

# Safety Data Sheet(SDS)

Revision date : 01-06-2026

## 1. Identification

- 1) Product identifier : BPG\_BUTYL\_POLYGLYCOL\_ETHER
- 2) Relevant identified uses of the substance or mixture and uses advised against
  - Relevant identified uses
    - 1.Raw materials and intermediates
  - Restrictions on use
    - Use for recommended use only
    - Do not use it for weapons manufacturing and related purposes.
- 3) Supplier information
  - Seller
    - Company name : Lotte Daesan Petrochem Corporation
    - Address : 82 Dokgot 1-ro, Daesan-eup, Seosan-si, Chungcheongnam-do
    - Telephone number : +82-41-689-5114
    - Emergency phone number : (Control Room) +82-41-689-5119
    - Fax number : +82-41-689-5985

## 2. Hazards identification

- 1) Hazard classification
  - Serious eye damage/eye irritation Category 1

- 2) Allocation label elements

Hazard pictograms



Signal word

- DANGER

Hazard statements

H318 Causes serious eye damage

## Precautionary statements

### - Prevention

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

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.

P310 Immediately call a POISON CENTER / toxins center / physician.

## 3) Other hazards:

According to experience and information provided, this product does not affect harmful effects when using and handling it as a regulation.

## 3. Composition/Information on ingredients

Chemical name	Common name	CAS No.	Content(wt%)
Tetraethylene glycol butyl ether	3,6,9,12-tetraoxahexadecan-1-ol	1559-34-8	65
Triethylene glycol monobutyl ether	Triglycol Monobutyl Ether	143-22-6	25
$\alpha$ -Butyl- $\omega$ -hydroxypoly(oxy-1,2-ethanediyl)	Poly(oxy-1,2-ethanediyl), .alpha.-butyl-.omega.-hydr oxv-	9004-77-7	10

## 4. First-aid measures

### 1) Following eye contact

- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Seek immediate medical assistance.

### 2) Following skin contact

- For minor skin contact, avoid spreading material on unaffected skin.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Remove and isolate contaminated clothing and shoes.
- Seek immediate medical assistance.

### 3) Following inhalation

- Administer oxygen if breathing is difficult.
- Give artificial respiration if victim is not breathing.
- Keep victim warm and quiet.
- Move to fresh air.

### 4) Following ingestion

- Seek immediate medical assistance.
- 5) Delayed and immediate effects and also chronic effects from short and long term exposure
- Causes serious eye damage
- 6) Advice to physician
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

## 5. Fire-Fighting measures

### 1) Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media
  - CO<sub>2</sub>.
  - Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
  - Dry chemical.
  - Use dry sand or earth to smother fire.
  - Water spray.
- Unsuitable extinguishing media
  - Direct water.

### 2) Special hazards arising from the substance or mixture

- Pyrolytic product
  - During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
  - Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
- Risk of fire and explosion
  - Containers may explode when heated.
  - Some may burn but none ignite readily.
- Other
  - May cause toxic effects if inhaled.

### 3) Special protective equipment for firefighters

- Substance may be transported in a molten form.
- Dike fire-control water for later disposal; do not scatter the material.
- Evacuate area and fight fire from a safe distance.
- Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.
- Fire involving Tanks: Cool containers with flooding quantities of water until well after fire is out.
- Fire involving Tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Fire involving Tanks: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.
- Fire involving Tanks: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Move containers from fire area if you can do it without risk.
- Rescuers should put on appropriate protective gear.

## 6. Accident release measures

- 1) Personal precautions, protective equipment and emergency procedures
  - Clean up spills immediately, observing precautions in Protective Equipment section.
  - Cover with plastic sheet to prevent spreading.
  - Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
  - ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
  - Please note that materials and conditions to be avoided.
  - Stop leak if you can do it without risk.
- 2) Environmental precautions
  - Prevent entry into waterways, sewers, basements or confined areas.
- 3) Methods and materials for containment and cleaning up
  - Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
  - Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container.
  - Absorb the liquid and scrub the area with detergent and water.

## 7. Handling and storage

- 1) Precautions for safe handling
  - Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
  - Handling refer to engineering control/personal protection section.
  - Please note that materials and conditions to be avoided.
- 2) Conditions for safe storage (including any incompatibilities)
  - Empty drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner, or properly disposed of.

## 8. Exposure controls & personal protection

- 1) Chemical exposure limits, Biological exposure standard
  - Contains no substances with occupational exposure limit values.
- 2) Appropriate engineering controls
  - Ensure adequate ventilation and exhaust ventilation at the workplace.
- 3) Personal protective equipment
  - Respiratory protection
    - If you have a direct contact or exposed to the material, wear the appropriate form of respiratory protection certified.
  - Eye protection
    - If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.
  - Hand protection
    - Wear chemical safety gloves.
  - Skin protection
    - Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

## 9. Physical and chemical information

Property name	Values	Source
Appearance		
Physical state	Liquid	
Color	colourless	
Odor	sweet	
Odor threshold	No data available	
pH	7.0 (Solution)	
Melting point/freezing point	About -20°C	
Initial boiling point and boiling range(°C)	300°C	
Flash point(°C)	176°C	
Evaporation rate	No data available	
Flammability(solid, gas)	No data available	
Upper/lower flammability or explosive limits	No data available	
Vapour pressure	< 0.001 hPa (20 °C)	
Solubility(ies)	No data available	
Vapour density	No data available	
Relative density	No data available	
n-octanol/water partition coefficient	No data available	
Auto ignition temperature	No data available	
Decomposition temperature	No data available	
Viscosity(mm <sup>2</sup> /s, 40°C)	12.1 mPa.s (25 °C)	
Molecular weight(mass)	About 230g/mol	
Density	1.01 g/cm <sup>3</sup>	
Specific gravity	1.01 (25 °C)	

## 10. Stability and hazardous reactivity

### 1) Chemical stability and Possibility of hazardous reactions

- Containers may explode when heated.
- Fire may produce irritating, corrosive and/or toxic gases.
- Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
- Some may burn but none ignite readily.

## 2) Conditions to avoid

- Ignition source(heat, spark, flame, etc.).

## 3) Incompatible materials

- Combustibles, reducing material.

## 4) Hazardous decomposition products

- Corrosive/toxic fume.
- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
- Irritating, corrosive and/or toxic gas.

# 11. Toxicological information

## 1) Information on the likely routes of exposure

### ○ Eye Contact

- Liquids can be exposed through the eyes, skin and oral.

## 2) Delayed and immediate effects and also chronic effects from short and long term exposure

### ○ Acute toxicity

#### ● Acute toxicity(Oral) PRODUCT : Not classified

- Triethylene glycol monobutyl ether  
: LD50 5300 mg/kg Test species: Rat
- Tetraethylene glycol butyl ether  
: LD50 5175 ~ 10350 mg/kg Test species: Rat

#### ● Acute toxicity(Dermal) PRODUCT : Not classified

- Triethylene glycol monobutyl ether  
: LD50 2000 mg/kg Test species: Rabbit
- Tetraethylene glycol butyl ether  
: LD50 >4220 mg/kg Test species: Rat

#### ● Acute toxicity(Inhalation:Gases) PRODUCT : Not classified

- No data available

#### ● Acute toxicity(Inhalation:Vapours) PRODUCT : Not classified

- No data available

#### ● Acute toxicity(Inhalation:Dust/mist) PRODUCT : Not classified

- No data available

### ○ Skin corrosion/irritation PRODUCT : Not classified

- Triethylene glycol monobutyl ether  
: Weak stimulus (10 mg, 24 hours, rabbit), Weak stimulus (500 mg, 24 hours, rabbit)
- Tetraethylene glycol butyl ether  
: After 4 and 72 hours of observation, one rabbit had an erythema score of 1, and the rest had an erythema score of 0.

- Serious eye damage/eye irritation PRODUCT : Category 1
  - $\alpha$ -Butyl- $\omega$ -hydroxypoly(oxy-1,2-ethanediyl)
    - : Causes eye irritation
  - Triethylene glycol monobutyl ether
    - : Moderate irritation (20 mg, 24 hours, rabbit), severe irritation (50 mg, rabbit), EU CLP Category 1
  - Tetraethylene glycol butyl ether
    - : Conjunctival hyperemia score: 2-3, iritis score: 1
- Respiratory sensitization PRODUCT : Not classified
  - No data available
- Skin sensitization PRODUCT : Not classified
  - No data available
- Carcinogenicity PRODUCT : Not classified
  - No data available
- Germ cell mutagenicity PRODUCT : Not classified
  - Tetraethylene glycol butyl ether
    - : Reverse mutation test: Negative Salmonella typhimurium strains TA98, TA100, TA1535, TA1537, TA1538, E. coli WP2uvrA pKM101 up to 5000 $\mu$ g/plate Negative regardless of whether metabolic activation system is applied Chromosomal aberration test: Negative Chinese Hamster Ovary Cell: Negative regardless of whether metabolic activation system is applied up to >5000 $\mu$ g/ml
- Reproductive toxicity PRODUCT : Not classified
  - No data available
- Specific target organ toxicity single exposure PRODUCT : Not classified
  - No data available
- Specific target organ toxicity repeated exposure PRODUCT : Not classified
  - Tetraethylene glycol butyl ether
    - : Rat: NOEL 150 mg/kg bw/day (28 days), 5 males and some females in the 1000 mg/kg/day concentration group showed centrilobular hypertrophy (2-10% content)
- Aspiration hazard PRODUCT : Not classified
  - No data available

## 12. Ecological information

### 1) Ecotoxicity

- Fish PRODUCT : Not classified
  - Tetraethylene glycol butyl ether
    - : LC50 2400 mg/l 96 hr Pimephales promelas
- Crustaceans PRODUCT : Not classified
  - Tetraethylene glycol butyl ether
    - : EC50 2210 mg/l 48 hr Daphnia magna

- Aquatic algae PRODUCT : Not classified
  - Tetraethylene glycol butyl ether
  - : EC50 > 1000 mg/l 96 hr Selenastrum capricornutum

## 2) Persistence and degradability

- Degradability PRODUCT : Not classified
  - Triethylene glycol monobutyl ether
  - : BOD5/COD 0.16
- Biodegradation PRODUCT : Not classified
  - Triethylene glycol monobutyl ether
  - : 77 (%) 6 day ((aerobic, other bacteria: BASF-Belebtschlamm))
  - Tetraethylene glycol butyl ether
  - : 99 (%) 8 day

## 3) Bioaccumulative potential

- n-octanol water partition coefficient PRODUCT : Not classified
  - Tetraethylene glycol butyl ether
  - : -0.26 log Kow
- Bioconcentration factor(BCF) PRODUCT : Not classified
  - Tetraethylene glycol butyl ether
  - : 1

## 4) Mobility in soil PRODUCT : Not classified

No data available

## 5) Other adverse effects PRODUCT : Not classified

No data available

## 13. Disposal considerations

### 1) Disposal methods

- Empty containers should be taken to an approved waste handling site for recycling or disposal.

### 2) Precautions (including disposal of contaminated container of package)

- Dispose of in accordance with local regulations.
- Send to a licensed waste management company.

## 14. Transport information

- 1) UN No. : Not applicable
- 2) Proper shipping name : Not applicable
- 3) Hazard class : Not applicable
- 4) Packing group : Not applicable
- 5) Marine pollutant : Not applicable

6) Special precautions for user related to transport or transportation measures :

Emergency measures in case of fire : Not applicable

Emergency measures in the effluent : Not applicable

- ADR

· Tunnel restriction code : Not applicable

- IMDG

· Marine pollutant : Not applicable

- Air transport(IATA)

· UN No. : Not applicable

· Proper shipping name : Not applicable

· Class or division : Not applicable

· Packing group : Not applicable

- Maritime transport in bulk according to IMO instruments :

Not applicable

## 15. Regulatory information

### Australia Industrial Chemicals Notification and Assessment Act

- Inventory - Australia - Inventory of Industrial Chemicals (AIIC)

- $\alpha$ -Butyl- $\omega$ -hydroxypoly(oxy-1,2-ethanediyl) : Applicable

- Triethylene glycol monobutyl ether : Applicable

- Tetraethylene glycol butyl ether : Applicable

### China Inventory of Existing Chemical Substances (IECSC)

- Inventory - China - Inventory of Existing Chemical Substances (IECSC)

- $\alpha$ -Butyl- $\omega$ -hydroxypoly(oxy-1,2-ethanediyl) : Applicable

- Triethylene glycol monobutyl ether : Applicable

- Tetraethylene glycol butyl ether : Applicable

### 92/32/EEC

- Not applicable

### European Union Official Journal of the European Communities 15 June 1990 - Annex Based on Article 13 of Directive 67/548/EEC Amended by Directive 79/831/EEC

- Inventory - European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

- Triethylene glycol monobutyl ether : Applicable

- Tetraethylene glycol butyl ether : Applicable

Japan - ISHL Ordinance Hazardous Substances Whose Names Are to be Indicated on the Label

Japan Law Concerning the Examination and Regulations of Manufacture, etc. of Chemical Substances

- Inventory - Japan - Existing and New Chemical Substances (ENCS)

-  $\alpha$ -Butyl- $\omega$ -hydroxypoly(oxy-1,2-ethanediyl) : Applicable

- Triethylene glycol monobutyl ether : Applicable

- Tetraethylene glycol butyl ether : Applicable

New Zealand Environmental Protection Authority, Inventory of Chemicals

- Inventory - New Zealand - Inventory of Chemicals (NZIoC)

-  $\alpha$ -Butyl- $\omega$ -hydroxypoly(oxy-1,2-ethanediyl) : Applicable

- Triethylene glycol monobutyl ether : Applicable

- Tetraethylene glycol butyl ether : Applicable

Turkey Regulation on Inventory and Control of Chemicals

- Not applicable

Taiwan Chemical Substance Inventory

- Inventory - Taiwan - Taiwan Chemical Substance Inventory (TCSI)

-  $\alpha$ -Butyl- $\omega$ -hydroxypoly(oxy-1,2-ethanediyl) : Applicable

- Triethylene glycol monobutyl ether : Applicable

- Tetraethylene glycol butyl ether : Applicable

U.S. Toxic Substances Control Act

- Inventory - United States - Section 8(b) Inventory (TSCA)

-  $\alpha$ -Butyl- $\omega$ -hydroxypoly(oxy-1,2-ethanediyl) : Applicable

- Triethylene glycol monobutyl ether : Applicable

- Tetraethylene glycol butyl ether : Applicable

Vietnam National Chemicals Inventory (NCI)

- Inventory - Vietnam - National Chemicals Inventory (NCI) (DRAFT)

-  $\alpha$ -Butyl- $\omega$ -hydroxypoly(oxy-1,2-ethanediyl) : Applicable

- Triethylene glycol monobutyl ether : Applicable

Note

- Not applicable

## 16. Other information

### 1) Reference

NCIS, KOSHA, Montreal Protocol, ECHA, OECD SIDS, EU IUCLID, HSDB(PubChem), NITE, NTP, ACGIH, IARC, NIOSH, ChemIDplus, EPA, EPI Suite, INCHEM

### 2) Issue date : 26-12-2022

### 3) Revision date

- Revised date count : 3-1
- Last revised date : 01-06-2026

### 4) Other

ACGIH : American Conference of Governmental Industrial Hygienists  
ADR : Agreement Concerning the International Carriage of Dangerous Goods by Road  
ATE : The Acute Toxicity Estimate  
ECHA : European Chemicals Agency  
EPA : United States Environmental Protection Agency  
EPI Suite : The Estimation Programs Interface for Windows  
EU IUCLID : International Uniform Chemical Information Database  
HSDB : Hazardous Substances Data Bank  
IARC : International Agency for Research on Cancer  
IATA : International Air Transport Association  
IMDG : International Maritime Dangerous Goods Codes  
INCHEM : Internationally Peer Reviewed Chemical Safety Information  
M-Factor : The Multiplication Factor  
NIOSH : National Institute of Occupational Safety and Health  
NITE : National Institute of Technology and Evaluation(JAPAN)  
NTP : National Toxicology Program  
SCL : Specific Concentration Limit  
OECD SIDS : Organization for Economic Co-operation and Development Screening Information Dataset  
GHS/EN