

GLYCOL ETHER EB

Version	Revision Date:	SDS Number:
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SECTION 1. IDENTIFICATION

Trade 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)
Identified uses	:	Solvent; Stabilizers; Intermediate

Company Address

INEOS Oxide
Suite 250
2600 South Shore Boulevard
League City, TX 77573

oxide.us.techservices@ineos.com

Emergency telephone number

CHEMTREC 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Flammable liquids	:	Category 4
Acute toxicity (Oral)	:	Category 4
Skin irritation	:	Category 2
Eye irritation	:	Category 2A
Specific target organ toxicity - single exposure	:	Category 3 (Central nervous system)

GHS label elements

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Hazard pictograms :



Signal word : Warning

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:**

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P261 Avoid breathing mist or vapours.
P264 Wash skin 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:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor 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.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
~~P403 + P235 Store in a well-ventilated place. Keep cool.~~

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P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance
Substance name : 2-butoxyethanol
CAS-No. : 111-76-2

Components

Chemical name	CAS-No.	Concentration (% w/w)
2-Butoxyethanol	111-76-2	> 99

SECTION 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.

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Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
Call a POISON CENTER/ doctor.

Most important symptoms
and effects, both acute and
delayed

: Skin irritation
Eye irritation
Inhalation may cause CNS depression.
Harmful if swallowed.
May be harmful if swallowed and enters airways.
Harmful if inhaled.
Causes skin irritation.
Causes serious eye irritation.
May cause drowsiness or dizziness.

Notes to physician

: Treatment of overexposure should be directed at the control of
symptoms and the clinical condition of the patient.
Do not induce vomiting.

SECTION 5. FIRE-FIGHTING MEASURES

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.

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, protective equipment and emergency procedures : 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.

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Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for : Eliminate all sources of ignition.
containment and cleaning up 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

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.

Conditions for safe storage : 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.

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

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
2-Butoxyethanol	111-76-2	TWA	20 ppm	US (ACGIH)

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		IDLH	700 ppm	NIOSH
		TWA	50 ppm 240 mg/m3	98/24/EC

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

Hand protection

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

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.

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 : liquid

Color : colorless

Odor : ether-like

Odor Threshold : no data available

pH : no data available

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

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Boiling point/boiling range	: 340 - 344.3 °F / 171 - 173.5 °C
Flash point	: 153 °F / 67 °C (1,013 hPa) Method: Tag closed cup
Evaporation rate	: 0.1
Flammability (solid, gas)	: Not applicable
Self-ignition	: 446 - 473 °F / 230 - 245 °C
Upper explosion limit / Upper flammability limit	: 10.6 vol%
Lower explosion limit / Lower flammability limit	: 1.1 vol%
Vapor pressure	: 0.8 - 1.0 hPa (68 °F / 20 °C)
Density	: 0.90 g/cm ³ (68 °F / 20 °C)
Solubility(ies) Water solubility	: Miscible
Partition coefficient: n-octanol/water	: log Pow: 0.81 (77 °F / 25 °C)
Autoignition temperature	: 446 - 473 °F / 230 - 245 °C
Decomposition temperature	: Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).
Explosive properties	: Not explosive
Oxidizing properties	: Not considered an oxidizing agent.
Molecular weight	: 118.17 g/mol

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: May form peroxides in the presence of air.
Chemical stability	: Stable under recommended storage conditions.
Possibility of hazardous reactions	: No dangerous reaction known under conditions of normal use. Reacts with air to form peroxides.
Conditions to avoid	: Heat, flames and sparks.

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Incompatible materials : Oxidizing agents
Acids
Bases
Amines
Ammonia
Acid chlorides

Hazardous decomposition products : Not expected to decompose under normal conditions.

SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity****Product:**

Acute oral toxicity : Acute toxicity estimate: 1,419 mg/kg
Method: Calculation method

Components:**2-Butoxyethanol:**

Acute oral toxicity : LD50 (Guinea pig): 1,414 mg/kg
Remarks: Ingestion may cause weakness, confusion, anxiety, decreased blood pressure, and CNS depression with collapse and coma.

Acute inhalation toxicity : LC0 (Guinea pig): > 3.1 mg/l
Exposure time: 1 HOUR
Test atmosphere: vapour
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Guinea pig): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

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Skin corrosion/irritation**Components:****2-Butoxyethanol:**

Result : Skin irritation

Serious eye damage/eye irritation**Components:****2-Butoxyethanol:**

Result : Eye irritation

Respiratory or skin sensitization**Components:****2-Butoxyethanol:**

Assessment : Did not cause sensitization on laboratory animals.

Germ cell mutagenicity**Components: 2-****Butoxyethanol:**

Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity**Components:****2-Butoxyethanol:**

Carcinogenicity - Assess- : Not classifiable as a human carcinogen.

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ment

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity**Components: 2-Butoxyethanol:**

Reproductive toxicity - Assessment : Based on available data, the classification criteria are not met.

STOT - single exposure**Components:****2-Butoxyethanol:**

Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

STOT - repeated exposure**Components:****2-Butoxyethanol:**

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

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Aspiration toxicity**Components:****2-Butoxyethanol:**

The substance or mixture causes concern owing to the assumption that it causes a human aspiration toxicity hazard.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Product:**

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

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.

Components: 2-**Butoxyethanol:**

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Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1,474 mg/l
Exposure time: 96 HOURS

Toxicity to daphnia and other : EC50 (Daphnia magna.): 1,800 mg/l
aquatic invertebrates Exposure time: 48 HOURS

Toxicity to algae/aquatic : ErC50 (Pseudokirchneriella subcapitata): 1,840 mg/l
plants Exposure time: 72 HOURS

Toxicity to fish (Chronic tox- : NOEC (Danio rerio (zebra fish)): > 100 mg/l
icity) Exposure time: 21 d

Toxicity to daphnia and other : NOEC (Daphnia magna.): 100 mg/l
aquatic invertebrates (Chron- Exposure time: 21 d
ic toxicity)

Toxicity to microorganisms : EC3 (Activated sludge): 700 mg/l
End point: Growth rate
Exposure time: 16 HOURS

Persistence and degradability**Product:**

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

Stability in water : Remarks: Not expected to hydrolyze readily.

Components:**2-Butoxyethanol:**

Biodegradability : Result: Biodegradable
Biodegradation: 90.4 %

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Bioaccumulative potential**Product:**

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

Components:**2-Butoxyethanol:**

Bioaccumulation : Bioconcentration factor (BCF): 3.1

Partition coefficient: n-octanol/water : log Pow: 0.81 (77 °F / 25 °C)

Mobility in soil**Product:**

Stability in soil : Remarks: 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.

Components: 2-Butoxyethanol:

Distribution among environmental compartments : Remarks: Highly mobile in soil and likely to volatilize from moist or dry soil surfaces. Expected to volatilize from surface waters and not likely to adsorb to suspended solids and sediment in water.

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Other adverse effects**Product:**

Environmental fate and pathways : Remarks: No additional information available.

Additional ecological information : No additional information available.

Components: 2-**Butoxyethanol:**

Environmental fate and pathways : Does not undergo hydrolysis.

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : 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

Not regulated for transport

CFR_ROAD

UN number	: NA1993
Description of the goods	: COMBUSTIBLE LIQUID, N.O.S. : (ETHYLENE GLYCOL MONOBUTYL ETHER)
Class	: CL
Packing group	: III
Labels	: 3

Marine pollutant : no

CFR_RAIL

UN number : NA1993

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Description of the goods : COMBUSTIBLE LIQUID, N.O.S.
 : (ETHYLENE GLYCOL MONOBUTYL ETHER)
Class : CL
Packing group : III
Labels : 3

Marine pollutant : no

BLG (MARPOL Annex II)

Description of the goods : ETHYLENE GLYCOL MONOALKYL ETHERS (CONTAINS
 ETHYLENE GLYCOL MONOBUTYL ETHER)
Pollution category : Y
Ship type : 3

SECTION 15. REGULATORY INFORMATION**TSCA 12b**

No substances are subject to TSCA 12(b) export notification requirements.

Significant New Use Rules (SNUR)

No substances are subject to a Significant New Use Rule.

SARA 302/304

The following substance(s) is/are regulated under SARA 302/304:

Component	CASRN	TPQ	RQ
Ethylene glycol	107-21-1		5000 lbs

SARA 311/312

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

Flammable (gases, aerosols, liquids, or solids)
Acute toxicity (any route of exposure)
Reproductive toxicity
Skin corrosion or irritation
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

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SARA 313

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

Component	CASRN	Reporting Threshold
2-Butoxyethanol	111-76-2	1.0%
Diethylene glycol monomethyl ether	111-77-3	1.0%
Ethylene glycol	107-21-1	1.0%
Diethylene glycol monobutyl ether	112-34-5	1.0%

State Reporting

This material contains the following chemical substance which is regulated under California Proposition 65. However, it is the responsibility of the California business owner to develop his or her own regulatory compliance plan.

Substance	CASRN	Type of Toxicity			
		Carcinogen	Developmental	Repro-Male	Repro-Female
Ethylene glycol	107-21-1		X		

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

107-21-1 Ethylene glycol

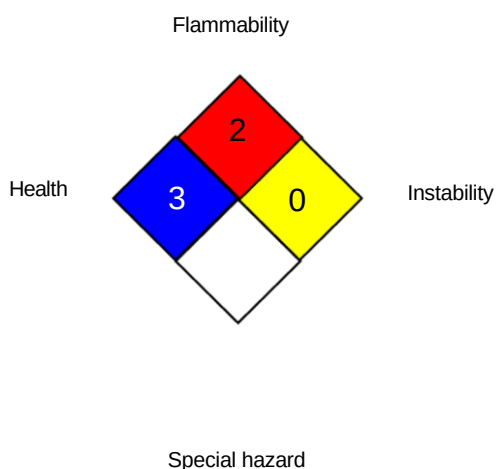
Other international regulations

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SECTION 16. OTHER INFORMATION

NFPA 704:



HMIS® IV:

HEALTH	*	2
FLAMMABILITY		2
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Disclaimer

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.

End of Material Safety Data Sheet