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

1.1 Product identifier

**Trade name** Propionic acid

Stock number: L04210
CAS Number: 79-09-4
EC number: 201-176-3

**Index number:** 607-089-00-0

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

**Identified use:** SU24  Scientific research and development

1.3 Details of the supplier of the safety data sheet

**Manufacturer/Supplier:** Thermo Fisher (Kandel) GmbH
Zeppelinstr. 7b
76185 Karlsruhe / Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300
Email: tech@alfa.com
www.alfa.com
Informing department: Product safety Tel + +049 (0) 7275 988687-0

1.4 Emergency telephone number:

Carechem 24: +44 (o) 1235 239 670 (Multi-language emergency number)
Poison Information Center Mainz
www.giftinfo.uni-mainz.de  Telephone: +49(0)6131/19240

**SECTION 2: Hazards identification**

2.1 Classification of the substance or mixture

**Classification according to Regulation (EC) No 1272/2008**

- **GHS02 flame**
  - Flam. Liq. 3 H226 Flammable liquid and vapour.

- **GHS05 corrosion**
  - Skin Corr. 1B H314 Causes severe skin burns and eye damage.

**Classification according to Directive 67/548/EEC or Directive 1999/45/EC**

- *C; Corrosive
- R34: Causes burns.

**Information concerning particular hazards for human and environment:** Not applicable

**Other hazards that do not result in classification** No information known.

2.2 Label elements

**Labelled according to Regulation (EC) No 1272/2008** The substance is classified and labelled according to the CLP regulation.

**Hazard pictograms**

- GHS02 GHS05

**Signal word** Danger

**Hazard statements**
H226 Flammable liquid and vapour.
H314 Causes severe skin burns and eye damage.

**Precautionary statements**

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

**Results of PBT and vPvB assessment**

- PBT: Not applicable.
- vPvB: Not applicable.

**SECTION 3: Composition/information on ingredients**

3.1 Substances

- **CAS# Designation:** 79-09-4 Propionic acid
- **Identification number(s):**
  - EC number: 201-176-3
  - Index number: 607-089-00-0

**SECTION 4: First aid measures**

4.1 Description of first aid measures

**General information** Instantly remove any clothing soiled by the product.

**After inhalation**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
Seek immediate medical advice.

**After skin contact**
Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.

**After eye contact**
Rinse opened eye for several minutes under running water. Then consult doctor.

**After swallowing**
Seek medical treatment.

4.2 Most important symptoms and effects, both acute and delayed

Causes severe skin burns.
Causes serious eye damage.

(Contd. on page 2)
4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents: CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

5.2 Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:
Carbon monoxide and carbon dioxide

5.3 Advice for firefighters
Protective equipment:
Wear self-contained breathing apparatus.
Wear full protective suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation

6.2 Environmental precautions: Do not allow material to be released to the environment without proper governmental permits.

6.3 Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose of contaminated material as waste according to section 13.
Ensure adequate ventilation.

Prevention of secondary hazards:
No special measures required.

6.4 Reference to other sections
See Section 7 for information on safe handling
See section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Keep containers tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.

Information about protection against explosions and fires: Keep ignition sources away - Do not smoke.

7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and containers:
No special requirements.

Information about storage in one common storage facility:
Store away from strong bases.
Store away from oxidising agents.
Store away from reducing agents.
Store away from halogens.
Store away from amines.

Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Store in a locked cabinet or with access restricted to technical experts or their assistants.

7.3 Specific end use(s)
No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

8.1 Control parameters
Components with critical values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>79-09-4 Propionic acid (100.0%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOW (Germany) \ Long-term value: 31 mg/m³, 10 ppm</td>
</tr>
<tr>
<td>REL (USA) \ Short-term value: 45 mg/m³, 15 ppm</td>
</tr>
<tr>
<td>TLV (USA) \ Long-term value: 30 mg/m³, 10 ppm</td>
</tr>
</tbody>
</table>

Additional information: No data

8.2 Exposure controls
Personal protective equipment:

General protective and hygienic measures:
The usual precautionary measures should be adhered to in handling the chemicals.
Keep away from foodstuffs, beverages and food.
Instantly remove any soaked and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.

Breathing equipment:
Use breathing protection with high concentrations.

Recommended filter device for short term use:
Use a respirator with organic vapor/acid gas cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN (EU).

Protection of hands:
Check protective gloves prior to each use for their proper condition.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Material of gloves: Butyl rubber, BR
Penetration time of glove material (in minutes) 480
Glove thickness 0.3 mm
Eye protection:
Tightly sealed safety glasses.
Full face protection
Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
General Information
Appearance: Liquid
Colour: Colourless
Smell: Unpleasant
Odour threshold: Not determined.

pH-value: Not determined.

Change in condition
Melting point/Melting range: -21 °C
Boiling point/Boiling range: 140-141 °C
Sublimation temperature / start: Not determined

Flash point: 51 °C
Inflammability (solid, gaseous): Not applicable.
Ignition temperature: 485 °C
Decomposition temperature: Not determined
Self-ignitability: Not determined.

Danger of explosion: Product is not explosive. However, formation of explosive air/steam mixtures is possible.

Critical values for explosion:
Lower: 2.1 Vol %
Upper: 12.1 Vol %
Steam pressure at 20 °C: 4 hPa
Density at 20 °C: 0.992 g/cm³
Relative density: Not determined.
Vapour density: Not determined.
Evaporation rate: Not determined.
Solubility in / Miscibility with Water: Fully miscible
Partition coefficient (n-octanol/water): Not determined.
Viscosity:
- dynamic: Not determined.
- kinematic: Not determined.

SECTION 10: Stability and reactivity

10.1 Reactivity No information known.
10.2 Chemical stability Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions Reacts with strong oxidising agents
10.4 Conditions to avoid No further relevant information available.

10.5 Incompatible materials:
- Oxidising agents
- Bases
- Reducing agents
- Halogens
- Amines

10.6 Hazardous decomposition products: Carbon monoxide and carbon dioxide

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity:
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach. The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

LD/LC50 values that are relevant for classification:
- Oral LD50 2600 mg/kg (rat)
- Dermal LD50 500 mL/kg (rabbit)
- Inhalative LC50/4H >4900 mg/m³/4H (rat)

Skin irritation or corrosion: Causes severe skin burns.
Eye irritation or corrosion: Causes serious eye damage.
Sensitization: No sensitizing effect known.

Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

Reproductive toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for this substance.

12.2 Persistence and degradability No further relevant information available.
12.3 Bioaccumulative potential No further relevant information available.
12.4 Mobility in soil No further relevant information available.

Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability No further relevant information available.

12.3 Bioaccumulative potential No further relevant information available.

12.4 Mobility in soil No further relevant information available.

Additional ecological information:

General notes:
Do not allow material to be released to the environment without proper governmental permits.
Water hazard class 1 (Assessment by list): slightly hazardous for water.
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.
Avoid transfer into the environment.

12.5 Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Recommendation:
Hand over to disposers of hazardous waste.
Must be specially treated under adherence to official regulations.
Consult state, local or national regulations for proper disposal.

Uncleaned packaging:
Recommendation: Disposal must be made according to official regulations.
SECTION 14: Transport information

14.2 UN proper shipping name
ADR UN 3463 PROPIONIC ACID
IMDG, IATA PROPIONIC ACID

14.3 Transport hazard class(es)
ADR

Class 8 (CF1) Corrosive substances.

Label 8 + 3

IMDG, IATA

Class 8 Corrosive substances.

Label 8 + 3

Packing group ADR, IMDG, IATA II

14.5 Environmental hazards:
Not applicable.

14.6 Special precautions for user
Warning: Corrosive substances.

Kemler Number:
83

EMS Number:
F-E, S-C

Segregation groups Acids

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable.

Transport/Additional information:

ADR

 Excepted quantities (EQ): E2
 Limited quantities (LQ): 1L
 Transport category 2
 Tunnel restriction code D/E

UN "Model Regulation": UN3463, PROPIONIC ACID, 8 (3), II

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Australian Inventory of Chemical Substances: Substance is listed.

Standard for the Uniform Scheduling of Drugs and Poisons

15.2 Chemical safety assessment:
A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Global Marketing Department

Abbreviations and acronyms:
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organization
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VFR: Verordnung über brenzbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
vPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)