

Material Safety Data Sheet

Date Printed: 12/MAY/2005

Date Updated: 13/MAR/2004

Version 1.3

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

Product Name	PROPIONALDEHYDE, REAGENT GRADE, 97%
Product Number	538124
Company	Sigma-Aldrich Pty, Ltd Unit 2, 14 Anella Avenue Castle Hill NSW 1765 Australia
Technical Phone #	+61 2 9841 0555
Fax	+61 2 9841 0500
Emergency Phone #	+61 2 9841 0566

2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
PROPIONALDEHYDE	123-38-6	204-623-0	605-018-00-8
Formula	C3H6O		
Molecular Weight	58.08 AMU		
Synonyms	Aldehyde propionique (French) * Methylacetaldehyde * NCI-C61029 * Propaldehyde * Propanal * Propionic aldehyde * Propyl aldehyde * Propylic aldehyde		

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Highly flammable. Irritating to eyes, respiratory system and skin.

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 immediately.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

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

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.
Explosion Hazards: Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions. Forms explosive mixtures in air.

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. Shut off all sources of ignition.

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. Avoid contact with eyes, skin, and clothing. Open carefully.

STORAGE

Conditions of Storage: Keep tightly closed. Keep away from heat, sparks, and open flame. Store under nitrogen.
Store at 2-8°C

SPECIAL REQUIREMENTS: May develop pressure. Open carefully.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust. Use only in a chemical fume hood.

GENERAL HYGIENE MEASURES

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

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	Color: Colorless Form: Clear liquid Odor: Stench.	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	47 - 49 °C	
MP/MP Range	-81 °C	
Flash Point	-27 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	207 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 2.6 % Upper: 17 %	
Vapor Pressure	258 mmHg	20 °C
SG/Density	0.798 g/cm3	
Partition Coefficient	Log Kow: 0.59	
Viscosity	0.47 Pas	10 °C
Vapor Density	2 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	23.4 mN/m	20 °C
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water:Complete	

10 - Stability and Reactivity

STABILITY

Stable: Normally stable; however, on long term storage, materials containing similar functional groups form peroxides of unknown stability.

Materials to Avoid: Oxidizing agents, Strong bases, Strong reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: May occur

Hazardous Polymerization Reactions: Polymerizing initiators

11 - Toxicological Information

RTECS NUMBER: UE0350000

ACUTE TOXICITY

LD50

Oral

Rat

*

LD50

Oral

Mouse

*

LC50
Inhalation
Rat
26,000 ppm
0.5 HR
LD50
Skin
Rabbit
5 ML/KG
LD50
Skin
Guinea pig
10 - 20 ML/KG

LD50
Oral
Rat
1410 mg/kg

LD50
Intraperitoneal
Rat
200 MG/KG
Remarks: Behavioral:General anesthetic. Behavioral:Muscle weakness.

LD50
Subcutaneous
Rat
820 MG/KG
Remarks: Behavioral:General anesthetic. Behavioral:Convulsions or effect on seizure threshold.

LC50
Inhalation
Mouse
21,800 mg/m3
2H

LD50
Intraperitoneal
Mouse
200 MG/KG
Remarks: Behavioral:General anesthetic. Behavioral:Somnolence (general depressed activity). Lungs, Thorax, or Respiration:Respiratory depression.

LD50
Subcutaneous
Mouse
680 MG/KG
Remarks: Behavioral:General anesthetic. Behavioral:Convulsions or effect on seizure threshold.

LD50
Skin
Rabbit
2460 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Dyspnea.

LD50
Skin
Guinea pig
10 ML/KG
Remarks: Skin and Appendages:Skin: After systemic exposure:
Dermatitis, other

LD50
Oral
Mammal
1400 mg/kg

LC50
Inhalation
Mammal
21,800 mg/m3

IRRITATION DATA

Skin
Guinea pig
Remarks: Severe irritation effect
Eyes
Rabbit
Remarks: Severe irritation effect

Skin
Rabbit
500 mg
Remarks: Open irritation test

Eyes
Rabbit
41 mg
Remarks: Severe irritation effect

Eyes
Rabbit
20 mg
24H
Remarks: Moderate 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. Exposure can cause: Nausea, dizziness, and headache.

ROUTE OF EXPOSURE

Skin Contact: Causes burns.
Skin Absorption: May be harmful if absorbed through the 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: Harmful if swallowed.

TARGET ORGAN INFORMATION
Liver.

CHRONIC EXPOSURE - MUTAGEN

Rat
30 UMOL/L
Cell Type: liver
Unscheduled DNA synthesis

Hamster
10 MMOL/L
Cell Type: lung
Mutation in mammalian somatic cells.

Mammal
100 MMOL/L
Cell Type: lymphocyte
DNA damage

12 - Ecological Information

No data available.

ECOTOXICOLOGICAL EFFECTS

Test Type: LC50 Fish
Species: Lepomis macrochirus (Bluegill)
Time: 96 h
Value: 130 mg/l

Test Type: LC50 Fish
Species: other fish
Time: 96 h
Value: 100 mg/l

Test Type: LC50 Fish
Species: Pimephales promelas (Fathead minnow)
Time: 96 h
Value: 14 mg/l

ADDITIONAL ECOLOGICAL INFORMATION

BOD: 95 %

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 1275
Class: 3
PG: II
Proper Shipping Name: Propionaldehyde

IMDG

UN#: 1275
Class: 3
PG: II

Proper Shipping Name: Propionaldehyde
Marine Pollutant: No
Severe Marine Pollutant: No

IATA

UN#: 1275
Class: 3
PG: II
Proper Shipping Name: Propionaldehyde
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 605-018-00-8
INDICATION OF DANGER: F Xi
Highly Flammable. Irritant.
R-PHRASES: 11 36/37/38
Highly flammable. Irritating to eyes, respiratory system and skin.
S-PHRASES: 9 16 29
Keep container in a well-ventilated place. Keep away from sources of ignition - no smoking. Do not empty into drains.

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 1 (self-classification)

SWITZERLAND

SWISS POISON CLASS: 4

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 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

DISCLAIMER

For R&D use only. Not for drug, household or other uses.