

Hazards : Causes serious eye irritation.

Treatment : 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 : 221 - 237 °F (105 - 114 °C)
at 1,013 hPa (760 mm Hg)
Method: (Closed Cup, DIN 51755)

Autoignition temperature : 410 °F (210 °C)
at 1,013.25 hPa (760.00 mm Hg)

Lower explosion limit : 0.85 vol%

Upper explosion limit : 24.6 vol%

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

Protective equipment and precautions for firefighters

Specific hazards during fire fighting : Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Always stay away from tanks engulfed in fire.

Special protective equipment for fire-fighters	:	Wear an approved positive pressure self-contained breathing apparatus and firefighter turnout gear.

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.
Methods for containment / Methods for cleaning up	:	Contain spill with dike to prevent entry into sewers or waterways. For large spills, dike and pump into properly labeled containers for reclamation or disposal. For small spills, soak up with absorbent material and place in properly labeled containers for disposal. All recovered material should be packaged, labeled, transported and disposed of or reclaimed in conformance with applicable laws and regulations and in conformance with good engineering practices. Reclaim where possible.
Additional advice	:	See Section 15: Regulatory Information.

SECTION 7. HANDLING AND STORAGE

Handling

Advice on safe handling	:	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. It is recommended that any liquid product exposed to air not be highly concentrated by evaporation without first assuring that no peroxide is present. Alternately, positive steps should be taken to reduce any accumulated peroxides to a safe level before concentrating the liquid. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperature possibly resulting in spontaneous combustion.

Storage

Requirements for storage areas and containers	:	Store containers in a cool, dry, ventilated, fire resistant area away from sources of ignition and incompatible materials. Keep container tightly closed and properly labeled.

8. Exposure controls/personal protection

Control parameters

Ingredients with workplace control parameters

Occupational Exposure Limits

Ingredients	CAS-No.	Type	Limit Value	Basis Revision Date	Additional Information
Diethylene glycol monobutyl ether	112-34-5	TWA	10 ppminhalable fraction and vapor	US (ACGIH) 2013	
2-Butoxyethanol	111-76-2	TWA	20 ppm	US (ACGIH) 2012	
2-Butoxyethanol	111-76-2	IDLH	700 ppm	NIOSH September 2007	
2-Butoxyethanol	111-76-2	TWA	50 ppm 240 mg/m3	US (OSHA) June 23, 2006	

Consult local authorities for acceptable exposure limits.

Exposure controls

Engineering measures

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.

Personal protective equipment

Respiratory protection	:	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
Hand protection	:	Use chemical resistant gloves appropriate to conditions of use. Acid-resistant protective gloves complying with EN374 (e.g. neoprene or other type giving suitable protection).
Eye and face protection	:	Safety glasses with side-shields
Skin and body protection	:	Appropriate protective clothing should be worn to prevent skin contact.

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	:	Clear
Odor	:	Faint butyl odor

Safety data

Flash point	:	221 - 237 °F (105 - 114 °C) at 1,013 hPa (760 mm Hg) Method: (Closed Cup, DIN 51755)
Lower explosion limit	:	0.85 vol%
Upper explosion limit	:	24.6 vol%
Flammability (solid, gas)	:	Not applicable
Oxidizing properties	:	Not considered an oxidizing agent.
Autoignition temperature	:	410 °F (210 °C) at 1,013.25 hPa (760.00 mm Hg)
Decomposition temperature	:	not determined
pH	:	6 - 7.5
Melting point/freezing point	:	-90 °F (-68 °C)
Boiling point/boiling range	:	442 - 453 °F (228 - 234 °C) at 1,013 hPa (760 mm Hg)
Vapor pressure	:	0.027 hPa (0.020 mm Hg) at 68 °F (20 °C)
Density	:	0.95 g/cm3 at 68 °F (20 °C) (Water = 1)

Water solubility	:	Miscible
Partition coefficient: n-octanol/water	:	log Pow: 1.0 at 68 °F (20 °C)
Viscosity, dynamic	:	6.5 mPa.s
Viscosity, kinematic	:	6.1 mm2/s at 68 °F (20 °C)
Relative vapor density	:	5.6 (Air = 1.0)
Evaporation rate	:	0.01 (butyl acetate = 1)
Explosive properties	:	Not explosive
Remarks - Other information	:	No additional information available.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Will not occur.
Chemical stability	:	Stable under normal conditions.
Conditions to avoid	:	Avoid contact with strong oxidizers, excessive heat, sparks or open flame.
Materials to avoid	:	Oxidizers, Acids, Alkalis
Hazardous decomposition products	:	Not expected to decompose under normal conditions.
Thermal decomposition	:	Carbon oxides (CO, CO2)
Hazardous reactions	:	Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Product Summary	:	The below given information is based on the assessment of the product including impurities.
Acute toxicity		
Acute oral toxicity	:	Based on acute toxicity values, not classified.
	:	LD50: 2,410 mg/kg Species: Mouse

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

: LC0: > 2.1 mg/l
Exposure time: 4 HOURS
Species: Rat

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

: LD50: 2,764 mg/kg
Species: Rabbit

Skin corrosion/irritation : Based on skin irritation values, not classified.

: May cause slight transient 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
Contains a substance that has a positive carcinogenicity study.
The weight of evidence for the carcinogenicity of this substance does not meet the criteria for classification.

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	:	Based on single exposure toxicity values, not classified.
Target Organ Systemic Toxicant - Repeated exposure	:	Based on repeated exposure toxicity values, not classified.
Aspiration hazard	:	Based on physico-chemical values or lack of human evidence, not classified.

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	:	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)	:	No Data Available.
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	No Data Available.

Persistence and degradability

Biodegradability	:	92 % Rapidly degradable. (After 28 days in a ready biodegradability test)

Bioaccumulative potential

Bioaccumulation : Bioconcentration factor (BCF): 1.4 - 3.2
Method: (QSAR calculated value)
This material is not expected to bioaccumulate.

Mobility in soil

Distribution among environmental compartments : Stability in soil
no data available
Low absorption to soil particulates predicted

: Stability in water
Not expected to hydrolyze readily.

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

Results of PBT and vPvB assessment

Not applicable.

Other adverse effects

Additional ecological information : No additional information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Further information : Dispose of all waste and contaminated equipment in accordance with all applicable federal, state and local health and environmental regulations. Recovery and reuse, rather than disposal, should be the ultimate goal of handling efforts. The materials resulting from clean-up operations may be hazardous wastes and therefore, subject to specific regulations.

SECTION 14. TRANSPORT INFORMATION

Not regulated for transport

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

SARA 311/312

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

Immediate (Acute) Health Hazard.
Delayed (Chronic) Health Hazard.

SARA 313

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

Component	Reporting Threshold
Diethylene glycol monobutyl ether	1.0%
2-Butoxyethanol	1.0%

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
Taiwan	TCSCA	Compliant

REACh status

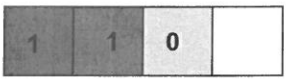
If the product has been purchased from any company of the LyondellBasell group of companies registered in the European Union, we confirm that the chemical substance in this product has been pre-registered or, where required under REACh, registered, and that we have the intention to proceed with any required registration in accordance with the deadlines set forth in REACh. (Regulation (EU) No. 1907/2006)

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

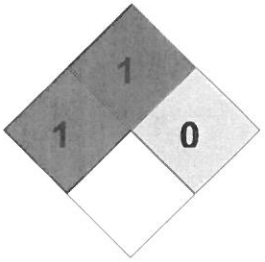
SECTION 16. OTHER INFORMATION

Further information

HMIS Classification : Health Hazard: 1
Flammability: 1
Physical hazards: 0



NFPA Classification : Health Hazard: 1
Fire Hazard: 1
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): 4 10 11 12 15 Revision Date September 7 2015

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