



Material Safety Data Sheet

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Section 1 - Product and Company Information

Product Name Ethanol, denatured, reagent grade
Product Number 187380
Brand Sigma-Aldrich

Company Sigma-Aldrich
Address 3050 Spruce Street
City, State, Zip, Country 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	EC no	Annex I Index Number
ETHYL ALCOHOL, DENATURED	None	Yes		

Ingredient Name	CAS #	Percent	SARA 313
ETHYL ALCOHOL, NON-DENATURED, 200 PROOF	64-17-5	92.000 %	
ETHYL ACETATE	141-78-6	1.000 %	No
METHANOL	67-56-1	5.000 %	Yes
4-METHYL-2-PENTANONE	108-10-1	1.000 %	Yes
HEPTANE	142-82-5	1.000 %	

Formula C₂H₆O
Synonyms

Section 3 - Hazards Identification

Emergency Overview

Flammable (USA) Highly Flammable (EU). Harmful.
Harmful by inhalation, in contact with skin and if swallowed. Irritating to eyes, respiratory system and skin. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Target organ(s): Nerves, Heart, Liver.

HMS 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 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 Yes

Explosion Hazards

Vapor may travel considerable distance to source of ignition and flash back.

Flash Point: 48 °F 9 °C

Explosion Limits: Lower: 3.3 % Upper: 24.5 %

Autoignition Temp: 362 °C **Flammability:** Yes

Extinguishing Media Suitable

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. Vapor may travel considerable distance to source of ignition and flash back.

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 nonsparking 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. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

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Safety & Environment

Storage
Suitable

Keep tightly closed. Keep away from heat, sparks, and open flame.

Special Requirements
Hygroscopic.**Section 8 - Exposure Controls / PPE****Engineering Controls**

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

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 airpurifying respirators are appropriate, use a fullface 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 fullface supplied air respirator.

Hand

Compatible chemical-resistant gloves.

Eye

Chemical safety goggles.

Skin-Specific

Chemical resistant apron.

General Hygiene Measures

Wash thoroughly after handling.

Exposure Limits

<u>Country</u>	<u>Type</u>	<u>Value</u>
Poland	NDS	1900 MG/M3
<u>Remarks</u>		
ETHANOL		
Poland	NDSCh	
<u>Remarks</u>		
ETHANOL		
Poland	NDSP	
<u>Remarks</u>		
ETHANOL		

Section 9 - Physical/Chemical Properties**Appearance****Physical State**
Liquid

Molecular Weight 46.07 AMU

<u>Property</u>	<u>Value</u>	<u>At Temperature or Pressure</u>
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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 0.789 g/cm3

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
Partition Coefficient N/A
Decomposition Temp. N/A
Flash Point °F 48 °F
Flash Point °C 9 °C

Method: closed cup
Method: closed cup

Explosion Limits Lower: 3.3 %
Upper: 24.5 %
Flammability N/A
Autoignition Temp 362 °C
Refractive Index 1.36
Solubility N/A

N/A = not available

Section 10 - Stability and Reactivity**Stability****Stable**

Stable.

Conditions to Avoid

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, Blood, Heart, Lungs, Ears.

Signs and Symptoms of Exposure

Can cause CNS depression. Exposure can cause: Nausea, dizziness, and headache. Gastrointestinal disturbances. May cause convulsions. Anemia. Narcotic effect. Contact with eyes can cause redness, tearing, and blurred vision. Prolonged or repeated contact with skin can cause defatting and dermatitis. Vomiting. Weakness. Confusion. Drowsiness. Unconsciousness. Convulsions. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

RTECS Number: N/A

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

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: 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: Ethanol

IATA UN Number: 1170

Hazard Class: 3

Packing Group: II

Section 15 - Regulatory Information

EU Additional Classification

Symbol of Danger: F Xn

Indication of Danger

Highly Flammable, Harmful.

Risk Statements **R:** 11 20/21/22 52/53

Highly flammable. Harmful by inhalation, in contact with skin and if swallowed. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Statements **S:** 7 16 36/37 61

Keep container tightly closed. Keep away from sources of ignition- no smoking. Wear suitable protective clothing and gloves.

Avoid release to the environment. Refer to special instructions/safety data sheets.

US Classification and Label Text

Indication of Danger

Flammable (USA) Highly Flammable (EU), Harmful.

Risk Statements

Harmful by inhalation, in contact with skin and if swallowed. Irritating to eyes, respiratory system and skin. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Statements

Keep container tightly closed. Keep away from sources of ignition- no smoking. Wear suitable protective clothing and gloves.

Avoid release to the environment. Refer to special instructions/safety data sheets.

US Statements

Target organ(s): Nerves, Heart, Liver.

United States Regulatory Information

SARA Listed: Yes

Notes: These products are subject to SARA section 313 reporting requirements. These products are subject to SARA section 313 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.

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Page 5

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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 from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2009 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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Page 6

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