

Material Safety Data Sheet

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Version 1.5

According to 91/155/EEC

1 - Product and Company Information

Product Name	PROPIONIC ACID, 99.5+%, A.C.S. REAGENT
Product Number	402907
Company	Sigma-Aldrich Pte Ltd #08-01 Citilink Warehouse Singapore 118529 Singapore
Technical Phone #	65 271 1089
Fax	65 271 1571

2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
PROPIONIC ACID	79-09-4	201-176-3	607-089-00-0
Formula	C3H6O2		
Molecular Weight	74.08 AMU		
Synonyms	Acide propionique (French) * Carboxyethane * Ethanecarboxylic acid * Ethylformic acid * Kyselina propionova (Czech) * Luprosil * Metacetic acid * Methyl acetic acid * Propanoic acid * Propionic acid (ACGIH) * Propionic acid grain preserver * Prozoin * Pseudoacetic acid * Sentry grain preserver * Tenox P grain preservative		

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Causes burns.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is

conscious. Call a physician. Do not induce vomiting.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS

Specific Hazard(s): Combustible liquid. Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed. Keep away from heat and open flame. Store in a cool dry place.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	30 mg/m ³
Poland		NDSch	45 mg/m ³
Poland		NDSP	

EXPOSURE LIMITS - EUROPEAN UNION

Source	Type	Value
OEL	OEL	31 mg/m ³
		10 ppm

EXPOSURE LIMITS - DENMARK

	Source OEL	Type TWA	Value 30 mg/m3 10 ppm
EXPOSURE LIMITS - GERMANY			
	Source TRGS 900	Type OEL	Value 31 mg/m3
Remarks: =1=			
EXPOSURE LIMITS - NORWAY			
	Source	Type OEL	Value 30 mg/m3 10 ppm
EXPOSURE LIMITS - SWEDEN			
	Source	Type LLV (Level	Value 30 mg/m3 10 ppm
EXPOSURE LIMITS - SWITZERLAND			
	Source OEL	Type OEL	Value 30 mg/m3 10 ppm
EXPOSURE LIMITS - UNITED KINGDOM			
	Source OEL	Type OEL	Value 31 mg/m3 10 ppm
	OEL	STEL	46 mg/m3 15 ppm

Remarks: Indicative limit value

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.
Hand Protection: Compatible chemical-resistant gloves.
Eye Protection: Chemical safety goggles.
Special Protective Measures: Faceshield (8-inch minimum).

9 - Physical and Chemical Properties

Appearance	Physical State: Clear liquid Color: Colorless	
Property	Value	At Temperature or Pressure
pH	2.5	20 °C Concentration: 100 g/l
BP/BP Range	141 - 142 °C	
MP/MP Range	-24 - -23 °C	
Flash Point	54 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	513 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 2.9 % Upper: 12.1 %	
Vapor Pressure	2.4 mmHg	20 °C
SG/Density	0.992 g/cm3	
Partition Coefficient	Log Kow: 0.25	
Viscosity	10 Pas	25 °C
Vapor Density	2.55 g/l	
Saturated Vapor Conc.	N/A	

Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	27.21 mN/m	15 °C
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water:Soluble. Other Solvents: ALCOHOL, ETHER, CHLOROFORM	

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: UE5950000

ACUTE TOXICITY

LD50

Oral

Rat

*

LD50

Skin

Rabbit

500 mg/kg

LC50

Inhalation

Rat

>4.9 MG/L

4 HR

LD50

Oral

Rat

2600 mg/kg

LD50

Parenteral

Rat

3500 MG/KG

LD50

Intravenous

Mouse

625 MG/KG

Remarks: Behavioral:Convulsions or effect on seizure threshold.

LD50

Skin

Rabbit

500 UL/KG

LD50
Oral
Mammal
1640 mg/kg

IRRITATION DATA

Skin
Rabbit
Remarks: Severe irritation effect

Skin
Rabbit
495 mg
Remarks: Open irritation test

Eyes
Rabbit
0.99 mg
Remarks: Severe irritation effect

SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. May cause an asthmatic-like bronchitis. Nausea, dizziness, and headache. Blood effects.

ROUTE OF EXPOSURE

Skin Contact: Causes burns.
Skin Absorption: Harmful if absorbed through skin. Readily absorbed through skin.
Eye Contact: Causes burns.
Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion: May be harmful if swallowed.

TARGET ORGAN INFORMATION

Central nervous system. Blood. Liver. Kidneys.

CHRONIC EXPOSURE - MUTAGEN

Human
2500 UMOL/L
Cell Type: lymphocyte
Sister chromatid exchange

12 - Ecological Information

ELIMINATION

Elimination: > 70 %

ECOTOXICOLOGICAL EFFECTS

Test Type: EC50 Algae
Time: 72 h
Value: 45.8 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 48 h
Value: 21 - 24.6 mg/l

Test Type: LC50 Fish
Species: Lepomis macrochirus (Bluegill)
Time: 96 h
Value: 73 - 115 mg/l

Test Type: LC50 Fish
Species: Onchorhynchus mykiss (Rainbow trout)
Time: 96 h
Value: 51 - 73.2 mg/l

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

14 - Transport Information

RID/ADR

UN#: 1848
Class: 8
PG: III
Proper Shipping Name: Propionic acid

IMDG

UN#: 1848
Class: 8
PG: III
Subrisk: 3
Proper Shipping Name: Propionic acid
Marine Pollutant: No
Severe Marine Pollutant: No

IATA

UN#: 1848
Class: 8
PG: III
Proper Shipping Name: Propionic acid
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 607-089-00-0

NOTA: B

INDICATION OF DANGER: C

Corrosive.

R-PHRASES: 34

Causes burns.

S-PHRASES: 36/37/39 26 45

Wear suitable protective clothing, gloves, and eye/face protection. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately

(show the label where possible).

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 1

SWITZERLAND

SWISS POISON CLASS: 3

16 - Other Information

WARRANTY

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 Inc., 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. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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