

MATERIAL SAFETY DATA SHEET

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Version 1.7

Section 1 - Product and Company Information

Product Name ETHANOL, REAGENT, ANHYDROUS,
DENATURED
Product Number 277649
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	
ETHANOL, DENATURED 5%MEOH, 5% IPA	None	Yes	
Ingredient Name	CAS #	Percent	SARA 313
ETHYL ALCOHOL, NON-DENATURED, 200 PROOF	64-17-5	90	No
METHANOL	67-56-1	5	Yes
2-PROPANOL	67-63-0	5	Yes

Formula C₂H₆O

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Flammable (USA) Highly Flammable (EU). Toxic (USA) Harmful (EU).
Harmful by inhalation, in contact with skin and if swallowed.
Irritating to eyes, respiratory system and skin. Harmful: possible
risk of irreversible effects through inhalation, in contact with
skin, and if swallowed.
Target organ(s): Eyes. Nerves.

HMIS RATING

HEALTH: 2*
FLAMMABILITY: 3
REACTIVITY: 1

NFPA RATING

HEALTH: 2
FLAMMABILITY: 3
REACTIVITY: 1

*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 immediately.

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

EYE EXPOSURE

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.

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. Forms explosive mixtures in air.

FLASH POINT

48 °F 9 °C Method: closed cup

EXPLOSION LIMITS

Lower: 3.3 % Upper: 24.5 %

AUTOIGNITION TEMP

362 °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): Emits toxic fumes under fire conditions.
Flammable liquid.
Specific Method(s) of Fire Fighting: Use water spray to cool fire-exposed containers.

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 self-contained breathing apparatus, 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: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Do not use if skin is cut or scratched. Wash thoroughly after handling.

STORAGE

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

SPECIAL REQUIREMENTS

Handle and store under inert gas. Moisture sensitive.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

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

PERSONAL PROTECTIVE EQUIPMENT

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

GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Remove and wash contaminated clothing promptly.

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Liquid	
Property	Value	At Temperature or Pressure
Molecular Weight	46.07 AMU	
pH	N/A	
BP/BP Range	78 °C	760 mmHg
MP/MP Range	-130 °C	
Freezing Point	N/A	
Vapor Pressure	44.6 mmHg	20 °C
Vapor Density	1.59 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	0.785 g/cm ³	
Bulk Density	N/A	
Odor Threshold	N/A	
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	48 °F 9 °C	Method: closed cup
Explosion Limits	Lower: 3.3 %	

	Upper: 24.5 %
Flammability	N/A
Autoignition Temp	362 °C
Refractive Index	1.36
Optical Rotation	N/A
Miscellaneous Data	N/A
Solubility	N/A

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions to Avoid: Protect from moisture.

Materials to Avoid: Oxidizing agents, Peroxides, Acids, Acid chlorides, Acid anhydrides, Alkali metals, Ammonia.

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: Causes skin irritation.

Skin Absorption: Harmful if absorbed through skin.

Eye Contact: Causes eye irritation.

Inhalation: Harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.

Ingestion: Harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Nerves. Eyes. Liver. Kidneys. Heart. Cardiovascular system. G.I. System.

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Can cause CNS depression. Exposure can cause: Gastrointestinal disturbances. Nausea, dizziness, and headache. Narcotic effect. May cause convulsions.

CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Section 12 - Ecological Information

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: Ethanol [or] Ethyl alcohol [or]
Ethanol solutions [or] Ethyl alcohol solutions
UN#: 1170
Class: 3
Packing Group: Packing Group II
Hazard Label: Flammable liquid
PIH: Not PIH

IATA

Proper Shipping Name: Flammable liquid, toxic, n.o.s.
IATA UN Number: 1992
Hazard Class: 3
Packing Group: II

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: F Xn
Indication of Danger: Highly Flammable. Harmful.
R: 11 20/21/22 36/37/38 68/20/21/22
Risk Statements: Highly flammable. Harmful by inhalation, in contact with skin and if swallowed. Irritating to eyes, respiratory system and skin. Harmful: possible risk of irreversible effects through inhalation, in contact with skin, and if swallowed.
S: 7 16 24/25 26 36/37/39 45
Safety Statements: Keep container tightly closed. Keep away from sources of ignition - no smoking. Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Flammable (USA) Highly Flammable (EU).
Toxic (USA) Harmful (EU).
Risk Statements: Harmful by inhalation, in contact with skin and if swallowed. Irritating to eyes, respiratory system and skin. Harmful: possible risk of irreversible effects through inhalation, in contact with skin, and if swallowed.
Safety Statements: Keep container tightly closed. Keep away from sources of ignition - no smoking. Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
US Statements: Target organ(s): Eyes. Nerves.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes
NOTES: This product is or contains a component that is subject to SARA313 reporting requirements.

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: No
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 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.