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

1.1 **Product identifier**

**Trade name**

Ethane

**Identification numbers**

- CAS no. 74-84-0
- EC no. 200-814-8
- Index no. 601-002-00-X

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

**Relevant identified uses of the substance or mixture**

- Refrigerant for professional use in ultra-low temperature freezers

**Uses advised against**

No data available.

1.3 **Details of the supplier of the safety data sheet**

**Address**

Eppendorf AG
Barkhausenweg 1
D-22339 Hamburg

**Telephone no.** +49 40 53801-0

**Information provided by / telephone**

Eppendorf Application-Hotline
Tel.: +49 1803 66 67 89
Fax: +49 40 53 99 01 25
email: support@eppendorf.com

**Advice on Safety Data Sheet**

sdb_info@umco.de

1.4 **Emergency telephone number**

For medical advice (in German and English):
+49 (0)551 192 40 (Giftinformationszentrum Nord)

SECTION 2: Hazards identification

2.1 **Classification of the substance or mixture**

**Classification in accordance with Regulation (EC) No 1272/2008 (CLP)**

- Flam. Gas 1; H220
- Press. Gas

<table>
<thead>
<tr>
<th>Note</th>
<th>Specific concentration limits</th>
<th>M-factor (acute)</th>
<th>M-factor (chronic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Full text for the notes: pls. see section 16 "Notes relating to the identification, classification and labelling of substances ((EC) No 1272/2008, Annex VII)".

**Classification information**

This product is assessed and classified using the methods and criteria below referred to in Article 9 of Regulation (EC) no 1272/2008:

- Physical hazards: determined through assessment data based on the methods or standards referred to in part 2 of Annex I to CLP
- Health hazards and environmental hazards: determined through toxicological and ecotoxicological assessment data based on the methods or standards referred to in Part 3 and 4 of Annex I to CLP.
2.2  Label elements  

Labelling according to Regulation (EC) No 1272/2008 (CLP Regulation) 

**Product identifier**  
601-002-00-X (ethane)  

**Hazard pictograms**  

![GHS02](image1)  
![GHS04](image2)  

**Signal word**  
Danger  

**Hazard statements**  
H220  Extremely flammable gas.  
H280  Contains gas under pressure; may explode if heated.  

**Precautionary statements**  
P210  Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P377  Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  
P381  Eliminate all ignition sources if safe to do so.  
P403  Store in a well-ventilated place.  

2.3  Other hazards  

Vapours can form an explosive mixture with air.  

**PBT assessment**  
The product is not considered to be a PBT.  

**vPvB assessment**  
The product is not considered to be a vPvB.  

### SECTION 3: Composition/information on ingredients  

3.1  Substances  

**Chemical characterization**  

<table>
<thead>
<tr>
<th>Substance name</th>
<th>ethane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formula</td>
<td>C2 H5</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>30</td>
</tr>
</tbody>
</table>

**Identification numbers**  

<table>
<thead>
<tr>
<th>CAS no.</th>
<th>74-84-0</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC no.</td>
<td>200-814-8</td>
</tr>
<tr>
<td>Index no.</td>
<td>601-002-00-X</td>
</tr>
</tbody>
</table>

3.2  Mixtures  

Not applicable. The product is not a mixture.  

### SECTION 4: First aid measures  

4.1  Description of first aid measures  

**General information**  
If unconscious place in recovery position and seek medical advice.  

**After inhalation**  
Remove to fresh air, keep patient warm and at rest. Take medical treatment.  

**After skin contact**  
Do not attempt to remove any clothing that is frozen onto the skin. In case of frostbite: warm up frostbitten area by immersing the affected area in warm (but not hot) water. Remove contaminated clothing immediately and dispose of safely. Seek medical attention.
After eye contact
Remove contact lenses. Rinse eye thoroughly under running water keeping eyelids wide open and protecting the unaffected eye (at least 10 to 15 minutes). Seek medical assistance.

After ingestion
Seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed
No data available.

4.3 Indication of any immediate medical attention and special treatment needed
No data available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
- Suitable extinguishing media
  - Foam; Water mist; Extinguishing powder; Carbon dioxide
- Unsuitable extinguishing media
  - High power water jet

5.2 Special hazards arising from the substance or mixture
In case of fires, hazardous combustion gases are formed: Carbon monoxide (CO). In case of fire: danger of pressure build up, which could result in container rupture.

5.3 Advice for firefighters
Wear protective clothing. Use self-contained breathing apparatus. Cool endangered containers with water spray jet.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
- For non-emergency personnel
  - Close leaks. Keep away sources of ignition. Refer to protective measures listed in sections 7 and 8.
- For emergency responders
  - No data available. Personal protective equipment (PPE) - see Section 8.

6.2 Environmental precautions
Do not discharge into the drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up
Allow to evaporate.

6.4 Reference to other sections
No data available.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
- Advice on safe handling
  - Ensure adequate ventilation. Do not breathe steams or mist of the product. In case of accidental release: danger due to low temperature of the liquid product.
- General protective and hygiene measures
  - Do not eat or drink during work - no smoking. Avoid prolonged and/or repeated contact with skin.
- Advice on protection against fire and explosion
  - Keep away from ignition sources and provide for good ventilation. Take precautionary measures against static charges. No sparking tools should be used.

7.2 Conditions for safe storage, including any incompatibilities
- Technical measures and storage conditions
  - Protect from direct sunlight. Protect from temperatures over 50°C.
Requirements for storage rooms and vessels
Keep container tightly closed. Keep only in the original container (with safety valve).

Advice on storage assembly
Do not store together with oxidizing agents.

7.3 Specific end use(s)
No data available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
No parameters available for monitoring.

8.2 Exposure controls
Appropriate engineering controls
Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and solvent vapour below the OEL (=Occupational Exposure Limit), suitable respiratory protection must be worn.

Personal protective equipment
Respiratory protection
If workplace exposure limits are exceeded, a respiration protection approved for this particular job must be worn. Respiratory filter (gas) : AX

Eye / face protection
Tightly fitting safety glasses (EN 166).

Hand protection
Sufficient protection is given wearing suitable protective gloves checked according to i.e. EN 374, in the event of risk of skin contact with the product. Before use, the protective gloves should be tested in any case for its specific work-station suitability (i.e. mechanical resistance, product compatibility and antistatic properties). Adhere to the manufacturer’s instructions and information relating to the use, storage, care and replacement of protective gloves. Protective gloves shall be replaced immediately when physically damaged or worn. Design operations thus to avoid permanent use of protective gloves.

Other
Normal chemical work clothing.

Environmental exposure controls
No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Form/Colour</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>gas type</td>
<td></td>
</tr>
<tr>
<td>colourless</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odour</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>odourless</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odour threshold</th>
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</tr>
</thead>
<tbody>
<tr>
<td>No data available</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>pH value</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Boiling point / boiling range</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>-88.6 °C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Melting point / melting range</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>-183 °C</td>
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</tbody>
</table>
### Decomposition point / decomposition range
No data available

### Flash point
Not applicable

### Auto-ignition temperature
<table>
<thead>
<tr>
<th>Value</th>
<th>°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>515</td>
<td></td>
</tr>
</tbody>
</table>

### Oxidising properties
No data available

### Explosive properties
No data available

### Flammability (solid, gas)
No data available

### Lower flammability or explosive limits
<table>
<thead>
<tr>
<th>Value</th>
<th>% vol</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.4</td>
<td></td>
</tr>
</tbody>
</table>

### Upper flammability or explosive limits
<table>
<thead>
<tr>
<th>Value</th>
<th>% vol</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.3</td>
<td></td>
</tr>
</tbody>
</table>

### Vapour pressure
<table>
<thead>
<tr>
<th>Value</th>
<th>bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>37.8</td>
<td></td>
</tr>
</tbody>
</table>

### Vapour density
<table>
<thead>
<tr>
<th>Value</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

### Evaporation rate
No data available

### Relative density
<table>
<thead>
<tr>
<th>Value</th>
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</tr>
</thead>
<tbody>
<tr>
<td>0.54</td>
<td></td>
</tr>
</tbody>
</table>

### Density
No data available

### Solubility in water
<table>
<thead>
<tr>
<th>Value</th>
<th>mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>61</td>
<td></td>
</tr>
</tbody>
</table>

### Solubility(ies)
No data available

### Partition coefficient: n-octanol/water

<table>
<thead>
<tr>
<th>No</th>
<th>Substance name</th>
<th>CAS no.</th>
<th>EC no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ethane</td>
<td>74-84-0</td>
<td>200-814-8</td>
</tr>
</tbody>
</table>

### Log Pow
<table>
<thead>
<tr>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.81</td>
<td>Manufacturer</td>
</tr>
</tbody>
</table>

### Viscosity
<table>
<thead>
<tr>
<th>Value</th>
<th>mPa·s</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.08</td>
<td></td>
</tr>
</tbody>
</table>

### Other information

**Critical Temp.:** 32 °C
SECTION 10: Stability and reactivity

10.1 Reactivity
No data available.

10.2 Chemical stability
Stable under normal conditions of use.

10.3 Possibility of hazardous reactions
Vapours may form an explosive mixture with air.

10.4 Conditions to avoid
Heat, naked flames or other ignition sources, electrostatic charge and discharge, formation of vapours/aerosols.

10.5 Incompatible materials
Oxidizing agents; Formation of explosive gas/air mixtures.

10.6 Hazardous decomposition products
None, if handled according to intended use.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>No data available</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>No data available</td>
</tr>
<tr>
<td>Acute inhalational toxicity</td>
<td>No data available</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>No data available</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>No data available</td>
</tr>
<tr>
<td>Respiratory or skin sensitisation</td>
<td>No data available</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>No data available</td>
</tr>
<tr>
<td>Reproduction toxicity</td>
<td>No data available</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>No data available</td>
</tr>
<tr>
<td>STOT-single exposure</td>
<td>No data available</td>
</tr>
<tr>
<td>STOT-repeated exposure</td>
<td>No data available</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>No data available</td>
</tr>
</tbody>
</table>
SECTION 12: Ecological information

12.1 Toxicity

<table>
<thead>
<tr>
<th>Substance name</th>
<th>CAS no.</th>
<th>EC no.</th>
<th>Toxicity to fish (acute)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethane</td>
<td>74-84-0</td>
<td>200-814-8</td>
<td>LC50: 91.4 mg/l, Duration of exposure: 96 h, Species: fish, Source: Manufacturer</td>
</tr>
</tbody>
</table>

Toxicity to fish (chronic)
No data available

Toxicity to Daphnia (acute)

<table>
<thead>
<tr>
<th>Substance name</th>
<th>CAS no.</th>
<th>EC no.</th>
<th>Toxicity to Daphnia (acute)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethane</td>
<td>74-84-0</td>
<td>200-814-8</td>
<td>EC50: 46.6 mg/l, Duration of exposure: 48 h, Species: Daphnia magna, Source: Manufacturer</td>
</tr>
</tbody>
</table>

Toxicity to Daphnia (chronic)
No data available

Toxicity to algae (acute)

<table>
<thead>
<tr>
<th>Substance name</th>
<th>CAS no.</th>
<th>EC no.</th>
<th>Toxicity to algae (acute)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethane</td>
<td>74-84-0</td>
<td>200-814-8</td>
<td>EC50: 16.5 mg/l, Duration of exposure: 72 h, Species: Algae, Source: Manufacturer</td>
</tr>
</tbody>
</table>

Toxicity to algae (chronic)
No data available

Bacteria toxicity
No data available

12.2 Persistence and degradability
No data available.

12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Substance name</th>
<th>CAS no.</th>
<th>EC no.</th>
<th>Partition coefficient: n-octanol/water</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethane</td>
<td>74-84-0</td>
<td>200-814-8</td>
<td>log Pow: 1.81, Source: Manufacturer</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil
No data available.

12.5 Results of PBT and vPvB assessment

<table>
<thead>
<tr>
<th>PBT assessment</th>
<th>vPvB assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>The product is not considered to be a PBT.</td>
<td>The product is not considered to be a vPvB.</td>
</tr>
</tbody>
</table>

12.6 Other adverse effects
No data available.

12.7 Other information

Other information
Do not allow to enter soil, waterways or waste water canal.
SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste code 16 05 04* gases in pressure containers (including halons) containing hazardous substances

The listed waste code numbers, according to the European Waste Catalogue, are to be understood as a recommendation. A final decision must be made in agreement with the regional waste disposal company. Dispose of in accordance with local regulation. Refer to the EIGA code of practice (Doc.30 "Disposal of Gases"; http://www.eiga.org).

Packaging
Residuals must be removed from packaging and when emptied completely disposed of in accordance with the regulations for waste removal. Incompletely emptied packaging must be disposed of in the form of disposal specified by the regional disposer.

SECTION 14: Transport information

14.1 Transport ADR/RID/ADN

Class 2
Classification code 2F
Hazard identification no. 23
UN number UN1035
Technical name ETHANE
Tunnel restriction code B/D
Label 2.1

14.2 Transport IMDG

Class 2.1
UN number UN1035
Proper shipping name ETHANE
EmS F-D+S-U
Label 2.1

14.3 Transport ICAO-TI / IATA

Class 2.1
UN number UN1035
Proper shipping name Ethane
Label 2.1
Remarks Passenger aircraft: forbidden.

14.4 Other information

No data available.

14.5 Environmental hazards

Information on environmental hazards, if relevant, please see 14.1 - 14.3.

14.6 Special precautions for user

No data available.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not relevant
SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No 1907/2006 (REACH) Annex XIV (List of substances subject to authorisation)
In accordance with the Reach regulation (EC) 1907/2006, the product does not contain any substances that are considered as subject to listing in annex XIV, inventory of substances requiring authorisation.

REACH candidate list of substances of very high concern (SVHC) for authorisation
In accordance with article 57 and article 59 of the Reach regulation (EC) 1907/2006, this substance is not considered as subject to listing in annex XIV, inventory of substances requiring authorisation ("Authorization list").

The product is considered being subject to REACH regulation (EC) 1907/2006 annexe XVII.

Directive 2012/18/EU on the control of major accident hazards involving dangerous substances
This product is subject to Part I of Annex I, risk category: P2

15.2 Chemical safety assessment
For this substance a chemical safety assessment has been carried out.

SECTION 16: Other information

Sources of key data used to compile the data sheet:
National Threshold Limit Values of the corresponding countries as amended in each case.
Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.
The data sources used to determine physical, toxic and ecotoxic data, are indicated directly in the corresponding chapter.

Notes relating to the identification, classification and labelling of substances and mixtures ((EC) No 1272/2008, Annex VI)
U When put on the market gases have to be classified as 'Gases under pressure', in one of the groups compressed gas, liquefied gas, refrigerated liquefied gas or dissolved gas. The group depends on the physical state in which the gas is packaged and therefore has to be assigned case by case.

Department issuing safety data sheet
UMCO Umwelt Consult GmbH
Georg-Wilhelm-Str. 183, D-21107 Hamburg
Tel.: +49 40 / 79 02 36 300  Fax: +49 40 / 79 02 36 357  e-mail: umco@umco.de

This information is based on our present knowledge and experience.
The safety data sheet describes products with a view to safety requirements.
It does not however, constitute a guarantee for any specific product properties and shall not establish a legally valid contractual relationship.

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