SAFETY DATA SHEET

Butyl Glycol Ether

SECTION 1  IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

<table>
<thead>
<tr>
<th>Trade name</th>
<th>Butyl Glycol Ether</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>Butyl cellosolve, Ethylene glycol monobutyl ether</td>
</tr>
<tr>
<td>Use</td>
<td>Hard-surface cleaner, Industrial &amp; Institutional cleaning, Industrial use, Intermediate, Paint and Coatings, Paper Chemical, Raw material for chemical processes, Raw material for industry, Solvent</td>
</tr>
<tr>
<td>Company</td>
<td>Sasol Chemicals (USA) LLC</td>
</tr>
<tr>
<td>(an affiliate of Sasol Chemicals North America LLC)</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>12120 Wickchester Lane   Houston TX 77079</td>
</tr>
<tr>
<td>Telephone</td>
<td>CHEMTREC North America Transportation Emergency (24-hr) (800) 424-9300</td>
</tr>
<tr>
<td></td>
<td>CHEMTREC World Wide (703) 527-3887</td>
</tr>
<tr>
<td></td>
<td>Other Emergencies (24-hr) (337) 494-5142</td>
</tr>
<tr>
<td></td>
<td>SDS and Product Information (8:00am-4:30pm CST) (281) 588-3491</td>
</tr>
<tr>
<td></td>
<td>Health and Safety Information (7:30am-4:00pm CST) (281) 588-3492</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:SasolElectronicSDS@us.sasol.com">SasolElectronicSDS@us.sasol.com</a></td>
</tr>
</tbody>
</table>

SECTION 2  HAZARDS IDENTIFICATION

GHS Hazards

- Flammable liquids Category 4
- Acute toxicity (Oral) Category 4
- Acute toxicity (Inhalation) Category 4
- Acute toxicity (Dermal) Category 4
- Eye irritation Category 2A
- Skin irritation Category 2

LABEL ELEMENTS

Hazard symbols

![Warning symbol]

Signal word  Warning

Hazard statements

- H227  Combustible liquid.
- H302  Harmful if swallowed.
- H312  Harmful in contact with skin.
- H315  Causes skin irritation.
- H319  Causes serious eye irritation.

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Butyl Glycol Ether

H332   Harmful if inhaled.

Precautionary statements

Prevention
P210   Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261   Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
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
P370 + P378   In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide for extinction.
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 soap and water.
P362   Take off contaminated clothing and wash before reuse.
P333 + P313   If skin irritation or rash 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 victim to fresh air and keep at rest in a position comfortable for breathing.

Storage
P403 + P235   Store in a well-ventilated place. Keep cool.

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

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-butoxyethanol</td>
<td>111-76-2</td>
<td>100</td>
</tr>
</tbody>
</table>

See Section 8 for Exposure Guidelines and Section 15 for Regulatory Classifications.

SECTION 4 FIRST AID MEASURES

Eye contact
Rinse immediately with plenty of water for at least 15 minutes. If eye irritation persists, consult a specialist.

Skin contact
If skin irritation persists, call a physician. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
Butyl Glycol Ether

Inhalation  Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately.

Ingestion  Do NOT induce vomiting. Consult a physician.

SECTION 5  FIREFIGHTING MEASURES

FLAMMABLE PROPERTIES

Fire/explosion  NFPA Class IIIA combustible liquid.

Suitable extinguishing media  Water spray, Foam, Dry chemical, Carbon dioxide (CO2)

Protective equipment and precautions for firefighters  In the event of fire, wear self-contained breathing apparatus.

Further information  Keep containers and surroundings cool with water spray.

SECTION 6  ACCIDENTAL RELEASE MEASURES

Methods and materials for containment and cleaning up  Evacuate the area and eliminate all sources of ignition. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7  HANDLING AND STORAGE

Safe handling advice  Ensure all equipment is electrically grounded before beginning transfer operations. Keep away from heat and sources of ignition.

Storage/Transport pressure  Ambient

Load/Unload temperature  Ambient

SECTION 8  EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING MEASURES  Air contaminant levels should be controlled below the PEL or TLV for this product (see Exposure Guidelines).

PERSONAL PROTECTIVE EQUIPMENT
Butyl Glycol Ether

**Eyes**  Wear as appropriate: Goggles, Face-shield

**Skin**  Wear suitable protective clothing, gloves and eye/face protection.

**Inhalation**  Respiratory protection is normally not required except in emergencies or when conditions cause excessive airborne levels of mists or vapors. Use NIOSH approved respiratory protection.

**EXPOSURE GUIDELINES**

<table>
<thead>
<tr>
<th>Components</th>
<th>Exposure limit(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-butoxyethanol</td>
<td>OSHA PEL (Permissible Exposure Limit) 50 ppm 240 mg/m³</td>
</tr>
<tr>
<td></td>
<td>ACGIH TLV (8-hour) 20 ppm</td>
</tr>
<tr>
<td></td>
<td>Confirmed animal carcinogen with unknown relevance to humans.</td>
</tr>
</tbody>
</table>

PEL= Permissible Exposure Limits  
TWA= Time Weighted Average (8 hr.)  
TLV= Threshold Limit Value  
STEL= Short Term Exposure Limit (15 min.)  
EL= Excursion Limit  
WEEL= Workplace Environmental Exposure Level

**SECTION 9  PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance**  liquid;

**Colour**  Clear, colorless

**Form**  liquid

**Odour**  mild

**Odour Threshold**  No data available

**Flash point**  67 °C, 152 °F;

**Flammability**  Upper explosion limit: ca. 10.6 %(V)  
Lower explosion limit: ca. 1.1 %(V)

**Boiling point/boiling range**  171 °C, 340 °F;

**Melting point/range**  -75 °C, -103 °F;

**Auto-ignition temperature**  ca. 230 °C, 446 °F;

**Decomposition temperature**  No data available
Butyl Glycol Ether

Flammability (solid, gas)  
No data available

Vapour pressure  
1 hPa @ 20 °C, 68 °F;

Vapour density  
4.1

Density  
0.9 g/cm³ @ 20 °C, 60 °F;

Specific gravity  
No data available

Water solubility  
completely miscible

Viscosity  
No data available

Viscosity, dynamic  
3.3 mPa.s @ 20 °C, 68 °F;

pH  
7 @ 20 °C, 68 °F;

Evaporation rate  
No data available

Partition coefficient: n-octanol/water  
No data available

SECTION 10  STABILITY AND REACTIVITY

Reactivity  
Stable at normal ambient temperature and pressure.

Chemical stability  
No decomposition if stored and applied as directed.

Conditions to avoid  
Keep away from heat and sources of ignition.

Hazardous decomposition products  
Combustion products include carbon dioxide, carbon monoxide and possibly other unidentified organic compounds.

Materials to avoid  
Oxidizing agents

Hazardous polymerisation  
Stable

SECTION 11  TOXICOLOGICAL INFORMATION

Acute dermal toxicity  
LD50 Rabbit: > 1,000 - 2,000 mg/kg(literature value)

Acute inhalation toxicity  
LC50 Rat (4 hours): > 10 - 20 mg/l (literature value)
## Acute oral toxicity
LD50 Rat: > 300 - 2,000 mg/kg (literature value)

## Skin corrosion/irritation
(Rabbit) Irritating.

## Serious eye damage/eye irritation
(Rabbit) Irritating.

## Respiratory or skin sensitisation
Guinea pig: not sensitizing; Maximisation Test (literature value)

## Germ cell mutagenicity
### Genotoxicity in vitro:
- **Type:** Ames test
- **System:** Salmonella typhimurium; with and without metabolic activation
- **Result:** In vitro tests did not show mutagenic effects (literature value)

### Genotoxicity in vivo:
No data available

### Assessment Mutagenicity:
Based on available data, the classification criteria are not met.

## Reproductive toxicity
### Reproductive toxicity:
No data available

### Assessment Reproductive toxicity:
No data available

### Teratogenicity:
No data available

### Assessment teratogenicity:
No data available

## STOT - single exposure
No data available

## STOT - repeated exposure
No data available

## Aspiration toxicity
No data available

## Carcinogenicity
### Assessment carcinogenicity:
Contains no ingredient listed as a carcinogen
### SECTION 12  ECOLOGICAL INFORMATION

**Toxicity to fish**  
LC50 (Oncorhynchus mykiss (rainbow trout)) 96 hours: > 100 mg/l; static test (literature value)

**Toxicity to aquatic invertebrates**  
EC50 (Daphnia magna (Water flea)) 48 hours: > 100 mg/l; static test (literature value)

**Toxicity to algae**  
EC50 (Pseudokirchneriella subcapitata (green algae)) 72 hours: > 100 mg/l; static test (literature value)

**Chronic toxicity to fish**  
NOEC (Danio rerio (zebra fish)) 21 d: > 100 mg/l; semi-static test; OECD Test Guideline 204 (literature value)

**Chronic toxicity to aquatic invertebrates**  
EC10 (Daphnia magna (Water flea)) 21 d: > 100 mg/l; semi-static test; OECD Test Guideline 211 (literature value)

**Biodegradation**  
Readily biodegradable.  
OECD Test Guideline 301B (28 d): > 60 % (literature value)

**Bioaccumulative potential**  
No data available

**Mobility in soil**  
No data available

**Other adverse effects**  
This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

### SECTION 13  DISPOSAL CONSIDERATIONS

**Waste Code**  
Any unused product or empty containers may be disposed of as non-hazardous in accordance with state and federal requirements. Re-evaluation of the product may be required by the user at the time of disposal, since the product uses, transformations, mixtures, contamination, and spillage may change the classification. If the resulting material is determined to be hazardous, please dispose in accordance with state and federal (40 CFR 262) hazardous waste regulations.

**Disposal methods**  
Dispose of only in accordance with local, state, and federal regulations.
Empty containers. Empty containers retain product residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Empty drums should be completely drained, triple-rinsed, properly bunged and promptly returned to a drum reconditioner, or properly disposed.

SECTION 14 TRANSPORT INFORMATION

DOT NA 1993, Combustible liquid n.o.s.(2-butoxyethanol), III
This product is regulated as a hazardous material according to the Department of Transportation only in bulk quantities (greater than 119 gallons per package).

IATA not regulated

IMDG Shipment by water under IMDG is non-regulated; however it must be shipped per the applicable DOT hazard classification if any part of the shipment is by ground.

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

Remarks No data available

SECTION 15 REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

TSCA Inventory Listing

Components 2-butoxyethanol  CAS-No. 111-76-2

SARA 302 Status

Components  CAS-No.  Weight percent
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 311/312 Classification

"Immediate (acute) health hazard", "Fire hazard"

SARA 313 Chemical

Components  CAS-No.  Weight percent
2-butoxyethanol  111-76-2  100 %

US. EPA CERCLA Hazardous Substances (40 CFR 302)

Components Reportable Quantity Weight percent
none
Butyl Glycol Ether

INTERNATIONAL REGULATIONS

WHMIS Classification
- Flammable liquids Category 4
- Acute toxicity (Oral) Category 4
- Acute toxicity (Inhalation) Category 4
- Acute toxicity (Dermal) Category 4
- Eye irritation Category 2A
- Skin irritation Category 2

European Union
Classification according to Regulation (EU) 1272/2008.
- Flammable liquids, Category 4
- Acute toxicity (Dermal), Category 4
- Acute toxicity (Inhalation), Category 4
- Acute toxicity (Oral), Category 4
- Eye irritation, Category 2
- Skin irritation, Category 2

Australia. Inventory of Chemical Substances (AICS) Listed

Japan. Inventory of Existing and New Chemical Substances (ENCS) Listed

Japan. Industrial Safety & Health Law (ISHL) Inventory Listed

Canada. Domestic Substances List (DSL) Inventory Listed

Canada. Non-Domestic Substance Listing (NDSL) Not listed

Philippines. Inventory of Chemicals / Chemical Substances (PICCS) Listed

Korea. Existing Chemicals Inventory (KECI) Listed

China. Inventory of Existing Chemical Substances (IECSC) Listed

Mexico. National Inventory of Chemical Substances (INSQ) Listed

New Zealand. Inventory of Chemicals (NZIoC) Listed

Switzerland. Inventory of Notified New Substances (CHINV) Listed

Taiwan. National Existing Chemical Inventory (NECI) Listed

Please note: The names and CAS numbers which are used for this product in the stated inventories may deviate from the information which is listed in Section 3.
Butyl Glycol Ether

STATE REGULATIONS

California Prop. 65
Components
none

SECTION 16
OTHER INFORMATION

HAZARD RATINGS

<table>
<thead>
<tr>
<th></th>
<th>Health</th>
<th>Flammability</th>
<th>Physical Hazard/Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMIS®</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>NFPA</td>
<td>2</td>
<td>2</td>
<td>0</td>
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