

## SAFETY DATA SHEET

Creation Date 16-Jan-2015

Revision Date 25-Apr-2019

Revision Number 4

### 1. Identification

**Product Name** Ethylenediamine

**Cat No. :** E479-4; E479-500; S80006

**Synonyms** 1,2-Diaminoethane; 1,2-Ethanediamine; Dimethylenediamine

**Recommended Use** Laboratory chemicals.

**Uses advised against** Food, drug, pesticide or biocidal product use

#### Details of the supplier of the safety data sheet

##### Company

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

##### **Emergency Telephone Number**

CHEMTREC®, Inside the USA: 800-424-9300  
CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. Hazard(s) identification

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 3
Acute oral toxicity	Category 4
Acute dermal toxicity	Category 4
Skin Corrosion/Irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Respiratory Sensitization	Category 1
Skin Sensitization	Category 1
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

#### Label Elements

##### **Signal Word**

Danger

##### **Hazard Statements**

Flammable liquid and vapor  
Harmful if swallowed  
Harmful in contact with skin

Causes severe skin burns and eye damage  
 May cause respiratory irritation  
 May cause an allergic skin reaction  
 May cause allergy or asthma symptoms or breathing difficulties if inhaled



### Precautionary Statements

#### Prevention

Wash face, hands and any exposed skin thoroughly after handling  
 Do not eat, drink or smoke when using this product  
 Wear protective gloves/protective clothing/eye protection/face protection  
 Do not breathe dust/fume/gas/mist/vapors/spray  
 In case of inadequate ventilation wear respiratory protection  
 Contaminated work clothing should not be allowed out of the workplace  
 Use only outdoors or in a well-ventilated area  
 Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
 Keep container tightly closed  
 Ground/bond container and receiving equipment  
 Use explosion-proof electrical/ventilating/lighting/equipment  
 Use only non-sparking tools  
 Take precautionary measures against static discharge  
 Keep cool

#### Response

Immediately call a POISON CENTER or doctor/physician

#### Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

#### Skin

Wash contaminated clothing before reuse  
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
 If skin irritation or rash occurs: Get medical advice/attention

#### Eyes

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

#### Ingestion

Rinse mouth  
 Do NOT induce vomiting

#### Fire

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction

#### Storage

Store locked up  
 Store in a well-ventilated place. Keep container tightly closed

#### Disposal

Dispose of contents/container to an approved waste disposal plant

#### Hazards not otherwise classified (HNOC)

None identified

## 3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Ethylene diamine	107-15-3	> 98

#### 4. First-aid measures

<b>General Advice</b>	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. Call a physician immediately.
<b>Inhalation</b>	If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.
<b>Ingestion</b>	Do not induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.
<b>Most important symptoms and effects</b>	Causes burns by all exposure routes. Breathing difficulties. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
<b>Notes to Physician</b>	Treat symptomatically

#### 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	CO <sub>2</sub> , dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.
<b>Unsuitable Extinguishing Media</b>	No information available
<b>Flash Point</b>	34 °C / 93.2 °F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	385 °C / 725 °F
<b>Explosion Limits</b>	
<b>Upper</b>	14.2 vol %
<b>Lower</b>	2.6 vol %
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

#### **Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

#### **Hazardous Combustion Products**

Nitrogen oxides (NO<sub>x</sub>) Ammonia Hydrogen cyanide (hydrocyanic acid)

#### **Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

#### **NFPA**

Health  
3Flammability  
2Instability  
0Physical hazards  
N/A

## 6. Accidental release measures

<b>Personal Precautions</b>	Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Take precautionary measures against static discharges.
<b>Environmental Precautions</b>	Should not be released into the environment. See Section 12 for additional ecological information. Do not flush into surface water or sanitary sewer system.
<b>Methods for Containment and Clean Up</b>	Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

## 7. Handling and storage

<b>Handling</b>	Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe vapors or spray mist. Do not ingest. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.
<b>Storage</b>	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area. Corrosives area.

## 8. Exposure controls / personal protection

### Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Ethylene diamine	TWA: 10 ppm Skin	(Vacated) TWA: 10 ppm (Vacated) TWA: 25 mg/m <sup>3</sup> TWA: 10 ppm TWA: 25 mg/m <sup>3</sup>	IDLH: 1000 ppm TWA: 10 ppm TWA: 25 mg/m <sup>3</sup>	TWA: 10 ppm TWA: 25 mg/m <sup>3</sup> STEL: 3 mg/m <sup>3</sup>

### Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

<b>Engineering Measures</b>	Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment.
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### Personal Protective Equipment

<b>Eye/face Protection</b>	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
<b>Skin and body protection</b>	Long sleeved clothing.
<b>Respiratory Protection</b>	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
<b>Hygiene Measures</b>	Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

<b>Physical State</b>	Liquid
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Appearance	Clear, Viscous
Odor	Ammonia-like
Odor Threshold	No information available
pH	11.9 (25 %)
Melting Point/Range	8.5 °C / 47.3 °F
Boiling Point/Range	118 °C / 244.4 °F @ 760 mmHg
Flash Point	34 °C / 93.2 °F
Evaporation Rate	0.91 (Butyl Acetate = 1.0)
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	14.2 vol %
Lower	2.6 vol %
Vapor Pressure	12 mmHg @ 25 °C
Vapor Density	2.07 (Air = 1.0)
Specific Gravity	.8980
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	385 °C / 725 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C <sub>2</sub> H <sub>8</sub> N <sub>2</sub>
Molecular Weight	60.1
VOC Content(%)	98

## 10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.
Incompatible Materials	Acids, Acid anhydrides, Acid chlorides, Oxidizing agents
Hazardous Decomposition Products	Nitrogen oxides (NO <sub>x</sub> ), Ammonia, Hydrogen cyanide (hydrocyanic acid)
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

## 11. Toxicological information

### Acute Toxicity

#### Product Information Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethylene diamine	637 mg/kg ( Rat ) 866 mg/kg ( Rat )	LD50 = 560 mg/kg ( Rabbit )	14.7 mg/L/4h ( Rat )

**Toxicologically Synergistic Products** No information available

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	Causes burns by all exposure routes
Sensitization	No information available
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico

Ethylene diamine	107-15-3	Not listed	Not listed	Not listed	Not listed	Not listed
<b>Mutagenic Effects</b>	No information available					
<b>Reproductive Effects</b>	No information available.					
<b>Developmental Effects</b>	No information available.					
<b>Teratogenicity</b>	No information available.					
<b>STOT - single exposure</b>	Respiratory system					
<b>STOT - repeated exposure</b>	None known					
<b>Aspiration hazard</b>	No information available					
<b>Symptoms / effects, both acute and delayed</b>	Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing					
<b>Endocrine Disruptor Information</b>	No information available					
<b>Other Adverse Effects</b>	The toxicological properties have not been fully investigated.					

## 12. Ecological information

### Ecotoxicity

This product contains the following substance(s) which are hazardous for the environment. Contains a substance which is: Harmful to aquatic organisms. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Ethylene diamine	EC50: = 151 mg/L, 96h (Pseudokirchneriella subcapitata) EC50: = 645 mg/L, 72h (Pseudokirchneriella subcapitata)	LC50: 191 - 254 mg/L, 96h flow-through (Pimephales promelas) LC50: 98.6 - 131.6 mg/L, 96h static (Pimephales promelas) LC50: = 115.7 mg/L, 96h semi-static (Pimephales promelas) LC50: 180 - 560 mg/L, 96h semi-static (Poecilia reticulata)	EC50 = 20 mg/L 15 min EC50 = 29 mg/L 17 h	EC50: = 17 mg/L, 48h (Daphnia magna)

<b>Persistence and Degradability</b>	Persistence is unlikely
<b>Bioaccumulation/ Accumulation</b>	No information available.
<b>Mobility</b>	. Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Ethylene diamine	-1.221

## 13. Disposal considerations

<b>Waste Disposal Methods</b>	Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.
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## 14. Transport information

### DOT

**UN-No** UN1604  
**Proper Shipping Name** ETHYLENEDIAMINE  
**Hazard Class** 8  
**Subsidiary Hazard Class** 3  
**Packing Group** II

**TDG**

**UN-No** UN1604  
**Proper Shipping Name** ETHYLENEDIAMINE  
**Hazard Class** 8  
**Subsidiary Hazard Class** 3  
**Packing Group** II

**IATA**

**UN-No** UN1604  
**Proper Shipping Name** ETHYLENEDIAMINE  
**Hazard Class** 8  
**Subsidiary Hazard Class** 3  
**Packing Group** II

**IMDG/IMO**

**UN-No** UN1604  
**Proper Shipping Name** ETHYLENEDIAMINE  
**Hazard Class** 8  
**Subsidiary Hazard Class** 3  
**Packing Group** II

## 15. Regulatory information

**United States of America Inventory**

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Ethylene diamine	107-15-3	X	ACTIVE	-

**Legend:**

**TSCA** - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

- - Not Listed

**TSCA 12(b)** - Notices of Export Not applicable

**International Inventories**

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Ethylene diamine	107-15-3	X	-	203-468-6	X	X	X	X	KE-13141

**U.S. Federal Regulations**

**SARA 313** Not applicable

**SARA 311/312 Hazard Categories** See section 2 for more information

**CWA (Clean Water Act)**

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Ethylene diamine	X	5000 lb	-	-

**Clean Air Act** Not applicable

**OSHA** - Occupational Safety and Health Administration Not applicable

## CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Ethylene diamine	5000 lb	5000 lb

**California Proposition 65** This product does not contain any Proposition 65 chemicals

**U.S. State Right-to-Know Regulations**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Ethylene diamine	X	X	X	-	X

**U.S. Department of Transportation**

Reportable Quantity (RQ): N  
 DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product contains the following DHS chemicals:  
**Legend** - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Ethylene diamine	Release STQs - 20000lb

**Other International Regulations**

**Mexico - Grade** Serious risk, Grade 3

## 16. Other information

**Prepared By** Regulatory Affairs  
 Thermo Fisher Scientific  
 Email: EMSDS.RA@thermofisher.com

**Creation Date** 16-Jan-2015  
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**Print Date** 25-Apr-2019  
**Revision Summary** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**