

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Ammonia solution

Product Number : 392685  
Brand : Sigma-Aldrich

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

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Emergency Phone # : (314) 776-6555

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Formula :  $H_3N$

CAS-No.	EC-No.	Index-No.	Concentration
<b>Ethanol</b>			
64-17-5	200-578-6	603-002-00-5	95.87 %
<b>Ammonia, anhydrous</b>			
7664-41-7	231-635-3	007-001-00-5	4.13 %

### 3. HAZARDS IDENTIFICATION

#### Emergency Overview

##### OSHA Hazards

Flammable liquid, Target Organ Effect, Corrosive

##### Target Organs

Nerves., Liver, Heart, Lungs, Central nervous system, Kidney

#### HMIS Classification

Health hazard: 4  
Chronic Health Hazard: \*  
Flammability: 3  
Physical hazards: 1

#### NFPA Rating

Health hazard: 4  
Fire: 3  
Reactivity Hazard: 0

#### Potential Health Effects

<b>Inhalation</b>	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
<b>Skin</b>	May be harmful if absorbed through skin. Causes skin burns.
<b>Eyes</b>	Causes eye burns.
<b>Ingestion</b>	May be harmful if swallowed. Causes burns.

#### 4. FIRST AID MEASURES

##### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

##### If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

##### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

##### In case of eye contact

Continue rinsing eyes during transport to hospital. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

##### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

#### 5. FIRE-FIGHTING MEASURES

##### Flammable properties

Flash point 3 °C (37 °F) - closed cup

Ignition temperature no data available

##### Suitable extinguishing media

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.

##### Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

##### Further information

Use water spray to cool unopened containers.

#### 6. ACCIDENTAL RELEASE MEASURES

##### Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

##### Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

##### Methods for cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

#### 7. HANDLING AND STORAGE

##### Handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

**Storage**

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Update	Basis
Ethanol	64-17-5	TWA	1,000 ppm	2008-01-01	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Eye & Upper Respiratory Tract irritation Central Nervous System impairment Adopted values or notations enclosed are those for which changes are proposed in the NIC 2008 Revision or addition to the notice of intended changes See Notice of Intended Changes (NIC) Not classifiable as a human carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of a lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories.				
		TWA	1,000 ppm 1,900 mg/m <sup>3</sup>	1989-01-19	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	1,000 ppm 1,900 mg/m <sup>3</sup>	1997-08-04	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
The value in mg/m <sup>3</sup> is approximate.					
Ammonia, anhydrous	7664-41-7	TWA	25 ppm	2007-01-01	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Upper Respiratory Tract irritation Eye damage				
		STEL	35 ppm	2007-01-01	USA. ACGIH Threshold Limit Values (TLV)
Upper Respiratory Tract irritation Eye damage					
		STEL	35 ppm 27 mg/m <sup>3</sup>	1989-01-19	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	50 ppm 35 mg/m <sup>3</sup>	1997-08-04	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
The value in mg/m <sup>3</sup> is approximate.					

## Personal protective equipment

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (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. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Hand protection

Handle with gloves.

### Eye protection

Tightly fitting safety goggles. Faceshield (8-inch minimum).

### Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form                      liquid

### Safety data

pH	no data available
Melting point	no data available
Boiling point	60 °C (140 °F) at 1,013 hPa (760 mmHg)
Flash point	3 °C (37 °F) - closed cup
Ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Density	0.785 g/cm <sup>3</sup>
Water solubility	no data available

## 10. STABILITY AND REACTIVITY

### Storage stability

Stable under recommended storage conditions.

### Conditions to avoid

Heat, flames and sparks.

### Materials to avoid

Zinc, Oxidizing agents, Alkali metals, Iron, Ammonia, Aldehydes, Alcohols, Peroxides, acids, Copper, Halogens, Cadmium/cadmium oxides, Silver/silver oxides

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

### Hazardous reactions

Vapours may form explosive mixture with air.

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

no data available

### Irritation and corrosion

no data available

### Sensitisation

no data available

### Chronic exposure

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

### Signs and Symptoms of Exposure

Central nervous system depression, narcosis, Nausea, Dizziness, Damage to the heart., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

### Potential Health Effects

<b>Inhalation</b>	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
<b>Skin</b>	May be harmful if absorbed through skin. Causes skin burns.
<b>Eyes</b>	Causes eye burns.
<b>Ingestion</b>	May be harmful if swallowed. Causes burns.
<b>Target Organs</b>	Nerves., Liver, Heart, Lungs, Central nervous system, Kidney,

## 12. ECOLOGICAL INFORMATION

### Elimination information (persistence and degradability)

no data available

### Ecotoxicity effects

no data available

### Further information on ecology

no data available

## 13. DISPOSAL CONSIDERATIONS

### Product

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. Contact a licensed professional waste disposal service to dispose of this material.

### Contaminated packaging

Dispose of as unused product.

## 14. TRANSPORT INFORMATION

**DOT (US)**

UN-Number: 1170 Class: 3 Packing group: II  
 Proper shipping name: Ethanol solutions  
 Reportable Quantity (RQ): 2421 lbs  
 Marine pollutant: No  
 Poison Inhalation Hazard: No

**IMDG**

UN-Number: 1170 Class: 3 Packing group: II EMS-No: F-E, S-D  
 Proper shipping name: ETHANOL SOLUTION  
 Marine pollutant: No

**IATA**

UN-Number: 1170 Class: 3 Packing group: II  
 Proper shipping name: Ethanol solution

**15. REGULATORY INFORMATION****OSHA Hazards**

Flammable liquid, Target Organ Effect, Corrosive

**DSL Status**

All components of this product are on the Canadian DSL list.

**SARA 302 Components**

Ammonia, anhydrous	CAS-No. 7664-41-7	Revision Date 2007-03-01
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**SARA 313 Components**

Ammonia, anhydrous	CAS-No. 7664-41-7	Revision Date 2007-03-01
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**SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

Ethanol	CAS-No. 64-17-5	Revision Date 2007-03-01
Ammonia, anhydrous	7664-41-7	2007-03-01

**Pennsylvania Right To Know Components**

Ethanol	CAS-No. 64-17-5	Revision Date 2007-03-01
Ammonia, anhydrous	7664-41-7	2007-03-01

**New Jersey Right To Know Components**

Ethanol	CAS-No. 64-17-5	Revision Date 2007-03-01
Ammonia, anhydrous	7664-41-7	2007-03-01

**California Prop. 65 Components**

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

**16. OTHER INFORMATION****Further information**

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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 Co., 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.