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

Date issued 26.11.2013

1.1. Product identifier
Product name Antifreeze Long Life
Synonyms Fighting grade
Article no. 16800410

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

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 Xn; R22
67/548/EEC or 1999/45/EC Xn; R22
Classification according to Acute tox. 4; H302;
Regulation (EC) No 1272/2008 [CLP/GHS] STOT RE2; H373;

2.2. Label elements
Hazard Pictograms (CLP)

Signal word Warning
Hazard statements H302 Harmful if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure
Precautionary statements P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P314 Get medical advice/attention if you feel unwell.
P264 Wash thoroughly after handling.
P270 Do no eat, drink or smoke when using this product.
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330 Rinse mouth.
P501 Dispose of contents/container to in accordance with local regulations.

2.3. Other hazards
Other hazards
Not known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

<table>
<thead>
<tr>
<th>Substance</th>
<th>Identification</th>
<th>Classification</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethandiol</td>
<td>CAS no.: 107-21-1 EC no.: 203-473-3</td>
<td>Xn; R22 Acute tox. 4; H302</td>
<td>60 - 99 vikt%</td>
</tr>
<tr>
<td></td>
<td>Index no.: 603-027-00-1 Synonyms: Ethane-1,2-diol, vapour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol 99.5% (technical grade)</td>
<td>CAS no.: 56-81-5 EC no.: 200-289-5</td>
<td>Classification notes: Classification (67/548/EEC) Not classified.</td>
<td>5 - 30 %</td>
</tr>
<tr>
<td>Caustic potash</td>
<td>CAS no.: 1310-58-3 EC no.: 215-181-3 Index no.: 019-002-00-8 Synonyms: Potassium hydroxide</td>
<td>C; R35 Xn; R22 Acute tox. 4; H302 Skin Corr. 1A; H314</td>
<td>&lt; 0,5 %</td>
</tr>
<tr>
<td>Tolyltriazole</td>
<td>CAS no.: 29385-43-1 EC no.: 249-596-6</td>
<td>Xn; R22 Acute tox. 4; H302;</td>
<td>&lt; 0,1 %</td>
</tr>
<tr>
<td>Bitrex (Denatonium benzoate)</td>
<td>CAS no.: 3734-33-6 EC no.: 223-095-2</td>
<td>Xn; R22 Acute tox. 4; H302;</td>
<td>20 ppm</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+ = Extremely flammable, F = Very flammable, N = Environmental hazard

Remarks, substance
H373 has been added by the producer to classification regarding CAS no: 107-21-1, after Classification (EC 1272/2008).

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 clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues.

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
Immediately rinse mouth and drink plenty of water. If person becomes uncomfortable or if ingested in large amounts (50-100 ml for an adult person): Take to hospital along with these instructions. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach
4.2. Most important symptoms and effects, both acute and delayed
Information for health personnel
Treat symptomatically. Do not give victim anything to drink if he is unconscious.

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.

Improper extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire.

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.

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
No recommendation given.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Handling
Mechanical ventilation may be required. Observe good industrial hygiene practices.

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. 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>Ethaneediol</td>
<td>CAS no.: 107-21-1</td>
<td>8-hour TWA: 20 ppm</td>
<td>2011</td>
</tr>
</tbody>
</table>
EC no.: 203-473-3
Index no.: 603-027-00-1
Synonyms: Ethane-1,2-diol, vapour

8-hour TWA: 52 mg/m³
15 min.: 40 ppm
15 min.: 104 mg/m³

Caustic potash

CAS no.: 1310-58-3
EC no.: 215-181-3
Index no.: 019-002-00-8
Synonyms: Potassium hydroxide

15 min.: 2 mg/m³
2011

Other Information about threshold limit values
Norske grenseverdier; FOR-2011-12-06-1358 vedlegg 1.
1,2-etandiol: 8 t.: 20ppm, 52 mg/m³, Anm: H5 (2003)
H: Kjemikalier som kan tas opp gjennom huden.
WEL (Workplace Exposure Limit):
Glycerine 99.5% Tech: TWA - 8 Hrs, 10 mg/m³
Mono Ethylene Glycol: TWA - 8 Hrs: 20 ppm(Sk), 52 mg/m³(Sk), STEL - 15 Min: 40 ppm(Sk), 104 mg/m³(Sk)
POTASSIUM HYDROXIDE: STEL - 15 Min: 2 mg/m³
DNEL values represent 1,2-Etandiol, the major component of this mixture.

DNEL / PNEC

Method of testing
Contents
DNEL
Group: Industrial
Exposure route: Inhalation
Exposure frequency: Long term (repeated)
Value: 35 mg/m³
DNEL
Group: Industrial
Exposure route: Dermal
Exposure frequency: Long term (repeated)
Value: 106 mg/kg
DNEL
Group: Consumer
Exposure route: Inhalation
Exposure frequency: Long term (repeated)
Value: 7 mg/m³
DNEL
Group: Consumer
Exposure route: Dermal
Exposure frequency: Long term (repeated)
Value: 53 mg/m³

PNEC
Exposure route: Water
Value: 10 mg/l
Remarks: Freshwater
PNEC
Exposure route: Water
Value: 1 mg/l
Remarks: Marinewater
PNEC
Exposure route: Sewage treatment plant STP
Value: 199,5 mg/l
PNEC
Exposure route: Sediment
Value: 20.9 mg/kg
Remarks: Freshwater
PNEC
Exposure route: Soil
Value: 1,53 mg/kg
Remarks: Freshwater

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

Skin protection
Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene / Environmental
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 / Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Viscous liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>Blue, or Red, or Yellow, or Green, or Colourless.</td>
</tr>
<tr>
<td>Odour</td>
<td>No characteristic odour.</td>
</tr>
<tr>
<td>pH (as supplied)</td>
<td>Value: 7.5-9</td>
</tr>
<tr>
<td>Comments, Melting point / melting range</td>
<td>Fryspunkt vid spädning 1:1 (50/50 i vatten): ca -40 °C</td>
</tr>
<tr>
<td></td>
<td>Fryspunkt vid spädning 1:2 (33/66 i vatten): ca -20 °C</td>
</tr>
<tr>
<td></td>
<td>Freezingpoint after 1:1 dilution (50/50 dilution with water): ~ -40 °C.</td>
</tr>
<tr>
<td></td>
<td>Freezingpoint after 1:2 dilution (33/66 dilution with water): ~ -20 °C.</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>Value: 170-200 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>Value: &gt; 120 °C</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Value: &gt; 0.1 kPa</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>Value: 1150 kg/m3</td>
</tr>
<tr>
<td>Solubility description</td>
<td>Soluble in water.</td>
</tr>
<tr>
<td>Solubility in fat</td>
<td>Data lacking.</td>
</tr>
</tbody>
</table>

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity
There are no known reactivity hazards associated with this product.

10.2. Chemical stability
Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions
Not known.

10.4. Conditions to avoid
Avoid heat, flames and other sources of ignition. Avoid contact with strong oxidisers. Avoid contact with strong reducing agents.

10.5. Incompatible materials

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:

Other toxicological data
- Acute Toxicity (Oral LD50): mg/kg (oral rat) > 7712
- Acute Toxicity (Dermal LD50): Mouse > 3500
- Acute Toxicity (Inhalation LC50): Rat > 2,5 mg/l (vapours) 6h

Potential acute effects
- Inhalation: Icke klassificerad som aspirationstoxisk (Not classified as asp. tox.)
- Skin contact: Not Irritating.
- Eye contact: Not Irritating.
- Ingestion: Kan ge berusning, huvudvärk, yrsel, magsmärter, kramper och i allvarliga tillfällen medvetenskla. akut njurinsufficiens, andnings- och hjärtstillstånd. Dödande dos för en vuxen person: Ca 50-100 ml (1,2-etandiol).

Delayed effects / repeated exposure
- Sensitisation: Not known.
- Chronic effects: None known.
- STOT-repeated exposure: STOT - Repeated exposure
  - NOAEL 200 mg/kg Oral Rat

Carcinogenic, Mutagenic or Reprotoxic
- Carcinogenicity: Not known.
- Mutagenicity: None.
- Teratogenic properties: Not known.
- Reproductive toxicity: Not known.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic, fish
- Value: 72860 mg/l
- Method of testing: LC50
- Fish, species: Pimephales promelas
- Duration: 96h

Acute aquatic, fish, Comments
- Values represent 1,2-Etandiol, the major component of this mixture.

Acute aquatic, algae
- Value: 6500 mg/l
- Method of testing: EC50
- Algae, species: Selenastrum capricornutum
- Duration: 96h

Acute aquatic, algae, Comments
- Values represent 1,2-Etandiol, the major component of this mixture.

Acute aquatic, Daphnia
- Value: 100 mg/l
- Method of testing: EC50
- Daphnia, species: Daphnia magna
- Duration: 48h

Acute aquatic, Daphnia, Comments
- Values represent 1,2-Etandiol, the major component of this mixture.

Other ecotoxicological information, fish
- Chronic Toxicity - Fish Early life Stage
- NOEC 15380 mg/l Pimephales promelas (Fat-head Minnow) 7 days
- Values represent 1,2-Etandiol, the major component of this mixture.

12.2. Persistence and degradability

Degradation half life: Readily biodegradable

12.3. Bioaccumulative potential

Bioaccumulative potential: Bioconcentration potential is low.

Comments to bioaccumulation: Log Pow: -0,30

12.4. Mobility in soil
Mobility

The product is miscible with water. May spread in water systems.

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

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

R22 Harmful if swallowed.

S-phrases

S2 Keep out of the reach of children.
<table>
<thead>
<tr>
<th>Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]</th>
<th>Acute tox. 4; H302; STOT RE2; H373;</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of relevant R-phrases (under headings 2 and 3).</td>
<td>R35 Causes severe burns. R22 Harmful if swallowed.</td>
</tr>
<tr>
<td>List of relevant H-phrases (Section 2 and 3).</td>
<td>H302 Harmful if swallowed. H373 May cause damage to organs through prolonged or repeated exposure H314 Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>Responsible for safety data sheet</td>
<td>Fred Holmberg &amp; Co AB</td>
</tr>
</tbody>
</table>