

JUL 15 2004



SIGMA-ALDRICH

Material Safety Data Sheet

Date Printed: 07/09/2004
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Version 1.40

Section 1 - Product and Company Information

Product Name	Ethanolamine, Minimum 98%		
Product Number	E9508		
Brand	Sigma Chemical		
Company	Sigma-Aldrich		
Street Address	3050 Spruce Street		
City, State, Zip, Country	SAINT LOUIS, MO 63103 US		
Technical Phone:	314 771 5765		
Fax:	800 325 5052	Emergency Phone:	414 273 3850 Ext. 5996

Section 2 - Composition/Information on Ingredient

<u>Substance Name</u>	<u>CAS #</u>	<u>SARA 313</u>	<u>EC no</u>	<u>Annex I Index Number</u>
2-AMINOETHANOL	141-43-5	No	205-483-3	603-030-00-8

Formula	C ₂ H ₇ NO
Synonyms	Aethanolamin (German), 2-Aminoethanol (German), 2-Aminoetanolo (Italian), 2-Aminoethanol (OSHA), beta-Aminoethyl alcohol, Colamine, Etanolamina (Italian), Ethanolamine, beta-Ethanolamine, Ethanolamine (ACGIH:OSHA), Ethylolamine, Glycinol, beta-Hydroxyethylamine, 2-Hydroxyethylamine, Kolamin (Czech), Monoaethanolamin (German), Monoethanolamine, Olamine, Thiofaco M-50, USAF EK-1597

Section 3 - Hazards Identification

Emergency Overview

Corrosive.
Causes burns. Harmful by inhalation, in contact with skin and if swallowed.
Readily absorbed through skin. Combustible.

HMIS Rating

Health: 3 Flammability: 2 Reactivity: 1

NFPA Rating

Health: 3 Flammability: 2 Reactivity: 1

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. Do not induce vomiting.

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

Flash Point:	199.4 °F	93 °C
Explosion Limits:	Lower: 2.5 %	Upper: 17 %
Autoignition Temp:	780 °C	

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)

Combustible liquid. Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

Procedure to be Followed in Case of Leak or Spill

Evacuate area.

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.

Storage

Suitable

Keep tightly closed.

Special Requirements

Hygroscopic.

Section 8 - Exposure Controls / PPE

Engineering Controls

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

Personal Protective Equipment

Respiratory

Government approved respirator.

Hand

Compatible chemical-resistant gloves.

Sigma Chemical - E9508

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Eye
Chemical safety goggles.
Other
Faceshield (8-inch minimum).

General Hygiene Measures

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

Exposure Limits

Country	Type	Value
Poland	NDS	3 MG/M3
Poland	NDSCh	10 MG/M3
Poland	NDSP	-

Exposure Limits, RTECS

Country	Source	Type	Value
USA	ACGIH	STEL	6 PPM
USA	ACGIH	TWA	3 PPM
USA	MSHA Standard-air	TWA	3 PPM (6 MG/M3)
USA	OSHA.	PEL	8H TWA 3 PPM (6 MG/M3)
New Zealand	OEL		
USA	NIOSH	TWASTEL	3 PPM 6 PPM

Section 9 - Physical/Chemical Properties

Appearance
Physical State Clear viscous liquid
Color Colorless

Molecular Weight: 61.08 AMU

Property **Value** **At Temperature or Pressure**

pH	N/A	
BP/BP Range	69 - 70 °C	10 mmHg
MP/MP Range	10 °C	
Freezing Point	N/A	
Vapor Pressure	0.2 mmHg	20 °C
Vapor Density	2.1 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	1.015 g/cm3	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	< 0.2 %	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point °F	199.4 °F	Method: closed cup
Flash Point °C	93 °C	Method: closed cup
Explosion Limits	Lower: 2.5 % Upper: 17 %	
Flammability	N/A	
Autoignition Temp	780 °C	
Refractive Index	1.454	

Solubility N/A

N/A = not available

Section 10 - Stability and Reactivity

Stability

Conditions of Instability

Absorbs carbon dioxide from air.

Conditions to Avoid

Protect from moisture.

Materials to Avoid

Galvanized iron, Oxidizing agents, Copper.

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 burns.

Skin Absorption

May be harmful if absorbed through the skin.

Eye Contact

Causes burns.

Inhalation

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

Ingestion

Harmful if swallowed.

Signs and Symptoms of Exposure

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

RTECS Number: KJ5775000

Toxicity Data

Oral - Rat: 1720 mg/kg (LD50)

Intraperitoneal - Rat: 67 MG/KG (LD50)

Subcutaneous - Rat: 1500 MG/KG (LD50)

Intravenous - Rat: 225 MG/KG (LD50)

Remarks: Behavioral: Somnolence (general depressed activity).

Behavioral: Muscle contraction or spasticity.

Lungs, Thorax, or Respiration: Dyspnea.

Intramuscular - Rat: 1750 MG/KG (LD50)

Oral - Mouse: 700 mg/kg (LD50)

Remarks: Behavioral: Somnolence (general depressed activity).

Behavioral: Muscle contraction or spasticity.

Lungs, Thorax, or Respiration: Dyspnea.

Intraperitoneal - Mouse: 50 MG/KG (LD50)

Oral - Rabbit: 1000 mg/kg (LD50)

Skin - Rabbit: 1 ML/KG (LD50)
 Oral - Guinea pig: 620 mg/kg (LD50)

Irritation Data

Skin - Rabbit: 505 mg
 Remarks: Open irritation test
 Eyes - Rabbit: 0.25 mg
 Remarks: Severe irritation effect

Chronic Exposure - Teratogen

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
Rat	500 MG/KG	Oral	(6-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Effects on Embryo or Fetus: Fetal death. Specific Developmental Abnormalities: Musculoskeletal system.			
Rat	500 MG/KG	Oral	(6-15D PREG)
Result: Specific Developmental Abnormalities: Urogenital system.			

Chronic Exposure - Mutagen

<u>Species</u>	<u>Dose</u>	<u>Cell Type</u>	<u>Mutation test</u>
Human	100 UMOL/L	lymphocyte	Cytogenetic analysis
Human	1 MMOL/L	lymphocyte	Sister chromatid exchange

Chronic Exposure - Reproductive Hazard

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
Rat	4500 MG/KG	Oral	(6-15D PREG)
Result: Maternal Effects: Other effects.			
Rat	2250 MG/KG	Skin	(6-15D PREG)
Result: Maternal Effects: Other effects.			

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.
 This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.
 Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Ethanolamine [or] Ethanolamine solutions
UN#: 2491
Class: 8
Packing Group: Packing Group III
Hazard Label: Corrosive
PIH: Not PIH

IATA

Proper Shipping Name: Ethanolamine
IATA UN Number: 2491
Hazard Class: 8
Packing Group: III

Section 15 - Regulatory Information

EU Directives Classification

Symbol of Danger: Xn

Indication of Danger

Harmful.

Risk Statements

R: 20 36/37/38

Harmful by inhalation. Irritating to eyes, respiratory system and skin.

US Classification and Label Text

Indication of Danger

Corrosive.

Risk Statements

Causes burns. Harmful by inhalation, in contact with skin and if swallowed.

Safety Statements

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

Readily absorbed through skin. Combustible.

United States Regulatory Information

SARA Listed: No

TSCA Inventory Item: Yes

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 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.