Safety Data Sheet(SDS)

Revision date : 01-06-2026

1. Identification

1) Product identifier : BG_BUTYL_GLYCOL_ETHER

2) Relevant identified uses of the substance or mixture and uses advised against

○ Relevant identified uses

1.Raw materials and intermediates, Textile dyes and impregnating products, Washing and cleaning products

○ 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

- Flammable liquids Category 4
- Acute toxicity(Oral) Category 4
- Acute toxicity(Inhalation:Vapours) Category 4
- Skin corrosion/irritation Category 2
- Serious eye damage/eye irritation Category 2
- Carcinogenicity Category 2

2) Allocation label elements

Hazard pictograms

Signal word

- WARNING

Hazard statements

H227 Combustible liquid
H302 Harmful if swallowed
H315 Causes skin irritation
H319 Causes serious eye irritation
H332 Harmful if inhaled
H351 Suspected of causing cancer.

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, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Avoid contact during pregnancy/ while nursing.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a wellventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

- Response

P301+P310 IF SWALLOWED: Call a POISON CENTER / toxins center / physician.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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.
P312 Discomfort call a POISON CENTER / toxins center / physician if you feel unwell.
P320 Specific treatment is urgent (see supplemental instructions on the administration of antidotes on this label).
P330 Rinse mouth.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P370+P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

- Storage

P403+P235 Store in a wellventilated place. Keep cool.
P405 Store locked up.

- Disposal

P501 Discard the contents/containers in accordance with the laws and laws related to waste.

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%)
2-Butoxyethanol	2-butoxyethanol	111-76-2	100

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 hot product, immediately immerse in or flush the affected area with large amounts of cold water to dissipate heat.
- For minor skin contact, avoid spreading material on unaffected skin.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to 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.
- Wash skin with soap and water.

3) Following inhalation
- Administer oxygen if breathing is difficult.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Give artificial respiration if victim is not breathing.
- If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.
- Keep victim warm and quiet.
- Move to fresh air.

4) Following ingestion
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Seek immediate medical assistance.

5) Delayed and immediate effects and also chronic effects from short and long term exposure
- Causes serious eye irritation
- Causes skin irritation
- Harmful if inhaled

- Harmful if swallowed
- Suspected of causing cancer

6) Advice to physician
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Exposures require specialized first aid with contact and medical follow-up .

5. Fire-Fighting measures

1) Suitable (and unsuitable) extinguishing media

○ Suitable extinguishing media
- For mixtures containing alcohol or polar solvent: Alcohol-resistant foam.
- CO2.
- Regular foam.
- Dry chemical.
- Water spray.
- Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
- Use dry sand or earth to smother fire.

○ Unsuitable extinguishing media
- Direct water.

2) Special hazards arising from the substance or mixture

○ Pyrolytic product
- Can decompose at high temperatures forming toxic gases.
- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

○ Risk of fire and explosion
- When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards.
- HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
- Can form explosive mixtures at temperatures at or above the flashpoint.
- May violently polymerize and result in fire and explosion.
- Containers may explode when heated.
- Vapor explosion hazard indoors, outdoors or in sewers.
- Runoff may create fire or explosion hazard.
- Vapors may form explosive mixtures with air.
- Some may burn but none ignite readily.
- Vapors may travel to source of ignition and flash back.

○ Other
- May cause toxic effects if inhaled.

3) Special protective equipment for firefighters
- Move containers from fire area if you can do it without risk.
- Rescuers should put on appropriate protective gear.
- Substance may be transported hot.
- Substance may be transported in a molten form.
- Cautions ; Most of liquids are lighter than water.
- 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.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).

6. Accident release measures

1) Personal precautions, protective equipment and emergency procedures
- The very fine particles can cause a fire or explosion, eliminate all ignition sources.
- A vapor suppressing foam may be used to reduce vapors.
- All equipment used when handling the product must be grounded.
- 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.
- Do not touch or walk through spilled material.
- 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.
- Dike and collect water used to fight fire.
- Large Spill: Dike far ahead of liquid spill for later disposal.
- Reduce airborne dust and prevent scattering by moistening with water.
- Use clean non-sparking tools to collect absorbed material.

7. Handling and storage

1) Precautions for safe handling
- Measure atmospheric oxygen concentration and ventilate the area during the operation since low-closed area can cause oxygen deficiency.
- Please note that materials and conditions to be avoided.
- Use care in handling/storage.
- Use only in a well-ventilated area.
- All equipment used when handling the product must be grounded.
- Avoid breathing vapors from heated material.

- Avoid prolonged or repeated contact with skin.
- Caution: Heat.
- Do not enter storage area unless adequately ventilated.
- DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION;.
- Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
- Handling refer to engineering control/personal protection section.
- Loosen closure cautiously before opening.

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.
- Keep away from food and drinking water.

8. Exposure controls & personal protection

1) Chemical exposure limits, Biological exposure standard

Components	ACGIH regulations	Biological limit values
2-Butoxyethanol	20 ppm TWA	No data available

2) Appropriate engineering controls

- Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
- If user operations generate dust, fume, or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
- Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

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	9.3 ppm	
pH	7.0 (25 ℃)	
Melting point/freezing point	-75 ℃	
Initial boiling point and boiling range(℃)	171 ℃	
Flash point(℃)	67 ℃	
Evaporation rate	0.08 (Butyl acetate = 1)	
Flammability(solid, gas)	No data available	
Upper/lower flammability or explosive limits	Upper 12.7 %(V) Lower 1.1 %(V)	
Vapour pressure	0.8 hPa (20 ℃)	
Solubility(ies)	900 g/L (20 ℃), Miscible with most organic solvents	
Vapour density	4.08	
Relative density	No data available	
n-octanol/water partition coefficient	Pow : 6.46 (20 ℃) logPow : 0.81 (25 ℃)	
Auto ignition temperature	230 ℃ (1,013 hPa)	
Decomposition temperature	No data available	
Viscosity(㎟/s, 40℃)	3.64 ㎟/s (20 ℃)	
Molecular weight(mass)	118.2g/mol	
Specific gravity	0.9018 (20 ℃)	

10. Stability and hazardous reactivity

1) Chemical stability and Possibility of hazardous reactions

- Vapor explosion hazard indoors, outdoors or in sewers.
- Vapors may form explosive mixtures with air.
- When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards.
- Can decompose at high temperatures forming toxic gases.
- Can form explosive mixtures at temperatures at or above the flashpoint.
- Containers may explode when heated.
- Fire may produce irritating, corrosive and/or toxic gases.
- HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
- May violently polymerize and result in fire and explosion.
- Runoff may create fire or explosion hazard.
- Some may burn but none ignite readily.

2) Conditions to avoid

- Heat, contamination.
- 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

- No data available

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

○ Acute toxicity

- Acute toxicity(Oral)
  - LD50 1414 ㎎/kg Test species: Guinea pig (OECD TG 401, GLP)
- Acute toxicity(Dermal)
  - LD50 >2000 ㎎/kg Test species: Rat
- Acute toxicity(Inhalation:Gases)
  - No data available
- Acute toxicity(Inhalation:Vapours)
  - No data available
- Acute toxicity(Inhalation:Dust/mist)
  - No data available

○ Skin corrosion/irritation

- The skin irritation test using rabbits resulted in an erythema irritation level of 2, which does not meet the GHS criteria, but is sufficient to determine that it is irritating. EU Method B.4

○ Serious eye damage/eye irritation

- The eye irritation test results showed that the product was irritating with a conjunctival irritation index of 2.6, iritis of 0.56, and conjunctival edema of 1.8 (OECD TG405, GLP)

○ Respiratory sensitization

- No data available

○ Skin sensitization

- Results of skin sensitization test using guinea pigs: Non-sensitizing OECD TG 406

○ Carcinogenicity

- 3 (IARC)
A3 (ACGHI)
2 (Ministry of Employment and Labor notice)

○ Germ cell mutagenicity

- In vitro microbial reverse mutation test OECD TG471, mammalian cell chromosome aberration test OECD TG473, in vivo mammalian bone marrow cell micronucleus test OECD TG474, negative

○ Reproductive toxicity

- As a result of the second-generation reproductive toxicity test (NTP), NOAEL (parental toxicity) = 720 mg/kg bw/day due to effects such as weight loss and reproductive performance, NOAEL (F1, F2) = 720 mg/kg bw/day due to decrease in offspring weight, no effects on reproductive toxicity were observed, and as a result of the developmental toxicity test using rats (OECD TG414), no developmental toxicity or teratogenic effects were observed. NOAEL (development) = 100 mg/kg bw/day, NOAEL (teratogenicity) > 200 mg/kg bw/day

○ Specific target organ toxicity single exposure

- The respiratory irritation test using mice showed that the RD50 was 2818 ppm, which is minimal or not irritating to the senses.

○ Specific target organ toxicity repeated exposure

- In a 90-day repeated oral toxicity test using rats (OECD TG408), liver and some cytoplasmic abnormalities were observed in histopathological findings, but no harmful effects were observed. NOAEL male <69 mg/kg bw/day, NOAEL female <82 mg/kg bw/day. In a 90-day repeated inhalation toxicity test using mice (OECD TG413, GLP), NOAEC <31 ppm due to hematological effects.

○ Aspiration hazard

- No data available

12. Ecological information

1) Ecotoxicity

- Hazardous to the aquatic environment, short-term (acute)
  No data available
- Hazardous to the aquatic environment, long-term (chronic)
  No data available
- Fish
  LC50 1474 ㎎/ℓ 96 hr Oncorhynchus mykiss(OECD Guideline 203)
- Crustaceans
  EC50 1800 ㎎/ℓ 48 hr Daphnia magna(OECD TG 202)
- Aquatic algae
  EC50 911 ㎎/ℓ 72 hr Selenastrum capricornutum(OECD TG 201)

2) Persistence and degradability

- Degradability
  No data available

- Biodegradation

  90.4 % 28 day (OECD TG 301G)

3) Bioaccumulative potential

- n-octanol water partition coefficient

  0.81 log Kow (25 °C, pH=7, BASF standard method)

- Bioconcentration factor(BCF)

  No data available

4) Mobility in soil

  No data available

5) Other adverse effects

  Fish Danio rerio: NOEC14d>100 mg/L OECD TG 204 Water flea Daphnia magna: NOEC21d=100 mg/L OECD TG 211

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)

- 2-Butoxyethanol : Applicable

China Inventory of Existing Chemical Substances (IECSC)

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

- 2-Butoxyethanol : 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)

- 2-Butoxyethanol : 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)

- 2-Butoxyethanol : Applicable

New Zealand Environmental Protection Authority, Inventory of Chemicals

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

- 2-Butoxyethanol : Applicable

Turkey Regulation on Inventory and Control of Chemicals

- Not applicable

Taiwan Chemical Substance Inventory

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

- 2-Butoxyethanol : Applicable

U.S. Toxic Substances Control Act

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

- 2-Butoxyethanol : Applicable

Vietnam National Chemicals Inventory (NCI)

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

- 2-Butoxyethanol : 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 : 25-04-2011

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