

# OTTO CHEMIE PVT LTD

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ISO 9001: 2015

## MATERIAL SAFETY DATA SHEET

### 1. Identification

1.1 GHS Product identifier  
2-Butoxyethanol, 98%  
Code B 2278

### 2. Hazard identification

2.1 Classification of the substance or mixture  
Acute toxicity - Oral, Category 4  
Acute toxicity - Dermal, Category 4  
Skin irritation, Category 2  
Eye irritation, Category 2  
Acute toxicity - Inhalation, Category 4  
2.2 GHS label elements, including precautionary statements  
Pictogram(s)



Signal word

Hazard statement(s)

Warning  
H302 Harmful if swallowed  
H312 Harmful in contact with skin  
H315 Causes skin irritation  
H319 Causes serious eye irritation  
H332 Harmful if inhaled

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

Response

P271 Use only outdoors or in a well-ventilated area.  
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.  
P330 Rinse mouth.  
P302+P352 IF ON SKIN: Wash with plenty of water/...  
P312 Call a POISON CENTER/doctor if you feel unwell.  
P321 Specific treatment (see ... on this label).  
P362+P364 Take off contaminated clothing and wash it before reuse.  
P332+P313 If skin irritation occurs: Get medical advice/attention.  
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.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Storage

none

Disposal

P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification  
none

### 3. Composition/information on ingredients

#### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2-butoxyethanol	2-butoxyethanol	111-76-2	none	100%

### 4. First-aid measures

4.1 Description of necessary first-aid measures

## General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest. Refer for medical attention.

In case of skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention.

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Rinse mouth. Give one or two glasses of water to drink. Refer for medical attention.

## 4.2 Most important symptoms/effects, acute and delayed

Vapors irritate eyes and nose. Ingestion or skin contact causes headache, nausea, vomiting, dizziness. (USCG, 1999)

## 4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary.

Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Ethylene glycol, glycols, and related compounds/

## 5. Fire-fighting measures

### 5.1 Extinguishing media

Suitable extinguishing media

Carbon dioxide or dry chemical for small fires; alcohol-type foam for large fires.

### 5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 128 [Flammable Liquids (Water-Immiscible)]: HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion hazard indoors, outdoors or in sewers. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water. Substance may be transported hot. For hybrid vehicles, ERG Guide 147 (lithium ion batteries) or ERG Guide 138 (sodium batteries) should also be consulted. If molten aluminum is involved, refer to ERG Guide 169. (ERG, 2016)

### 5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

## 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

### 6.2 Environmental precautions

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Wash away remainder with plenty of water.

### 6.3 Methods and materials for containment and cleaning up

Ventilate area of spill or leak. For small quantities, absorb on paper towels. Evaporate in safe place (such as fume hood). Allow sufficient time for evaporating vapors to completely clear hood ductwork. Burn paper in suitable location away from combustible materials. Large quantities can be collected and atomized in suitable combustion chamber. Waste disposal: By absorbing it in vermiculite, dry sand, earth or similar material and disposing in secured sanitary landfill; By atomizing in suitable combustion chamber.

## 7. Handling and storage

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

Separated from strong oxidants and food and feedstuffs. Cool. Keep in the dark. Separated from strong oxidants, food and feedstuffs. Cool. Keep in the dark

## 8. Exposure controls/personal protection

### 8.1 Control parameters

Occupational Exposure limit values

Recommended Exposure Limit: 10 Hour Time-Weighted Average: 5 ppm (24 mg/cu m). Skin designation.

Biological limit values

no data available

### 8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### 8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

#### 9. Physical and chemical properties

Physical state	clear liquid
Colour	Colorless liquid
Odour	Mild, ether-like odor
Melting point/ freezing point	240\u00b0C(lit.)
Boiling point or initial boiling point and boiling range	169-172.5\u00b0C(lit.)
Flammability	Class IIIA Combustible Liquid: Fl.P. at or above 60\u00b0C and below 93.33\u00b0C. Combustible.
Lower and upper explosion limit / flammability limit	Lower flammable limit: 1.1% by volume @ 93\u00b0C; Upper flammable limit 12.7% by volume @ 135\u00b0C
Flash point	67\u00b0C
Auto-ignition temperature	245\u00b0C
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	3.15 centistokes at 25\u00b0C
Solubility	In water: miscible
Partition coefficient n-octanol/water (log value)	log Kow = 0.83
Vapour pressure	<1 mm Hg ( 20 \u00b0C)
Density and/or relative density	0.902g/mL at 25\u00b0C(lit.)
Relative vapour density	4.1 (vs air)
Particle characteristics	no data available

#### 10. Stability and reactivity

##### 10.1 Reactivity

no data available

##### 10.2 Chemical stability

Stable under recommended storage conditions.

##### 10.3 Possibility of hazardous reactions

Combustible liquid when exposed to heat or flame. ETHYLENE GLYCOL N-BUTYL ETHER may react with bases, aluminum and oxidizing materials. It is liable to form peroxides on exposure to air and light. It attacks some forms of plastics, rubber and coatings.

##### 10.4 Conditions to avoid

no data available

##### 10.5 Incompatible materials

Forms explosive mixture with air. ... Violent reaction with strong caustics and strong oxidizers. Attacks some coatings, plastics and rubber. Attacks metallic aluminum at high temperatures.

##### 10.6 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

#### 11. Toxicological information

##### Acute toxicity

Oral: LD50 Rat oral 470 mg/kg

Inhalation: LC50 Rat (male) inhalation 486 ppm/4 hr /from table/

Dermal: no data available

##### Skin corrosion/irritation

no data available

##### Serious eye damage/irritation

no data available

##### Respiratory or skin sensitization

no data available

##### Germ cell mutagenicity

no data available

##### Carcinogenicity

WEIGHT-OF-EVIDENCE CHARACTERIZATION: No reliable human epidemiological studies are available that address the potential carcinogenicity of EGBE. ... NTP /the National Toxicology Program/ reported no evidence of carcinogenic activity in male F344/N rats, and equivocal evidence of carcinogenic activity in female F344/N rats on the basis of increased combined incidences of benign and malignant pheochromocytoma (mainly benign) of the adrenal medulla. They also reported some evidence of carcinogenic activity in male B6C3F1 mice on the basis of increased incidences of hemangiosarcoma of the liver, and some evidence of

carcinoma (mainly papilloma). ... because of the uncertain relevance of these tumor increases to humans, the fact that EGBE is generally negative in genotoxic tests and the lack of human data to support the findings in rodents, the human carcinogenic potential of EGBE, in accordance with the recently proposed Guidelines for Carcinogen Risk Assessment, cannot be determined at this time, but suggestive evidence exists from rodent studies. Under existing EPA guidelines, EGBE is judged to be a possible human carcinogen, Group C. There are currently no human epidemiological studies addressing the potential carcinogenicity of EGBE.

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

## 12. Ecological information

### 12.1 Toxicity

Toxicity to fish: LC50; Species: *Lepomis macrochirus* (Bluegill); Conditions: static; Concentration: 1,490 mg/L for 96 hr

Toxicity to daphnia and other aquatic invertebrates: LC50; Species: *Daphnia magna* (Water flea); Conditions: static; Concentration: 1,720 mg/L for 24 hr

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

### 12.2 Persistence and degradability

AEROBIC: A number of aerobic biological screening studies, which utilized settled waste water, sewage, or activated sludge for inocula, indicate that ethylene glycol mono-n-butyl ether should biodegrade rapidly in the environment(1-4). Five and ten-day Theoretical BOD values were 73% (with acclimation)(1) and 74%(2). The maximum Theoretical BOD reported was 88% for 20 days(2).

### 12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated for ethylene glycol mono-n-butyl ether(SRC), using an estimated log Kow of 0.83(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low (SRC).

### 12.4 Mobility in soil

The Koc of ethylene glycol mono-n-butyl ether is estimated as 8(SRC), using a log Kow of 0.83(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that ethylene glycol mono-n-butyl ether is expected to have high mobility in soil.

### 12.5 Other adverse effects

no data available

## 13. Disposal considerations

### 13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

## 14. Transport information

### 14.1 UN Number

ADR/RID: UN2810

IMDG: UN2810

IATA: UN2810

### 14.2 UN Proper Shipping Name

ADR/RID: TOXIC LIQUID, ORGANIC, N.O.S.

IMDG: TOXIC LIQUID, ORGANIC, N.O.S.

IATA: TOXIC LIQUID, ORGANIC, N.O.S.

### 14.3 Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA: 6.1

### 14.4 Packing group, if applicable

ADR/RID: II

IMDG: II

IATA: II

### 14.5 Environmental hazards

ADR/RID: no

IMDG: no

IATA: no

### 14.6 Special precautions for user

no data available

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

## 15. Regulatory information

### 15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
2-butoxyethanol	2-butoxyethanol	111-76-2	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.

EC Inventory	Listed.
United States Toxic Substances Control Act (TSCA) Inventory	Listed.
China Catalog of Hazardous chemicals 2015	Listed.
New Zealand Inventory of Chemicals (NZIoC)	Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed.
Vietnam National Chemical Inventory	Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.

#### Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

