

MATERIAL SAFETY DATA SHEET

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Version 1.5

Section 1 - Product and Company Information

Product Name	1-PROPANOL, 99.5+%, HPLC GRADE
Product Number	293288
Brand	ALDRICH
Company	Sigma-Aldrich
Street Address	3050 Spruce Street
City, State, Zip, Country	SAINT LOUIS MO 63103 US
Technical Phone:	314 771 5765
Emergency Phone:	414 273 3850 Ext. 5996
Fax:	800 325 5052

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
1-PROPANOL	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

72 °F 22 °C Method: closed cup

EXPLOSION LIMITS

Lower: 2.1 % Upper: 13.7 %

AUTOIGNITION TEMP

371 °C

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

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

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: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Wash contaminated clothing before reuse.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	200 MG/M3
Poland		NDSch	600 MG/M3
Poland		NDSP	-
USA	OSHA.	STEL	250 ppm
USA	OSHA.	TWA	200 ppm

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Clear liquid Color: Colorless	
Property	Value	At Temperature or Pressure
Molecular Weight	60.1 AMU	
pH	8.5	20 °C Concentration: 200 g/l
BP/BP Range	97 °C	760 mmHg
MP/MP Range	-127 °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/cm3	
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	1	
Viscosity	2 Pas	
Surface Tension	N/A	
Partition Coefficient	Log Kow: 0.25 - 0.34	
	0	
Decomposition Temp.	N/A	
Flash Point	72 °F 22 °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	

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

Ingestion: May be harmful if swallowed.

SENSITIZATION

Sensitization: Will not occur

TARGET ORGAN(S) OR SYSTEM(S)

Nerves. Liver.

SIGNS AND SYMPTOMS OF EXPOSURE

Can cause CNS depression. Prolonged exposure can cause: Narcotic effect. Drying, cracking, or irritation of the skin.

TOXICITY DATA

Oral

Rat

1,870 mg/kg

LD50

Oral

Mouse

4,500 mg/kg

LD50

Oral

Rat

8,038 mg/kg

LD50

1 HR.

Inhalation

Rat

20,000 ppm

LC50

Skin

Rabbit

4,000 mg/kg

LC50

IRRITATION DATA

Skin

Rabbit

Remarks: Mild irritation effect
Eyes
Rabbit
Remarks: Moderate irritation effect
Eyes
Rabbit
Remarks: Severe irritation effect

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: 4
Exposure Time: 4 DAYS
Frequency: 1/ day
Species: Mouse
Route of Application: Inhalation
Exposure Time: 95 HR
Frequency: 7874 ppm

Species: Rat
Route of Application: Oral
Dose: 50 GM/KG
Exposure Time: 81W
Frequency: I
Result: Tumorigenic: Carcinogenic by RTECS criteria.
Liver: Tumors. Blood: Leukemia

Species: Rat
Route of Application: Subcutaneous
Dose: 6 GM/KG
Exposure Time: 95W
Frequency: I
Result: Tumorigenic: Carcinogenic by RTECS criteria.
Liver: Tumors. Blood: Leukemia

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 Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Effects on Embryo or Fetus: Fetal death. Specific Developmental Abnormalities: Musculoskeletal system.

Section 12 - Ecological Information

PHYSICAL PROPERTIES AFFECTING ECOTOXICITY

COD: 1.4 %

BOD: < 2 %

BOD after 5 Days: 1.43 - 1.6 %

ACUTE ECOTOXICITY TESTS

Test Type: LC50 Fish

Species: Pimephales promelas (Fathead minnow)

Time: 96 h

Value: 1,000 mg/l

Test Type: EC50 Daphnia

Species: Daphnia magna

Time: 48 h

Value: 3,642 mg/l

Test Type: LC50 Fish

Species: Carassius auratus (Goldfish)

Time: 24 h

Value: 5,000 mg/l

Test Type: LC50 Fish

Species: other fish

Time: 48 h

Value: 4,320 - 4,560 mg/l

Test Type: LC50 Fish

Species: Leuciscus idus

Time: 48 h

Value: > 4,000 mg/l

ELIMINATION

Elimination: > 60 %

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

DISCLAIMER

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

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

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