

Safety data sheet

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BASF Safety data sheet according to the United Nations' Globally Harmonized System (UN GHS)

Date / Revised: 23.05.2025

Version: 6.1

Product: **BUTYLGLYCOL**

(ID no. 30034845/SDS_GEN_IL/EN)

Date of print 19.10.2025

1. Identification

Product identifier

BUTYLGLYCOL

Chemical name: 2-butoxyethanol; ethylene glycol monobutyl ether butyl cellosolve

INDEX-Number: 603-014-00-0

CAS Number: 111-76-2

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

Relevant identified uses: process chemical, solvent(s)

Details of the supplier of the safety data sheet

Company:

BASF SE

67056 Ludwigshafen

GERMANY

Operating Division Petrochemicals

Telephone: +49 621 60-42151

E-mail address: sds-petrochemicals@basf.com

Emergency telephone number

International emergency number:

Telephone: +49 180 2273-112

2. Hazards Identification

Classification of the substance or mixture

According to UN GHS criteria

Flam. Liq. 4
Eye Irrit. 2A
Acute Tox. 4 (oral)
Skin Irrit. 2

For the classifications not written out in full in this section the full text can be found in section 16.

Label elements

Globally Harmonized System (GHS)

Pictogram:



Signal Word:

Warning

Hazard Statement:

| | |
|------|--------------------------------|
| H227 | Combustible liquid. |
| H319 | Causes serious eye irritation. |
| H315 | Causes skin irritation. |
| H302 | Harmful if swallowed. |

Precautionary Statements (Prevention):

| | |
|------|--|
| P280 | Wear protective gloves and eye protection or face protection. |
| P280 | Wear eye protection. |
| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P270 | Do not eat, drink or smoke when using this product. |
| P264 | Wash contaminated body parts thoroughly after handling. |

Precautionary Statements (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. |
| P301 + P312 | IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. |
| P302 + P352 | IF ON SKIN: Wash with plenty of soap and water. |
| P330 | Rinse mouth. |
| P332 + P313 | If skin irritation occurs: Get medical attention. |
| P337 + P313 | If eye irritation persists: Get medical attention. |
| P362 + P364 | Take off contaminated clothing and wash it before reuse. |
| P370 + P378 | In case of fire: Use alcohol-resistant foam, carbon dioxide, dry powder or water spray for extinction. |

Precautionary Statements (Storage):

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P403 Store in a well-ventilated place.

Precautionary Statements (Disposal):

P501 Dispose of contents and container to hazardous or special waste collection point.

Other hazards

According to UN GHS criteria

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

See section 12 - Results of PBT and vPvB assessment.

3. Composition/Information on Ingredients

Substances

Chemical nature

2-Butoxyethanol (Content (W/W): > 99 %)

CAS Number: 111-76-2

EC-Number: 203-905-0

INDEX-Number: 603-014-00-0

Hazardous ingredients (GHS)

According to UN GHS criteria

2-Butoxyethanol

Content (W/W): > 99 % - < 100 %

CAS Number: 111-76-2

EC-Number: 203-905-0

INDEX-Number: 603-014-00-0

Flam. Liq. 4

Eye Irrit. 2A

Acute Tox. 4 (oral)

Skin Irrit. 2

H227, H319, H315, H302

For the classifications not written out in full in this section the full text can be found in section 16.

Mixtures

Not applicable

4. First-Aid Measures

Description of first aid measures

Remove contaminated clothing. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). If not breathing, give artificial respiration. First aid personnel should pay attention to their own safety.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention.

On skin contact:

Wash thoroughly with soap and water

On contact with eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:

Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

Hazards: Skin resorption hazard.

Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.
(Further) symptoms and / or effects are not known so far

Indication of any immediate medical attention and special treatment needed

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:

dry powder, water spray, carbon dioxide, alcohol-resistant foam

Unsuitable extinguishing media for safety reasons:

water jet

Additional information:

Use extinguishing measures to suit surroundings.

Special hazards arising from the substance or mixture

Flammable liquid Cool endangered containers with water-spray. See SDS section 7 - Handling and storage.

Advice for fire-fighters

Special protective equipment:

Wear a self-contained breathing apparatus. Special protective equipment for firefighters

Further information:

Evacuate area of all unnecessary personnel. Fight fire from maximum distance.

Extend fire extinguishing measures to the surroundings. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental Release Measures

High risk of slipping due to leakage/spillage of product.

Release of substance/product can cause fire or explosion. Shut off or stop source of leak. Shut off or stop released substance/product under safe conditions.

Pack in tightly closed containers for disposal.

Personal precautions, protective equipment and emergency procedures

Handle in accordance with good industrial hygiene and safety practice.

Avoid all sources of ignition: heat, sparks, open flame. Use antistatic tools.

Environmental precautions

Discharge into the environment must be avoided.

Methods and material for containment and cleaning up

For large amounts: Pump off product.

For residues: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr). Dispose of absorbed material in accordance with regulations.

7. Handling and Storage

Precautions for safe handling

Ensure thorough ventilation of stores and work areas. Prevent contact with air/oxygen (formation of peroxide).

Protection against fire and explosion:

Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.

Conditions for safe storage, including any incompatibilities

Further information on storage conditions: Keep container tightly closed in a cool, well-ventilated place.

Storage stability:

Storage temperature: $\leq 35\text{ }^{\circ}\text{C}$

The stability data given is only valid when stored under oxygen free inert gases or in containers that are impermeable to oxygen.

Specific end use(s)

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

8. Exposure Controls/Personal Protection**Control parameters**Components with occupational exposure limits

No substance specific occupational exposure limits known.

Exposure controlsPersonal protective equipment

Respiratory protection:

Gas filter for gases/vapours of organic compounds (boiling point $>65\text{ }^{\circ}\text{C}$, e. g. EN 14387 Type A)

Hand protection:

Chemical resistant protective gloves (EN ISO 374-1)

Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1):

butyl rubber (butyl) - 0.7 mm coating thickness

Manufacturer's directions for use should be observed because of great diversity of types.

Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

Eye protection:

Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures

Avoid contact with the skin, eyes and clothing. Avoid inhalation of vapour. Wearing of closed work clothing is required additionally to the stated personal protection equipment.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

| | | |
|---|---|---|
| State of matter: | liquid | |
| Form: | liquid | |
| Colour: | colourless | |
| Odour: | ether-like | |
| Odour threshold: | not determined | |
| Melting point: | -74,8 °C | |
| | Literature data. | |
| Boiling point: | 173,5 °C | (other) |
| | (1.013 hPa) | |
| Flammability: | Combustible liquid. | (derived from flash point) |
| Lower explosion limit: | 1,1 %(V) | |
| | For liquids not relevant for classification and labelling., The lower explosion point may be 5 - 15 °C below the flash point. | |
| Upper explosion limit: | 10,6 %(V) | |
| | For liquids not relevant for classification and labelling. | |
| Flash point: | 67 °C | (DIN 51758, closed cup) |
| Auto-ignition temperature: | 232 °C | (DIN EN 14522) |
| Thermal decomposition: | No decomposition if stored and handled as prescribed/indicated. | |
| pH value: | (20 °C) | |
| | miscible, neutral | |
| Viscosity, kinematic: | 3,642 mm ² /s | (Capillary viscometer) |
| | (20 °C) | |
| Viscosity, dynamic: | 3,3 mPa.s | (calculated (from kinematic viscosity)) |
| | (20 °C) | |
| | The value was determined by calculation from the detected kinematic viscosity. | |
| Thixotropy: | not thixotropic | |
| Solubility in water: | Literature data. | (other) |
| | 900 g/l | |
| | (20 °C, pH 7) | |
| Solubility (qualitative) solvent(s): | organic solvents | |
| | soluble | |
| Partitioning coefficient n-octanol/water (log Kow): | 0,81 | (measured) |
| | (25 °C) | |
| | The data refers to the undissociated form of the substance. | |
| Vapour pressure: | 0,8 hPa | (measured) |
| | (20 °C) | |
| | Literature data. | |
| | 1,17 hPa | (measured) |
| | (25 °C) | |
| | Literature data. | |
| Relative density: | 0,9000 | |
| | (20 °C) | |

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| | | |
|--------------------------------|--|--------------|
| Density: | 0,9000 g/cm ³ (20 °C, 1.013 hPa) | (DIN 51757) |
| Relative vapour density (air): | 4,08 (20 °C) | (calculated) |
| Heavier than air. | | |

9.2. Other information

Information with regard to physical hazard classes

Explosives

| | |
|---------------------|---|
| Explosion hazard: | Based on the chemical structure there is no indication of explosive properties. |
| Impact sensitivity: | not shock-sensitive Based on the chemical structure there is no shock-sensitivity. |

Oxidizing properties

| | |
|----------------------------|--|
| Fire promoting properties: | Based on its structural properties the product is not classified as oxidizing. |
|----------------------------|--|

Pyrophoric properties

| | | |
|----------------------------|--------------------|---|
| Self-ignition temperature: | Temperature: 20 °C | Test type: Spontaneous self-ignition at room-temperature. |
|----------------------------|--------------------|---|

Based on its structural properties the product is not classified as self-igniting.

Self-heating substances and mixtures

| | |
|-----------------------|---|
| Self heating ability: | not applicable, the product is a liquid |
|-----------------------|---|

Substances and mixtures, which emit flammable gases in contact with water

| | |
|-------------------------------|--|
| Formation of flammable gases: | Forms no flammable gases in the presence of water. |
|-------------------------------|--|

Corrosion to metals

No corrosive effect on metal.

Other safety characteristics

| | | |
|--------------------------|--|--------------------------------|
| pK _A : | 15 (20 °C) | (calculated) |
| Adsorption/water - soil: | The substance does not dissociate. | |
| Surface tension: | KOC: 2,82; log KOC: 0,45 65 mN/m (20 °C; 2 g/l) | (calculated) (other, other) |
| Molar mass: | 118,18 g/mol | |
| SAPT-Temperature: | Study scientifically not justified. | |
| Evaporation rate: | Value can be approximated from Henry's Law Constant or vapor pressure. | |

10. Stability and Reactivity

Reactivity

No hazardous reactions if stored and handled as prescribed/indicated., When heated can give off ignitable vapours.

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Corrosion to metals: No corrosive effect on metal.

Formation of Remarks:

flammable gases:

Forms no flammable gases in the presence of water.

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

Reacts with light metals, with evolution of hydrogen. Reacts with strong oxidizing agents.

Conditions to avoid

No special precautions other than good housekeeping of chemicals.

Incompatible materials

Substances to avoid:

strong oxidizing agents

Hazardous decomposition products

Hazardous decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated.

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Assessment of acute toxicity:

Of moderate toxicity after single ingestion. The inhalation of a highly enriched/saturated vapor-air-mixture represents an unlikely acute hazard. Virtually nontoxic after a single skin contact.

Experimental/calculated data:

LD50 guinea pig (oral): 1.200 mg/kg (similar to OECD guideline 401)

LC0 guinea pig (by inhalation): > 2,25 mg/l 4 h (similar to OECD guideline 403)

No mortality was observed. The European Union (EU) has classified this substance as 'toxic' (Cat. 3). The vapour was tested.

LD50 guinea pig (dermal): > 2.000 mg/kg (OECD Guideline 402)

LD50 mouse (intraperitoneal): 1.174 mg/kg

Irritation

Assessment of irritating effects:

Eye contact causes irritation. Skin contact causes irritation.

Experimental/calculated data:

Skin corrosion/irritation rabbit: Irritant. (BASF-Test)

Serious eye damage/irritation rabbit: Irritant. (OECD Guideline 405)

Respiratory/Skin sensitization**Assessment of sensitization:**

Skin sensitizing effects were not observed in animal studies.

Experimental/calculated data:

Guinea pig maximization test guinea pig: Non-sensitizing. (OECD Guideline 406)

Germ cell mutagenicity**Assessment of mutagenicity:**

The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture. The substance was not mutagenic in studies with mammals.

Carcinogenicity**Assessment of carcinogenicity:**

Indication of possible carcinogenic effect in animal tests. A clear indication of an increased risk of cancer in humans has so far not been shown. IARC Group 3 (not classifiable as to human carcinogenicity).

Reproductive toxicity**Assessment of reproduction toxicity:**

The results of animal studies gave no indication of a fertility impairing effect.

Developmental toxicity**Assessment of teratogenicity:**

In animal studies the substance did not cause malformations.

Specific target organ toxicity (single exposure)**Assessment of STOT single:**

Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)**Assessment of repeated dose toxicity:**

Damages blood cells. Due to the species specific mode of action, the effects are not expected to occur in humans.

Aspiration hazard

not applicable

Other relevant toxicity information

Skin resorption hazard.

12. Ecological Information

Toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. Based on long-term (chronic) toxicity study data, the product is very likely not harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish:

LC50 (96 h) 1.474 mg/l, *Oncorhynchus mykiss* (OECD Guideline 203, static)

Nominal concentration. Literature data.

Aquatic invertebrates:

EC50 (48 h) 1.550 mg/l, *Daphnia magna* (OECD Guideline 202, part 1, static)

Nominal concentration. Literature data.

Aquatic plants:

EC50 (72 h) 1.840 mg/l (growth rate), *Pseudokirchneriella subcapitata* (OECD Guideline 201, static)

Nominal concentration. Literature data.

Microorganisms/Effect on activated sludge:

Toxic limit concentration (16 h) > 700 mg/l, *Pseudomonas putida* (DIN 38412 Part 8, static)

Nominal concentration. Literature data.

Chronic toxicity to fish:

No observed effect concentration (21 d) > 100 mg/l, *Brachydanio rerio* (OECD Guideline 204, semistatic)

Nominal concentration. Literature data. Limit concentration test only (LIMIT test).

Chronic toxicity to aquatic invertebrates:

No observed effect concentration (21 d) 100 mg/l, *Daphnia magna* (OECD Guideline 211, semistatic)

Nominal concentration. Literature data.

Assessment of terrestrial toxicity:

No data available concerning terrestrial toxicity.

Persistence and degradability

Assessment biodegradation and elimination (H₂O):

Readily biodegradable (according to OECD criteria).

Elimination information:

90 % CO₂ formation relative to the theoretical value (28 d) (OECD 301B; ISO 9439; 92/69/EWG, C.4-C) (aerobic, activated sludge)

Assessment of stability in water:

Substance is readily biodegradable, therefore hydrolysis is not expected to be relevant.

Bioaccumulative potential

Assessment bioaccumulation potential:

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

Bioaccumulation potential:

No data available.

Mobility in soil

Assessment transport between environmental compartments:

Volatility: The substance will not evaporate into the atmosphere from the water surface.

Adsorption in soil: Adsorption to solid soil phase is not expected.

Results of PBT and vPvB assessment

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not fulfill the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative). Self classification

Other adverse effects

The substance is not listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

Additional information

Adsorbable organically-bound halogen (AOX):

This product contains no organically-bound halogen.

13. Disposal Considerations

Waste treatment methods

Must be disposed of or incinerated in accordance with local regulations.

Contaminated packaging:

Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

Disposal must be made according to official regulations.

14. Transport Information

Land transport

ADR

| | |
|------------------------------|--|
| | Not classified as a dangerous good under transport regulations |
| UN number or ID number: | Not applicable |
| UN proper shipping name: | Not applicable |
| Transport hazard class(es): | Not applicable |
| Packing group: | Not applicable |
| Environmental hazards: | Not applicable |
| Special precautions for user | None known |

RID

| | |
|------------------------------|--|
| | Not classified as a dangerous good under transport regulations |
| UN number or ID number: | Not applicable |
| UN proper shipping name: | Not applicable |
| Transport hazard class(es): | Not applicable |
| Packing group: | Not applicable |
| Environmental hazards: | Not applicable |
| Special precautions for user | None known |

Inland waterway transport

ADN

| | |
|-------------------------------|--|
| | Not classified as a dangerous good under transport regulations |
| UN number or ID number: | Not applicable |
| UN proper shipping name: | Not applicable |
| Transport hazard class(es): | Not applicable |
| Packing group: | Not applicable |
| Environmental hazards: | Not applicable |
| Special precautions for user: | None known |

Transport in inland waterway vessel

| | |
|---------------------------------|--|
| UN number or ID number: | ID9003 |
| UN proper shipping name: | SSUBSTANCES WITH FLASH-POINT BETWEEN 60°C - 100°C (ETHYLENE GLYCOL MONOBUTYL ETHER) |
| Transport hazard class(es): | 9, N3, F |
| Packing group: | Not applicable |
| Environmental hazards: | yes |
| Type of inland waterway vessel: | N |
| Cargo tank design: | 4 |
| Cargo tank type: | 3 |

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Sea transport**IMDG**

| | |
|------------------------------|--|
| | Not classified as a dangerous good under transport regulations |
| UN number or ID number: | Not applicable |
| UN proper shipping name: | Not applicable |
| Transport hazard class(es): | Not applicable |
| Packing group: | Not applicable |
| Environmental hazards: | Not applicable |
| Special precautions for user | None known |

Air transport**IATA/ICAO**

| | |
|------------------------------|--|
| | Not classified as a dangerous good under transport regulations |
| UN number or ID number | Not applicable |
| UN proper shipping name: | Not applicable |
| Transport hazard class(es): | Not applicable |
| Packing group: | Not applicable |
| Environmental hazards: | Not applicable |
| Special precautions for user | None known |

Maritime transport in bulk according to IMO instruments

| | |
|---------------------|----------------------------------|
| Regulation: | IBC-Code |
| Product name: | Ethylene glycol monoalkyl ethers |
| Pollution category: | Y |
| Ship Type: | 3 |

15. Regulatory Information**Safety, health and environmental regulations/legislation specific for the substance or mixture**

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

16. Other Information

Full text of classifications, hazard symbols and hazard statements, if mentioned in section 2 or 3:
 Flam. Liq. Flammable liquids

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| | |
|-------------|--------------------------------|
| Eye Irrit. | Eye irritation |
| Acute Tox. | Acute toxicity |
| Skin Irrit. | Skin irritation |
| H227 | Combustible liquid. |
| H319 | Causes serious eye irritation. |
| H315 | Causes skin irritation. |
| H302 | Harmful if swallowed. |

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Vertical lines in the left hand margin indicate an amendment from the previous version.