

Material Safety Data Sheet
acc. to OSHA and ANSI

Printing date 10/10/2007

Reviewed on 08/08/2007

Product name: Ethylenediamine

(Contd. of page 6)

15 Regulations

Product related hazard informations:

Hazard symbols:

C Corrosive

Risk phrases:

10 Flammable.

21/22 Harmful in contact with skin and if swallowed.

34 Causes burns.

42/43 May cause sensitization by inhalation and skin contact.

Safety phrases:

23 Do not breathe fumes

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use:

For use only by technically qualified individuals.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

Contact: Paul V. Connolly

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1 Identification of substance:

Product details:

Product name: Ethylenediamine

Stock number:

A12132

L06068

Manufacturer/Supplier:

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Emergency Phone: (978) 521-6300

CHEMTREC: (800) 424-9300

Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency information:

During normal hours the Health, Safety and Environmental Department.

After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:

Chemical characterization:

Description: (CAS#)

Ethylenediamine (CAS# 107-15-3), 100%

Identification number(s):

EINECS Number: 203-468-6

EU Number: 612-006-00-6

3 Hazards identification

Hazard description:



C Corrosive

Information pertaining to particular dangers for man and environment

R 10 Flammable.

R 21/22 Harmful in contact with skin and if swallowed.

R 34 Causes burns.

R 42/43 May cause sensitization by inhalation and skin contact.

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH	2
FIRE	2
REACTIVITY	1

Health (acute effects) = 2

Flammability = 2

Reactivity = 1

4 First aid measures

General information

Immediately remove any clothing soiled by the product.

After inhalation

Supply fresh air and to be sure call for a doctor.

(Contd. on page 2)

Material Safety Data Sheet
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Printing date 10/10/2007

Reviewed on 08/08/2007

Product name: Ethylenediamine

(Contd. of page 1)

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek immediate medical advice.

Information for doctor

The following symptoms may occur:

Methemoglobinemia

Cyanosis

Gastric or intestinal disorders.

5 Fire fighting measures

Suitable extinguishing agents

CO₂, extinguishing powder or water spray. Fight larger fires with water spray.

Special hazards caused by the material, its products of combustion or resulting gases:

In case of fire, the following can be released:

Carbon monoxide (CO)

Nitrogen oxides (NO_x)

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures

Person-related safety precautions:

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

Measures for environmental protection:

Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Keep away from ignition sources.

Additional information:

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

Handling

Information for safe handling:

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

(Contd. on page 3)

Material Safety Data Sheet
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Product name: Ethylenediamine

(Contd. of page 2)

Ensure good ventilation at the workplace.

Information about protection against explosions and fires:

Keep ignition sources away.

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

Storage

Requirements to be met by storerooms and receptacles:

No special requirements.

Information about storage in one common storage facility:

Do not store together with oxidizing and acidic materials.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:

Ethylenediamine

	ppm
ACGIH TLV	10; A4
Belgium TWA	10
Denmark TWA	10
Finland TWA	10; 20-STEL
France TWA	10; 15-STEL
Germany TWA	10
Ireland TWA	10
Netherlands TWA	7.2
Poland TWA	2 mg/m ³
Russia TWA	10; 2-STEL
Sweden TWA	10; 15-STEL
Switzerland TWA	10; 20-STEL
United Kingdom TWA	10
USA PEL	10

Additional information: No data

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Breathing equipment:

Use suitable respirator when high concentrations are present.

Protection of hands: Impervious gloves

Eye protection:

Safety glasses

Tightly sealed goggles

Full face protection

(Contd. on page 4)

Material Safety Data Sheet
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Product name: Ethylenediamine

Body protection: Protective work clothing.

(Contd. of page 3)

9 Physical and chemical properties:

General Information	
Form:	Liquid
Color:	Colorless
Odor:	Amine-like
Change in condition	
Melting point/Melting range:	8.5°C (47°F)
Boiling point/Boiling range:	118°C (244°F)
Sublimation temperature / start:	Not determined
Flash point:	34°C (93°F)
Ignition temperature:	379.4°C (715°F)
Decomposition temperature:	Not determined
Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures is possible.
Explosion limits:	
Lower:	2.7 Vol %
Upper:	16 Vol %
Vapor pressure at 20°C (68°F):	14.2 hPa (11 mm Hg)
Density at 20°C (68°F):	0.899 g/cm ³
Solubility in / Miscibility with Water:	
	Fully miscible

10 Stability and reactivity

Thermal decomposition / conditions to be avoided:

Decomposition will not occur if used and stored according to specifications.

Materials to be avoided:

Acids

Oxidizing agents

Halocarbons

Copper

Acid chlorides

Acid anhydrides

Aluminum/aluminum alloys.

Dangerous reactions No dangerous reactions known

Dangerous products of decomposition:

Carbon monoxide and carbon dioxide

Nitrogen oxides

11 Toxicological information

Acute toxicity:

LD/LC50 values that are relevant for classification:

Oral	LD50	470 mg/kg (gpg)
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(Contd. on page 5)

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(Contd. of page 4)

		1000 mg/kg (mus)
		1200 mg/kg (rat)
Inhalative	LC50	300 mg/m3 (mus)
Irritation of skin	moderate	450 mg (rbt)
	severe	10 mg/24H (rbt)
Irritation of eyes	severe	750 µg/24H (rbt)
		0.75 mg (rbt)

**Primary irritant effect:
on the skin:**

Corrosive effect on skin and mucous membranes.
Irritant to skin and mucous membranes.

on the eye:

Strong corrosive effect.
Irritating effect.

Sensitization: Sensitization possible through skin contact.

Subacute to chronic toxicity:

Ethylenediamine may cause sensitization reactions and damage to the liver and kidneys. Large doses may cause conversion of hemoglobin to methemoglobin, producing cyanosis, and marked fall in blood pressure leading to collapse, coma and possibly death.

Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus.

May cause skin burns or irritation depending on the severity of the exposure.

Additional toxicological information:

Danger through skin absorption.

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

12 Ecological information:

General notes:

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground. Do not allow material to be released to the environment without proper governmental permits.

13 Disposal considerations

Product:

Recommendation

Consult state, local or national regulations to ensure proper disposal.

(Contd. on page 6)

Material Safety Data Sheet
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(Contd. of page 5)

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

Recommended cleansing agent: Water, if necessary with cleansing agents.

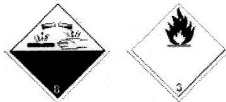
14 Transport information

DOT regulations:



Hazard class: 8
Identification number: UN1604
Packing group: II
Hazardous substance: 5000 lbs, 2270 kg
Proper shipping name (technical name): ETHYLENEDIAMINE
Label: 8+3

Land transport ADR/RID (cross-border)



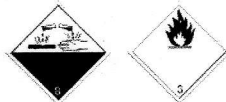
ADR/RID class: 8 (CF1) Corrosive substances
Danger code (Kemler): 83
UN-Number: 1604
Packaging group: II
Description of goods: 1604 ETHYLENEDIAMINE

Maritime transport IMDG:



IMDG Class: 8
UN Number: 1604
Label: 8+3
Packaging group: II
Proper shipping name: ETHYLENEDIAMINE

Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class: 8
UN/ID Number: 1604
Label: 8+3
Packaging group: II
Proper shipping name: ETHYLENEDIAMINE

USA

(Contd. on page 7)