SECTION 1: Identification of the substance/mixture and of the company/undertaking

Date issued 21.01.2014

1.1. Product identifier
Product name Butyl glycol (BG)
Chemical name 2-butoxietanol
Synonyms Etylenglykolmonobutyleter
REACH Reg No. 01-2119475108-36-0000
CAS no. 111-76-2
Index no. 603-014-00-0
Article no. 17000000

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/preparation For the preparation of paints and as a solvent.

1.3. Details of the supplier of the safety data sheet
Manufacturer
Company name Fred Holmberg & Co AB
Office address Geijersgatan 8
Postal address Box 60056
Postcode S-216 10
City Limhamn
Country Sweden
Tel +46 (0)40 15 79 20
Fax +46 (0)40 16 22 95
E-mail info@holmberg.se
Website http://www.holmberg.se/en/

1.4. Emergency telephone number
Emergency telephone 112 (Europe)

SECTION 2: Hazards identification

2.1. Classification of substance or mixture
Classification according to Xi; R36/38
67/548/EEC or 1999/45/EC Xn; R20/21/22
Classification according to Acute tox. 4; H302;
Regulation (EC) No 1272/2008 Acute tox. 4; H312;
[CLP/GHS] Skin Irrit. 2; H315;
Eye Irrit. 2; H319;
Acute tox. 4; H332;

2.2. Label elements
Hazard Pictograms (CLP)

Signal word Warning
Hazard statements

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

Precautionary statements

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 Wash 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.
- P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- 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.
- 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.
- P363 Wash contaminated clothing before reuse.
- P501 Dispose of contents/container to

SECTION 3: Composition/information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Substance</th>
<th>Identification</th>
<th>Classification</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Butoxyethanol</td>
<td>CAS no.: 111-76-2</td>
<td>Xn; R20/21/22</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>EC no.: 203-905-0</td>
<td>Xi; R36/38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Index no.: 603-014-00-0</td>
<td>Acute tox. 4; H332</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synonyms: 2-Butoxyethanol</td>
<td>Acute tox. 4; H312</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute tox. 4; H302</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eye Irrit. 2; H319</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin Irrit. 2; H315</td>
<td></td>
</tr>
</tbody>
</table>

Column headings

- CAS no. = Chemical Abstracts Service; EU (Einecs or Elincs number) = European inventory of Existing Commercial Chemical Substances; Ingredient name = Name as specified in the substance list (substances that are not included in the substance list must be translated, if possible). Contents given in; %, %wt/wt, %vol/wt, %vol/vol, mg/m3, ppb, ppm, weight%, vol%
- HH/HF/HE
  - T+ = Very toxic, T = Toxic, C = Corrosive, Xn = Harmful, Xi = Irritating, E = Explosive, O = Oxidizing, F+ = Extremly flammable, F = Very flammable, N = Environmental hazard

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation

Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

Skin contact

Remove contaminated clothes and rinse skin thoroughly with water.

Eye contact

Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention if any discomfort continues.

Ingestion

NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Do not induce vomiting. Rinse mouth with water. Get medical attention.

4.2. Most important symptoms and effects, both acute and delayed
4.3. Indication of any immediate medical attention and special treatment needed
Specific details on antidotes
No recommendation given.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media
Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

5.2. Special hazards arising from the substance or mixture
Fire and explosion hazards
Solvent vapours may form explosive mixtures with air.
Hazardous combustion products
Fire creates: Carbon monoxide (CO). Carbon dioxide (CO2).

5.3. Advice for firefighters
Fire fighting procedures
No specific fire fighting procedure given.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Personal protection measures
Ensure suitable personal protection (including respiratory protection) during removal of spillages in a confined area. Ventilate well. Stop leak if possible without risk. Avoid contact with skin and eyes. Do not breathe vapour. For personal protection, see section 8.

6.2. Environmental precautions
Environmental precautionary measures
Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up
Cleaning method
Dam and absorb spillages with sand, earth or other non-combustible material.

6.4. Reference to other sections
Other instructions
Information regarding exposure / personal protection and disposal, see section 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Handling
Keep away from heat, sparks and open flame. Take precautionary measures against static discharges. Mechanical ventilation may be required.

Protective Safety Measures
Advice on general occupational hygiene
Provide easy access to water supply and eye wash facilities.

7.2. Conditions for safe storage, including any incompatibilities
Storage
Keep away from heat, sparks and open flame. Ground container and transfer equipment to eliminate static electric sparks. Store in a cool and well-ventilated place.

7.3. Specific end use(s)
Specific use(s)
Not entered.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Occupational Exposure limit values

<table>
<thead>
<tr>
<th>Substance</th>
<th>Identification</th>
<th>Value</th>
<th>TWA Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Butoxyethanol</td>
<td>CAS no.: 111-76-2</td>
<td>8-hour TWA: 25 ppm</td>
<td>2011</td>
</tr>
<tr>
<td></td>
<td>EC no.: 203-905-0</td>
<td>8-hour TWA: 123 mg/m3</td>
<td></td>
</tr>
</tbody>
</table>
Other Information about threshold limit values

Norske grenseverdier; FOR-2011-12-06-1358 vedlegg 1.
2-butoksyetanol: 8 t.: 10 ppm, 50 mg/m^3 (2003)

DNEL / PNEC

<table>
<thead>
<tr>
<th>Method of testing</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNEL Group: Consumer Exposure route: Inhalation Exposure frequency: Long term (repeated) Type of effect: Systemic effect Value: 49 mg/m^3</td>
<td></td>
</tr>
<tr>
<td>DNEL Group: Consumer Exposure route: Inhalation Exposure frequency: Short term (acute) Type of effect: Local effect Value: 123 mg/m^3</td>
<td></td>
</tr>
<tr>
<td>DNEL Group: Consumer Exposure route: Oral Exposure frequency: Long term (repeated) Type of effect: Systemic effect Value: 3.2 mg/kg</td>
<td></td>
</tr>
<tr>
<td>DNEL Group: Consumer Exposure route: Dermal Exposure frequency: Long term (repeated) Type of effect: Systemic effect Value: 38 mg/kg</td>
<td></td>
</tr>
<tr>
<td>DNEL Group: Worker Exposure route: Inhalation Exposure frequency: Long term (repeated) Type of effect: Systemic effect Value: 20 ppm</td>
<td></td>
</tr>
<tr>
<td>DNEL Group: Worker Exposure route: Dermal Exposure frequency: Long term (repeated) Type of effect: Systemic effect Value: 75 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Occupational exposure limits

Provide adequate ventilation. Observe Occupational Exposure Limits and minimise the risk of inhalation of vapours. Protective gloves and goggles are recommended. Provide eyewash, quick drench.

Safety signs

Respiratory protection

Respiratory protection must be used if air contamination exceeds acceptable level. Use respiratory equipment with gas filter, type A2.

Hand protection

Use protective gloves. Chemical resistant gloves required for prolonged or repeated contact. Gloves of nitrile rubber, PVA or Viton are recommended.

Eye / face protection
Eye protection
Use safety goggles or face shield in case of splash risk.

Skin protection
Skin protection (except hands) Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene / Environmental
Specific hygiene measures Wash hands after contact.

SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Fluid</td>
</tr>
<tr>
<td>Colour</td>
<td>Colourless</td>
</tr>
<tr>
<td>Odour</td>
<td>Mild</td>
</tr>
<tr>
<td>Comments, pH (as supplied)</td>
<td>Not relevant</td>
</tr>
<tr>
<td>Melting point/melting range</td>
<td>Value: &lt; -70,4 °C</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>Value: 168-172 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>Value: 67 °C</td>
</tr>
<tr>
<td>Explosion limit</td>
<td>Value: 1,1-10,6 %</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Value: 0,89 hPa</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Value: 3,7</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>Value: 899-902 kg/m3</td>
</tr>
<tr>
<td>Solubility description</td>
<td>Soluble in: Organic solvents. Miscible with water.</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Value: 0,81</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Value: 3,642 mm2/s</td>
</tr>
<tr>
<td>Method of testing</td>
<td>Kinematisk</td>
</tr>
<tr>
<td>Test temperature</td>
<td>20 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>Value: 67 °C</td>
</tr>
<tr>
<td>Explosion limit</td>
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<tr>
<td>Test temperature</td>
<td>20 °C</td>
</tr>
</tbody>
</table>

### 9.2. Other information

SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reactivity Heating may cause a fire.

### 10.2. Chemical stability

Stability Stable under the prescribed storage conditions.

### 10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Not known.

### 10.4. Conditions to avoid

Conditions to avoid Avoid heat, flames and other sources of ignition.

### 10.5. Incompatible materials

Materials to avoid Avoid contact with oxidising agents (e.g. nitric acid, peroxides and chromates). Strong acids.

### 10.6. Hazardous decomposition products

Hazardous decomposition products Fire creates: Carbon monoxide (CO). Carbon dioxide (CO2).

SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Toxicological Information:

<table>
<thead>
<tr>
<th>Toxicological data</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity (Oral LD50): mg/kg (oral rat)</td>
<td>1,746</td>
</tr>
<tr>
<td>Acute Toxicity (Inhalation LC50): mg/l (vapours) (4h)</td>
<td>2 - 20</td>
</tr>
<tr>
<td>Acute Toxicity (Dermal LD50): mg/kg Guinea Pig</td>
<td>&gt; 2000</td>
</tr>
</tbody>
</table>

Potential acute effects
Inhalation  In high concentrations, vapours are narcotic and may cause headache, fatigue, dizziness and nausea. Icke klassificerad som aspirationstoxisk (Not classified as asp. tox.)

Skin contact  Irritating to skin. Prolonged or frequent contact may cause redness, itching, eczema and skin cracking. Defats the skin.

Eye contact  May irritate and cause redness and pain. Causes serious eye irritation.

Ingestion  Ingestion of large amounts may cause unconsciousness. However, ingestion may cause nausea, headache, dizziness and intoxication. Ingestion may cause irritation of the gastrointestinal tract, vomiting and diarrhoea. May cause irritation to the mouth and throat.

Delayed effects / repeated exposure  
Sensitisation  Not known.
Chronic effects  None known.

Carcinogenic, Mutagenic or Reprotoxic  
Carcinogenicity  Not known.
Mutagenicity  Not known.
Teratogenic properties  Not known.
Reproductive toxicity  Not known.

SECTION 12: Ecological information

12.1. Toxicity  
Acute aquatic, fish  Value: 1,474 mg/l  
Method of testing: LC50 (OECD 203)  
Fish, species: Oncorhynchus mykiss  
Duration: 96h

Acute aquatic, algae  Value: 1,840 mg/l  
Method of testing: EC50 (OECD 201)  
Algae, species: Pseudokirchneriella subcapitata  
Duration: 72h

Acute aquatic, Daphnia  Value: 1,550 mg/l  
Method of testing: EC50 (OECD 202)  
Daphnia, species: Daphnia magna  
Duration: 48h

Other ecotoxicological information, fish  Chronic toxicity: NOEC (21 d) > 100 mg/l, Brachydanio rerio

Other ecotoxicological information, crustaceans  Chronic toxicity: NOEC (21 d) 100 mg/l, Daphnia magna (OECD Guideline 211)

12.2. Persistence and degradability  
Persistence and degradability description  Easily biodegradable.

Persistence and degradability  BOD5/COD: 0.32-0.76  
BOD: 96% after 14 d (MITI)  
95% degraded after 28 d, OECD 301E

12.3. Bioaccumulative potential  
Bioaccumulative potential  Will not bio-accumulate.

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment  
PBT assessment results  This substance is not classified as PBT or vPvB.

12.6. Other adverse effects  
Other adverse effects / Remarks  None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Specify the appropriate methods of disposal
Confirm disposal procedures with environmental engineer and local regulations.
Absorb in vermiculite or dry sand and dispose of at a licenced hazardous waste collection point. Liquid components can be disposed of by incineration.

Product classified as hazardous waste
Yes

Packaging classified as hazardous waste
Yes

SECTION 14: Transport information

14.1. UN number
Comments
Not dangerous goods in the meaning of ADR/RID, ADNR, IMDG-Code, ICAO/IATA-DGR.

14.2. UN proper shipping name

14.3. Transport hazard class(es)

14.4. Packing group

14.5. Environmental hazards
Comment
Not relevant.

14.6. Special precautions for user

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

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
Other Label Information

Legislation and regulations
Dangerous Substance Directive 67/548/EEC.

15.2. Chemical safety assessment

SECTION 16: Other information

Hazard symbol

R-phrases
R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.
R36/38 Irritating to eyes and skin.

S-phrases
S2 Keep out of the reach of children.
S24 Avoid contact with skin.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37 Wear suitable protective clothing and gloves.
S46 If swallowed, seek medical advice immediately and show this container or label.

Classification according to Regulation (EC) No 1272/2008
Acute tox. 4; H302;
[CLP/GHS]  

List of relevant R-phrases (under headings 2 and 3).  

- **R20/21/22** Harmful by inhalation, in contact with skin and if swallowed.  
- **R36/38** Irritating to eyes and skin.  

List of relevant H-phrases (Section 2 and 3).  

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

Responsible for safety data sheet  

Fred Holmberg & Co AB