

## Material Safety Data Sheet

Version 5.1

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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Ethanolamine

Product Number : 411000

Brand : Aldrich

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

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

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2. HAZARDS IDENTIFICATION

## Emergency Overview

## OSHA Hazards

Combustible Liquid, Target Organ Effect, Harmful by ingestion., Harmful by skin absorption., Corrosive

## Target Organs

Liver, Heart, Lungs

## GHS Classification

Flammable liquids (Category 4)

Acute toxicity, Oral (Category 4)

Acute toxicity, Inhalation (Category 4)

Acute toxicity, Dermal (Category 4)

Skin corrosion (Category 1B)

Serious eye damage (Category 1)

Acute aquatic toxicity (Category 3)

## GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H227

Combustible liquid

H302 + H312

Harmful if swallowed or in contact with skin

H314

Causes severe skin burns and eye damage.

H332

Harmful if inhaled.

H402

Harmful to aquatic life.

Precautionary statement(s)

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310

Immediately call a POISON CENTER or doctor/ physician.

**HMIS Classification**

Health hazard: 3  
Chronic Health Hazard: \*  
Flammability: 2  
Physical hazards: 0

**NFPA Rating**

Health hazard: 3  
Fire: 2  
Reactivity Hazard: 0

**Potential Health Effects**

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

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : Monoethanolamine  
2-Aminoethyl alcohol  
2-Aminoethanol

Formula : C<sub>2</sub>H<sub>7</sub>NO  
Molecular Weight : 61.08 g/mol

Component		Concentration
<b>Ethanolamine</b>		
CAS-No.	141-43-5	-
EC-No.	205-483-3	
Index-No.	603-030-00-8	

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**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**

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

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

**If swallowed**

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

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**5. FIREFIGHTING MEASURES****Conditions of flammability**

Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

**Further information**

Use water spray to cool unopened containers.

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**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. Discharge into the environment must be avoided.

**Methods and materials for containment and cleaning up**

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

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**7. HANDLING AND STORAGE****Precautions for safe 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.

**Conditions for safe 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.

hygroscopic Handle and store under inert gas.

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

Components	CAS-No.	Value	Control parameters	Basis
Ethanolamine	141-43-5	TWA	3 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Skin & eye irritation			
		STEL	6 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Skin & eye irritation			
		TWA	3 ppm 8 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		STEL	6 ppm 15 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	3 ppm 6 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	The value in mg/m3 is approximate.			
		TWA	3 ppm 8 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	6 ppm 15 mg/m3	USA. NIOSH Recommended Exposure Limits

## 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 ABEK (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. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

### Eye protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Hygiene measures

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

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	liquid, clear, viscous
Colour	colourless

### Safety data

pH	no data available
Melting point/freezing point	Melting point/range: 10 - 11 °C (50 - 52 °F) - lit.
Boiling point	170 °C (338 °F) - lit. 69 - 70 °C (156 - 158 °F) at 13 hPa (10 mmHg)
Flash point	86 °C (187 °F)
Ignition temperature	780 °C (1,436 °F)
Autoignition temperature	no data available
Lower explosion limit	2.5 %(V)
Upper explosion limit	17 %(V)
Vapour pressure	0.3 hPa (0.2 mmHg) at 20 °C (68 °F)
Density	1.012 g/mL at 25 °C (77 °F)
Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
Relative vapour density	2.11 - (Air = 1.0)
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

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## 10. STABILITY AND REACTIVITY

**Chemical stability**

Absorbs carbon dioxide (CO<sub>2</sub>) from air. Stable under recommended storage conditions.

**Possibility of hazardous reactions**

no data available

**Conditions to avoid**

Exposure to moisture.

Heat, flames and sparks.

**Materials to avoid**

Iron, Oxidizing agents, Copper

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NO<sub>x</sub>)

Other decomposition products - no data available

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**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Oral LD50**

LD50 Oral - rat - 1,720 mg/kg

**Inhalation LC50**

Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

**Dermal LD50**

LD50 Dermal - rabbit - 1,015 mg/kg

**Other information on acute toxicity**

no data available

**Skin corrosion/irritation**

no data available

**Serious eye damage/eye irritation**

Eyes - rabbit - Severe eye irritation

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

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.

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

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.

**Reproductive toxicity**

no data available

**Teratogenicity**

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**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>Ingestion</b>	Harmful if swallowed.
<b>Skin</b>	Harmful if absorbed through skin. Causes skin burns.
<b>Eyes</b>	Causes eye burns.

**Signs and Symptoms of Exposure**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**

no data available

**Additional Information**

RTECS: KJ5775000

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**12. ECOLOGICAL INFORMATION**

**Toxicity**

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 227 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 65 mg/l - 48 h
Toxicity to algae	EC50 - Desmodesmus subspicatus (green algae) - 15 mg/l - 72 h

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

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**13. DISPOSAL CONSIDERATIONS**

**Product**

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**

Dispose of as unused product.

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**14. TRANSPORT INFORMATION**

**DOT (US)**

UN number: 2491    Class: 8  
Proper shipping name: Ethanolamine  
Marine pollutant: No

Packing group: III

Poison Inhalation Hazard: No

**IMDG**

UN number: 2491    Class: 8    Packing group: III    EMS-No: F-A, S-B  
Proper shipping name: ETHANOLAMINE  
Marine pollutant: No

**IATA**

UN number: 2491    Class: 8    Packing group: III  
Proper shipping name: Ethanolamine

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**15. REGULATORY INFORMATION**

**OSHA Hazards**

Combustible Liquid, Target Organ Effect, Harmful by ingestion., Harmful by skin absorption., Corrosive

**SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

Ethanolamine	CAS-No. 141-43-5	Revision Date 2007-03-01
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**Pennsylvania Right To Know Components**

Ethanolamine	CAS-No. 141-43-5	Revision Date 2007-03-01
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**New Jersey Right To Know Components**

Ethanolamine	CAS-No. 141-43-5	Revision Date 2007-03-01
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**California Prop. 65 Components**

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

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**16. OTHER INFORMATION**

**Further information**

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