# SAFETY DATA SHEET

Version 6.8
Revision Date 09/07/2024
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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name : Propionic acid

Product Number : 402907
Brand : Sigma-Aldrich
Index-No. : 607-089-00-0
CAS-No. : 79-09-4

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

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

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

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

### 1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable liquids (Category 3), H226
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word: Danger

Hazard Statements

| | |
|---|---|
| H226 | Flammable liquid and vapor. |
| H314 | Causes severe skin burns and eye damage. |
| H335 | May cause respiratory irritation. |

Precautionary Statements

| | |
|---|---|
| P210 | Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking. |
| P233 | Keep container tightly closed. |
| P240 | Ground/bond container and receiving equipment. |
| P241 | Use explosion-proof electrical/ ventilating/ lighting/ equipment. |
| P242 | Use only non-sparking tools. |
| P243 | Take precautionary measures against static discharge. |
| P261 | Avoid breathing mist or vapors. |
| P264 | Wash skin thoroughly after handling. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P280 | Wear protective gloves/ protective clothing/ eye protection/ face protection. |
| P301 + P330 + P331 | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. |
| P303 + P361 + P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. |
| P304 + P340 + P310 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor. |
| P305 + P351 + P338 + P310 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor. |
| P363 | Wash contaminated clothing before reuse. |
| P370 + P378 | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. |
| P403 + P233 | Store in a well-ventilated place. Keep container tightly closed. |
| P403 + P235 | Store in a well-ventilated place. Keep cool. |
| P405 | Store locked up. |
| P501 | Dispose of contents/ container to an approved waste disposal plant. |

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Rapidly absorbed through skin.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Synonyms : Propanoic acid

Propanyl acid
Acid C3

| | | |
|---|---|---|
| Formula | : | $C_3H_6O_2$ |
| Molecular weight | : | 74.08 g/mol |
| CAS-No. | : | 79-09-4 |
| EC-No. | : | 201-176-3 |
| Index-No. | : | 607-089-00-0 |

| Component | Classification | Concentration |
|---|---|---|
| **propionic acid** | | |
| | Flam. Liq. 3; Skin Corr. 1B; Eye Dam. 1; STOT SE 3; H226, H314, H318, H335<br>Concentration limits:<br>>= 25 %: Skin Corr. 1B, H314; 10 - < 25 %: Skin Irrit. 2, H315; 10 - < 25 %: Eye Irrit. 2, H319; >= 10 %: STOT SE 3, H335; | <= 100 % |

For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

**General advice**
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

**If inhaled**
After inhalation: fresh air. Call in physician.

**In case of skin contact**
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

**In case of eye contact**
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

**If swallowed**
After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

### 4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 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**
Water Foam Carbon dioxide (CO2) Dry powder

**Unsuitable extinguishing media**
For this substance/mixture no limitations of extinguishing agents are given.

### 5.2 Special hazards arising from the substance or mixture

Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air at elevated temperatures.
Development of hazardous combustion gases or vapours possible in the event of fire.

### 5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### 5.4 Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.
Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

### 6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

### 6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent and neutralising material (e.g. Chemizorb® $H^+$, Merck Art. No. 101595). Dispose of properly. Clean up affected area.

### 6.4 Reference to other sections

For disposal see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

**Advice on protection against fire and explosion**
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

**Hygiene measures**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

**Storage conditions**
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

**Storage class**
Storage class (TRGS 510): 3: Flammable liquids

### 7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**Ingredients with workplace control parameters**

| Component | CAS-No. | Value | Control parameters | Basis |
|---|---|---|---|---|
| propionic acid | 79-09-4 | TWA | 10 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | | TWA | 10 ppm<br>30 mg/m3 | USA. NIOSH Recommended Exposure Limits |
| | | ST | 15 ppm<br>45 mg/m3 | USA. NIOSH Recommended Exposure Limits |
| | | PEL | 10 ppm<br>30 mg/m3 | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |

**Derived No Effect Level (DNEL)**

| Application Area | Routes of exposure | Health effect | Value |
|---|---|---|---|
| Workers | Inhalation | Acute local effects, Acute systemic effects | 62 mg/m3 |
| Workers | Inhalation | Long-term local effects, Long-term systemic effects | 31 mg/m3 |
| Workers | Skin contact | Long-term systemic effects | 132mg/kg BW/d |

**Predicted No Effect Concentration (PNEC)**

| Compartment | Value |
|---|---|
| Soil | 0.1258 mg/kg |
| Sea water | 0.05 mg/l |
| Fresh water | 0.5 mg/l |
| Sea sediment | 0.186 mg/kg |

| | |
|---|---|
| Fresh water sediment | 1.86 mg/kg |
| Sewage treatment plant | 5 mg/l |
| Aquatic intermittent release | 5 mg/l |

## 8.2 Exposure controls

**Appropriate engineering controls**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

**Personal protective equipment**

**Eye/face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

**Skin protection**
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Butoject® (KCL 898)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 120 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

**Body Protection**
Flame retardant antistatic protective clothing.

**Respiratory protection**
Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

**Control of environmental exposure**
Do not let product enter drains. Risk of explosion.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

| | | |
|---|---|---|
| a) | Appearance | Form: liquid, clear<br>Color: colorless |
| b) | Odor | pungent |
| c) | Odor Threshold | 0.0003 ppm |
| d) | pH | 2.5 at 100 g/l at 20 °C (68 °F) |
| e) | Melting point/freezing point | Melting point/ range: -24 °C (-11 °F) - lit. |
| f) | Initial boiling point and boiling range | 141 °C 286 °F - lit. |
| g) | Flash point | 54 °C (129 °F) - closed cup |
| h) | Evaporation rate | No data available |
| i) | Flammability (solid, gas) | No data available |
| j) | Upper/lower flammability or explosive limits | Upper explosion limit: 12.1 %(V)<br>Lower explosion limit: 2.9 %(V) |
| k) | Vapor pressure | 3.2 hPa at 20 °C (68 °F) |
| l) | Vapor density | 2.56 - (Air = 1.0) |
| m) | Density | 0.993 g/mL at 25 °C (77 °F) - lit. |
| | Relative density | No data available |
| n) | Water solubility | soluble |
| o) | Partition coefficient: n-octanol/water | log Pow: 0.29 - Bioaccumulation is not expected., (Lit.) |
| p) | Autoignition temperature | 440 °C (824 °F) at 1,013 hPa |
| q) | Decomposition temperature | No data available |
| r) | Viscosity | No data available |
| s) | Explosive properties | No data available |
| t) | Oxidizing properties | none |

### 9.2 Other safety information

| | |
|---|---|
| Surface tension | 27.21 mN/m at 15 °C (59 °F) |
| Dissociation constant | 4.88 |
| Relative vapor density | 2.56 - (Air = 1.0) |

## SECTION 10: Stability and reactivity

### 10.1 Reactivity
Vapor/air-mixtures are explosive at intense warming.

### 10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions
Exothermic reaction with:
Oxidizing agents
Reducing agents
alkalines
Risk of ignition or formation of inflammable gases or vapours with:
Iron
Zinc
magnesium
Lead

### 10.4 Conditions to avoid
Heating.

### 10.5 Incompatible materials
No data available

### 10.6 Hazardous decomposition products
In the event of fire: see section 5

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

**Acute toxicity**
LD50 Oral - Rat - male and female - 3,455.1 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Rat - male and female - 1 h - > 19.7 mg/l - vapor

(OECD Test Guideline 403)
LD50 Dermal - Rat - female - 3,235 mg/kg
(OECD Test Guideline 402)

**Skin corrosion/irritation**
Skin - Rabbit
Result: Corrosive
Remarks: (ECHA)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: Causes serious eye damage. - 24 h

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

**Respiratory or skin sensitization**
No data available

**Germ cell mutagenicity**
Test Type: sister chromatid exchange assay
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: negative
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: Micronucleus test
Species: Chinese hamster
Cell type: Bone marrow
Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: negative

**Carcinogenicity**

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

NTP: No ingredient 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 on OSHA's list of regulated carcinogens.

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
Inhalation - May cause respiratory irritation. - Respiratory Tract

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

## 11.2 Additional Information

Repeated dose toxicity - Mouse - female - Dermal - 90 Days - LOAEL (Lowest observed adverse effect level) - 136.9 mg/kg

RTECS: UE595000
May cause an asthmatic-like bronchitis., Nausea, Dizziness, Headache, Blood disorders,
May cause irritation to eyes and respitatory passages to workers briefly exposed to high concentrations
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence

## SECTION 12: Ecological information

### 12.1 Toxicity

| | |
|---|---|
| Toxicity to fish | static test LC50 - Leuciscus idus (Golden orfe) - > 10,000 mg/l - 96 h<br>(DIN 38412)<br>Remarks: The value is given in analogy to the following substances: calcium dipropionate |
| Toxicity to daphnia and other aquatic invertebrates | static test EC50 - Daphnia magna (Water flea) - > 500 mg/l - 48 h<br>(Directive 67/548/EEC, Annex V, C.2.)<br>Remarks: The value is given in analogy to the following substances: calcium dipropionate |
| Toxicity to algae | static test EC50 - Desmodesmus subspicatus (green algae) - > 500 mg/l - 72 h<br>(OECD Test Guideline 201)<br>Remarks: The value is given in analogy to the following substances: calcium dipropionate |
| Toxicity to bacteria | EC50 - Pseudomonas putida - 60 mg/l - 17 h<br>(DIN 38412)<br>Remarks: (IUCLID) |

### 12.2 Persistence and degradability

| | |
|---|---|
| Biodegradability | Result: - Readily biodegradable. |
| Chemical Oxygen Demand (COD) | 1,420 mg/g<br>Remarks: (IUCLID) |
| Theoretical oxygen demand | 1,510 mg/g<br>Remarks: (IUCLID) |
| Ratio BOD/ThBOD | 69 - 78 %<br>Remarks: (IUCLID) |

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Endocrine disrupting properties

No data available

### 12.7 Other adverse effects

Additional ecological information

Biological effects:

Harmful effect due to pH shift.

Discharge into the environment must be avoided.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

**Product**

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

## SECTION 14: Transport information

**DOT (US)**

UN number: 3463 Class: 8 (3) Packing group: II
Proper shipping name: Propionic acid
Reportable Quantity (RQ): 5000 lbs
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

**IATA**

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

## SECTION 15: Regulatory information

**CERCLA Reportable Quantity**

| Components | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|---|---|---|---|
| propionic acid | 79-09-4 | 5000 | 5000 |

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

| | | |
|---|---|---|
| **SARA 311/312 Hazards** | : | Fire Hazard<br>Acute Health Hazard<br>Chronic Health Hazard |
| **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. |

**US State Regulations**

**Massachusetts Right To Know**

| | |
|---|---|
| propionic acid | 79-09-4 |

**Pennsylvania Right To Know**

| | |
|---|---|
| propionic acid | 79-09-4 |

**Maine Chemicals of High Concern**

Product does not contain any listed chemicals

**Vermont Chemicals of High Concern**

Product does not contain any listed chemicals

**Washington Chemicals of High Concern**

Product does not contain any listed chemicals

**The ingredients of this product are reported in the following inventories:**

| | | |
|---|---|---|
| TSCA | : | All substances listed as active on the TSCA inventory |

**TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

## SECTION 16: Other information

### Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.



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