

**SIGMA-ALDRICH****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				
ETHYL ALCOHOL, NON-DENATURED, 200 PROOF	64-17-5	92.000 %		SARA 313
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	C <sub>2</sub> H <sub>6</sub> O			
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.

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

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**Safety & Service**  
**Quality**

**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 air-purifying 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	<u>Remarks</u> ETHANOL	NDS	1900 MG/M3
Poland	<u>Remarks</u> ETHANOL	NDSCh	-
Poland	<u>Remarks</u> ETHANOL	NDSP	-

## 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>
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 Vapo. 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	

<b>Viscosity</b>	N/A
<b>Partition Coefficient</b>	N/A
<b>Decomposition Temp.</b>	N/A
<b>Flash Point °F</b>	48 °F
<b>Flash Point °C</b>	9 °C
<b>Explosion Limits</b>	Lower: 3.3 % Upper: 24.5 %
<b>Flammability</b>	N/A
<b>Autoignition Temp</b>	362 °C
<b>Refractive Index</b>	1.36
<b>Solubility</b>	N/A

Method: closed cup  
Method: closed cup

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.

**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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