

MATERIAL SAFETY DATA SHEET

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Version 1.5

Section 1 - Product and Company Information

Product Name 1-PROPANOL, 99+%
Product Number W292818
Brand ALDRICH

Company Sigma-Aldrich
Address 3050 Spruce Street
SAINT LOUIS MO 63103 US

Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
1-PROPANOL, FOR MANUFACTURING	71-23-8	No

Formula C3H8O
RTECS Number: UH8225000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Flammable (USA) Highly Flammable (EU). Irritant.
Risk of serious damage to eyes. Vapors may cause drowsiness and
dizziness.
Target organ(s): Nerves. Liver.

HMIS RATING

HEALTH: 2*
FLAMMABILITY: 3
REACTIVITY: 0

NFPA RATING

HEALTH: 2
FLAMMABILITY: 3
REACTIVITY: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is
conscious. Call a physician.

INHALATION EXPOSURE

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

DERMAL EXPOSURE

In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

Section 5 - Fire Fighting Measures

FLAMMABLE HAZARDS

Flammable Hazards: Yes

EXPLOSION HAZARDS

Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions.

FLASH POINT

59 °F 15 °C Method: closed cup

EXPLOSION LIMITS

Lower: 2.1 % Upper: 13.7 %

AUTOIGNITION TEMP

371 °C

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Flammable liquid. Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area. Shut off all sources of ignition.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Avoid breathing vapor. Avoid contact with eyes,

skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep container closed. Keep away from heat, sparks, and open flame.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). 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.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Wash contaminated clothing before reuse.

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Clear liquid Color: Colorless	
Property	Value	At Temperature or Pressure
Molecular Weight	60.1 AMU	
pH	N/A	
BP/BP Range	97 °C	760 mmHg
MP/MP Range	- 127.0 °C	
Freezing Point	N/A	
Vapor Pressure	14.9 mmHg	20 °C
Vapor Density	2.1 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	0.8 g/cm ³	
Bulk Density	N/A	
Odor Threshold	2.6 ppm	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	59 °F 15 °C	Method: closed cup
Explosion Limits	Lower: 2.1 % Upper: 13.7 %	
Flammability	N/A	
Autoignition Temp	371 °C	
Refractive Index	1.384	
Optical Rotation	N/A	
Miscellaneous Data	N/A	

Solubility N/A

N/A = not available

Section 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

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes severe eye irritation.

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: May be harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Nerves. Liver.

SIGNS AND SYMPTOMS OF EXPOSURE

Drying, cracking, or irritation of the skin. Narcotic effect.

Can cause CNS depression. Prolonged exposure can cause:

IRRITATION DATA

Skin

Rabbit

500 mg

Remarks: Open irritation test

Eyes

Rabbit

20 mg

24H

Remarks: Moderate irritation effect

CHRONIC EXPOSURE - CARCINOGEN

Species: Rat

Route of Application: Oral

Dose: 50 GM/KG

Exposure Time: 81W

Frequency: I

Result: Blood:Leukemia Liver:Tumors. Tumorigenic:Carcinogenic by RTECS criteria.

Species: Rat

Route of Application: Subcutaneous

Dose: 6 GM/KG

Exposure Time: 95W

Frequency: I

Result: Blood:Leukemia Liver:Tumors. Tumorigenic:Carcinogenic by

RTECS criteria.

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 7000 PPM/7H
Route of Application: Inhalation
Exposure Time: (1-19D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 7000 PPM/7H
Route of Application: Inhalation
Exposure Time: (6W MALE)
Result: Effects on Fertility: Male fertility index (e.g., # males impregnating females per # males exposed to fertile nonpregnant females).

Species: Rat
Dose: 10000 PPM/7H
Route of Application: Inhalation
Exposure Time: (1-19D PREG)
Result: Effects on Embryo or Fetus: Fetal death. Specific Developmental Abnormalities: Musculoskeletal system. Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

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.

Section 14 - Transport Information

DOT

Proper Shipping Name: n-Propanol [or] Propyl alcohol, normal
UN#: 1274
Class: 3
Packing Group: Packing Group II
Hazard Label: Flammable liquid
PIH: Not PIH

IATA

Proper Shipping Name: n-Propanol
IATA UN Number: 1274
Hazard Class: 3
Packing Group: II

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION

Symbol of Danger: F-Xi

Indication of Danger: Highly Flammable. Irritant.

R: 11-41-67

Risk Statements: Highly flammable. Risk of serious damage to eyes. Vapors may cause drowsiness and dizziness.

S: 7-16-24-26-39

Safety Statements: Keep container tightly closed. Keep away from sources of ignition - no smoking. Avoid contact with skin. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear eye/face protection.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Flammable (USA) Highly Flammable (EU). Irritant.

Risk Statements: Risk of serious damage to eyes. Vapors may cause drowsiness and dizziness.

Safety Statements: Keep container tightly closed. Keep away from sources of ignition - no smoking. Avoid contact with skin. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear eye/face protection.

US Statements: Target organ(s): Nerves. Liver.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 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 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.