1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Propionic acid
Product Number: P1386
Brand: Sigma-Aldrich
Supplier: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Combustible Liquid, Target Organ Effect, Toxic by inhalation., Toxic by skin absorption, Corrosive

Target Organs
Central nervous system, Blood, Liver, Kidney

Other hazards which do not result in classification
Rapidly absorbed through skin.

GHS Classification
Flammable liquids (Category 3)
Acute toxicity, Oral (Category 5)
Acute toxicity, Inhalation (Category 3)
Acute toxicity, Dermal (Category 3)
Skin irritation (Category 2)
Serious eye damage (Category 1)
Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Pictogram
Signal word: Danger
Hazard statement(s)
H226 Flammable liquid and vapour.
H303 May be harmful if swallowed.
H311 + H331 Toxic in contact with skin or if inhaled.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H402 Harmful to aquatic life.
Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280 Wear protective gloves/ eye protection/ face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P311 Call a POISON CENTER or doctor/ physician.

HMIS Classification
Health hazard: 3
Chronic Health Hazard: *
Flammability: 2
Physical hazards: 0

NFPA Rating
Health hazard: 3
Fire: 2
Reactivity Hazard: 0

Potential Health Effects
Inhalation Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin Toxic if absorbed through skin. Causes skin burns.
Eyes Causes eye burns.
Ingestion May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Propanoic acid
Propanyl acid

Formula: \( C_3H_6O_2 \)
Molecular Weight: 74.08 g/mol

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>79-09-4</td>
<td>201-176-3</td>
<td>607-089-00-0</td>
<td>-</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Conditions of flammability
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propionic acid</td>
<td>79-09-4</td>
<td>TWA</td>
<td>10 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Remarks
Eye, skin, & Upper Respiratory Tract irritation

<table>
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<tr>
<th></th>
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<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA</td>
<td>10 ppm</td>
<td>30 mg/m3</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants -1910.1000</td>
</tr>
<tr>
<td>TWA</td>
<td>10 ppm</td>
<td>30 mg/m3</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td>ST</td>
<td>15 ppm</td>
<td>45 mg/m3</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
</tbody>
</table>

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
**Eye protection**
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**
- Form: liquid, clear
- Colour: colourless

**Safety data**
- pH: 2.5 at 100 g/l at 20 °C (68 °F)
- Melting point/freezing point: -24 - -23 °C (-11 - -9 °F)
- Boiling point: 141 - 142 °C (286 - 288 °F)
- Flash point: 54 °C (129 °F) - closed cup
- Ignition temperature: 513 °C (955 °F)
- Autoignition temperature: no data available
- Lower explosion limit: 2.9 %(V)
- Upper explosion limit: 12.1 %(V)
- Vapour pressure: 3.2 hPa (2.4 mmHg) at 20 °C (68 °F)
  13 hPa (10 mmHg) at 39.70 °C (103.46 °F)
- Density: 0.992 g/cm³
- Water solubility: soluble
- Partition coefficient: n-Octanol/water: log Pow: 0.25
- Relative vapour density: 2.56
  - (Air = 1.0)
- Odour: no data available
- Odour Threshold: no data available
- Evaporation rate: no data available

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### 10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**
no data available

**Conditions to avoid**
Heat, flames and sparks.

**Materials to avoid**
Strong oxidizing agents
Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
LD50 Oral - rat - 3,500 - 4,200 mg/kg
LD50 Oral - rat - 2,600 mg/kg
LD50 Oral - Mammal - 1,640 mg/kg

Inhalation LC50
LC50 Inhalation - rat - 4 h - > 4.9 mg/l

Dermal LD50
LD50 Dermal - rabbit - 500 mg/kg

Other information on acute toxicity
LD50 Intravenous - mouse - 625 mg/kg
Remarks: Behavioral: Convulsions or effect on seizure threshold.
LD50 Parenteral - rat - 3,500 mg/kg

Skin corrosion/irritation
Skin - rabbit - Severe skin irritation

Serious eye damage/eye irritation
Eyes - rabbit - Severe eye irritation

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Teratogenicity
no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available
Aspiration hazard
no data available

Potential health effects

**Inhalation**
Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

**Ingestion**
May be harmful if swallowed.

**Skin**
Toxic if absorbed through skin. Causes skin burns.

**Eyes**
Causes eye burns.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects
no data available

Additional Information
RTECS: UE5950000

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12. ECOLOGICAL INFORMATION

**Toxicity**

- **Toxicity to fish**
  LC50 - Oncorhynchus mykiss (rainbow trout) - 51.0 - 73.2 mg/l - 96 h
- **Toxicity to daphnia and other aquatic invertebrates.**
  EC50 - Daphnia magna (Water flea) - 21.0 - 24.6 mg/l - 48 h

**Persistence and degradability**

- **Biodegradability**
  aerobic
  Result: 95 % - Readily biodegradable.

**Bioaccumulative potential**
no data available

**Mobility in soil**
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

no data available

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13. DISPOSAL CONSIDERATIONS

**Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**

Dispose of as unused product.

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14. TRANSPORT INFORMATION

**DOT (US)**

- UN number: 3463
- Class: 8 (3)
- Packing group: II
- Proper shipping name: Propionic acid
- Reportable Quantity (RQ): 5000 lbs
- Marine pollutant: No
- Poison Inhalation Hazard: No
IMDG
UN number: 3463  Class: 8 (3)  Packing group: II  EMS-No: F-E, S-C
Proper shipping name: PROPIONIC ACID
Marine pollutant: No

IATA
UN number: 3463  Class: 8 (3)  Packing group: II
Proper shipping name: Propionic acid

15. REGULATORY INFORMATION

OSHA Hazards
Combustible Liquid, Target Organ Effect, Toxic by inhalation., Toxic by skin absorption, Corrosive

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

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.