

SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Version: 1.0

Creation Date: Aug 12, 2017

Revision Date: Aug 12, 2017

1. Identification

1.1 GHS Product identifier

Product name	propionic acid
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1.2 Other means of identification

Product number	-
Other names	Propionic acid

1.3 Recommended use of the chemical and restrictions on use

Identified uses	For industry use only. Food additives
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Uses advised against	no data available
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2.Hazard identification

2.1Classification of the substance or mixture

Skin corrosion, Category 1B

2.2GHS label elements, including precautionary statements

Pictogram(s)	
Signal word	Danger
Hazard statement(s)	H314 Causes severe skin burns and eye damage
Precautionary statement(s)	

Prevention	<p>P260 Do not breathe dust/fume/gas/mist/vapours/spray.</p> <p>P264 Wash ... thoroughly after handling.</p> <p>P280 Wear protective gloves/protective clothing/eye protection/face protection.</p>
Response	<p>P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</p> <p>P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].</p> <p>P363 Wash contaminated clothing before reuse.</p> <p>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P310 Immediately call a POISON CENTER/doctor/...</p> <p>P321 Specific treatment (see ... on this label).</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p>
Storage	<p>P405 Store locked up.</p>
Disposal	<p>P501 Dispose of contents/container to ...</p>

2.3Other hazards which do not result in classification

none

3.Composition/information on ingredients

3.1Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
propionic acid	propionic acid	79-09-4	none	100%

4.First-aid measures

4.1Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest. Half-upright position. Refer for medical attention.

In case of skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Rinse mouth. Do NOT induce vomiting. Give one or two glasses of water to drink. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Liquid causes skin and eye burns. Vapors may irritate eyes, nose, and throat, but should not cause systemic illness. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist respirations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary ... Monitor for shock and treat if necessary ... For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport ... Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Activated charcoal is not effective ... Do not attempt to neutralize because of exothermic reaction. Cover skin burns with dry, sterile dressings after decontamination ... /Organic acids and related compounds/

5. Fire-fighting measures**5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, dry chemical, "alcohol resistant" foam, or carbon dioxide. Use water spray to keep fire-exposed containers cool.

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 132 [Flammable Liquids - Corrosive]: Flammable/combustible material. May be ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion hazard indoors, outdoors or in sewers. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water. (ERG, 2016)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment. Personal protection: chemical protection suit including self-contained breathing apparatus.

6.3 Methods and materials for containment and cleaning up

Use water spray to cool and disperse vapors, protect personnel, and dilute spills to form nonflammable mixtures. Control runoff and isolate discharged material for proper disposal.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof. Separated from strong oxidants, strong bases and food and feedstuffs. Outside or detached storage is preferred. Store in a cool, dry, well-ventilated location.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 10 ppm (30 mg/cu m).

Recommended Exposure Limit: 15 Min Short-Term Exposure Limit: 15 ppm (45 mg/cu m).

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. 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. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9.Physical and chemical properties

Physical state	Clear, colorless liquid
Colour	Colorless, oily liquid [Note: A solid below 5 degrees F]
Odour	Slightly pungent disagreeable, rancid odor
Melting point/ freezing point	17°C(lit.)
Boiling point or initial boiling point and boiling range	141°C(lit.)

Flammability	Class II Combustible Liquid: Fl.P. at or above 37.78°C and below 60°C.Flammable.
Lower and upper explosion limit / flammability limit	Lower flammable limit: 2.9% by volume; Upper flammable limit: 12.1% by volume
Flash point	54°C
Auto-ignition temperature	512.78°C
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	cP: 1.175 at 15°C; 1.020 at 25°C; 0.956 at 30°C; 0.668 at 60°C; 0.495 at 90°C
Solubility	In water:37 g/100 mL
Partition coefficient n-octanol/water	no data available

(log value)	
Vapour pressure	2.4 mm Hg (20 °C)
Density and/or relative density	0.993g/mL at 25°C(lit.)
Relative vapour density	2.55 (vs air)
Particle characteristics	no data available

10.Stability and reactivity

10.1Reactivity

no data available

10.2Chemical stability

Stable under recommended storage conditions.

10.3Possibility of hazardous reactions

Flammable liquid. Highly flammable when exposed to heat, flame, or oxidizers. PROPIONIC ACID is a colorless, oily liquid, moderately toxic, corrosive. Flammable when exposed to heat, flame or oxidizers. When heated to decomposition it emits acrid smoke and irritating fumes [Lewis, 3rd ed., 1993, p. 1090].

10.4Conditions to avoid

no data available

10.5Incompatible materials

Alkalis, strong oxidizers (e.g., chromium trioxide) [Note: Corrosive to steel].

10.6Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

11.Toxicological information

Acute toxicity

- Oral: LD50 Rat single oral > 400 mg/kg
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12.Ecological information**12.1Toxicity**

- Toxicity to fish: LC50 Pimephales promelas (Fathead minnow) 4740 mg/L/96 hr (confidence limit 4390-5120 mg/L), flow-through bioassay with measured concentrations, 24.7°C, dissolved oxygen 6.1 mg/L, hardness 40.5 mg/L CaCO₃, alkalinity 42.2 mg/L CaCO₃, and pH 7.60. Tank concentrations were corrected for sodium concentrations of 23.9%. /Propionic acid sodium salt

- Toxicity to daphnia and other aquatic invertebrates: LC50 Daphnia magna 130 mg/L/24 hr /Conditions of bioassay not specified
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: a number of aerobic biological screening studies, which utilized settled waste water, sewage, or activated sludge for inocula, have demonstrated that propionic acid is readily biodegradable(1-14). For example, 5 day theoretical BOD's of 23-55%(6), 37%(15), 40%(9) and 71%(2) have been reported. These studies indicate propionic acid should degrade rapidly under most environmental conditions.

12.3 Bioaccumulative potential

An estimated BCF of 3.2 was calculated for propionic acid(SRC), using a log Kow of 0.33(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low.

12.4 Mobility in soil

The Koc of propionic acid is estimated as 36(SRC), using a log Kow of 0.33(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that propionic acid is expected to have very high mobility in soil. The pKa of propionic acid is 4.87(4), indicating that this compound will primarily exist in anion form in the environment and anions generally do not adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts(5).

12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14.Transport information**14.1UN Number**

ADR/RID: UN3463	IMDG: UN3463	IATA: UN3463
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14.2UN Proper Shipping Name

ADR/RID: PROPIONIC ACID with not less than 90% acid by mass
IMDG: PROPIONIC ACID with not less than 90% acid by mass
IATA: PROPIONIC ACID with not less than 90% acid by mass

14.3Transport hazard class(es)

ADR/RID: 8	IMDG: 8	IATA: 8
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14.4Packing group, if applicable

ADR/RID: II	IMDG: II	IATA: II
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14.5Environmental hazards

ADR/RID: no	IMDG: no	IATA: no
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14.6Special precautions for user

no data available

14.7Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15.Regulatory information

15.1Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
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propionic acid	propionic acid	79-09-4	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

16.Other information

Information on revision

Creation Date	Aug 12, 2017
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Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

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