

## SAFETY DATA SHEET

Creation Date 14-May-2009

Revision Date 28-Mar-2024

Revision Number 4

### 1. Identification

**Product Name** Ethylenediamine

**Cat No. :** A12132

**CAS No** 107-15-3  
**Synonyms** 1,2-Diaminoethane

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use.

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

##### Company

Thermo Fisher Scientific Chemicals, Inc.  
30 Bond Street  
Ward Hill, MA 01835-8099  
Tel: 800-343-0660  
Fax: 800-322-4757

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

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**: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 3   |
| Acute Inhalation Toxicity - Vapors               | 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  
Toxic 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  
Harmful if swallowed or if inhaled

**Precautionary Statements****Prevention**

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

Harmful to aquatic life with long lasting effects

### 3. Composition/Information on Ingredients

| Component       | CAS No   | Weight % |
|-----------------|----------|----------|
| Ethylenediamine | 107-15-3 | >95      |

### 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. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  |
| <b>Skin Contact</b>                        | Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.   |
| <b>Inhalation</b>                          | If not breathing, give artificial respiration. 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. Remove to fresh air. Immediate medical attention is required.  |
| <b>Ingestion</b>                           | Do NOT induce vomiting. Call a physician or poison control center immediately.  |
| <b>Most important symptoms and effects</b> | Causes burns by all exposure routes. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction. Difficulty in breathing. 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: 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 overexposure may be headache, dizziness, tiredness, nausea and vomiting |
| <b>Notes to Physician</b>                  | Treat symptomatically   |

### 5. Fire-fighting measures

|   |   |
|---|---|
| <b>Suitable Extinguishing Media</b>     | Water mist may be used to cool closed containers. CO <sub>2</sub> , dry chemical, dry sand, alcohol-resistant foam. |
| <b>Unsuitable Extinguishing Media</b>   | No information available  |
| <b>Flash Point</b>                      | 38 °C / 100.4 °F  |
| <b>Method -</b>                         | No information available  |
| <b>Autoignition Temperature</b>         | 385 °C / 725 °F   |
| <b>Explosion Limits</b>                 |   |
| <b>Upper</b>                            | 16.6 vol %  |
| <b>Lower</b>                            | 2.7 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**

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Nitrogen oxides (NO<sub>x</sub>). Thermal decomposition can lead to release of irritating gases and vapors.

**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**  
3

**Flammability**  
2

**Instability**  
1

**Physical hazards**  
N/A

**6. Accidental release measures****Personal Precautions**

Use personal protective equipment as required. 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.

**Environmental Precautions**

Should not be released into the environment. See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage. Do not flush into surface water or sanitary sewer system.

**Methods for Containment and Clean Up**

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****Handling**

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

**Storage.**

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep away from heat, sparks and flame. Flammables area. Incompatible Materials. Strong oxidizing agents.

**8. Exposure controls / personal protection****Exposure Guidelines**

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

**Legend**

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

**Engineering Measures**

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.

**Personal Protective Equipment****Eye/face Protection**

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. Tight sealing safety goggles. Face protection shield.

|                                 |   |
|---------------------------------|---|
| <b>Skin and body protection</b> | Wear appropriate protective gloves and clothing to prevent skin exposure.   |
| <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>Recommended Filter type:</b> | conforming to EN14387. Organic gases and vapours filter. Type A. Brown.   |
| <b>Hygiene Measures</b>         | Handle in accordance with good industrial hygiene and safety practice.  |

## 9. Physical and chemical properties

|   |  |
|---|--|
| <b>Physical State</b>                         | Liquid                                     |
| <b>Appearance</b>                             | Colorless                                  |
| <b>Odor</b>                                   | Ammonia-like                               |
| <b>Odor Threshold</b>                         | No information available                   |
| <b>pH</b>                                     | 12.2 11% aq.sol                            |
| <b>Melting Point/Range</b>                    | 11 °C / 51.8 °F                            |
| <b>Boiling Point/Range</b>                    | 117 - 118 °C / 242.6 - 244.4 °F @ 760 mmHg |
| <b>Flash Point</b>                            | 38 °C / 100.4 °F                           |
| <b>Evaporation Rate</b>                       | 0.91                                       |
| <b>Flammability (solid,gas)</b>               | Not applicable                             |
| <b>Flammability or explosive limits</b>       |  |
| Upper   | 16.6 vol %                                 |
| Lower   | 2.7 vol %                                  |
| <b>Vapor Pressure</b>                         | 13.3 mbar @ 20 °C                          |
| <b>Vapor Density</b>                          | 2.1  |
| <b>Specific Gravity</b>                       | 0.898                                      |
| <b>Solubility</b>                             | Soluble in water                           |
| <b>Partition coefficient; n-octanol/water</b> | No data available                          |
| <b>Autoignition Temperature</b>               | 385 °C / 725 °F                            |
| <b>Decomposition Temperature</b>              | > 120°C                                    |
| <b>Viscosity</b>                              | 1.6 mPa.s @ 20 °C                          |
| <b>Molecular Formula</b>                      | C2 H8 N2                                   |
| <b>Molecular Weight</b>                       | 60.1                                       |

## 10. Stability and reactivity

|   |   |
|---|---|
| <b>Reactive Hazard</b>                  | None known, based on information available  |
| <b>Stability</b>                        | Stable under normal conditions. Air sensitive.  |
| <b>Conditions to Avoid</b>              | Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition. Exposure to air.  |
| <b>Incompatible Materials</b>           | Strong oxidizing agents   |
| <b>Hazardous Decomposition Products</b> | Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Nitrogen oxides (NO <sub>x</sub> ), Thermal decomposition can lead to release of irritating gases and vapors |
| <b>Hazardous Polymerization</b>         | Hazardous polymerization does not occur.  |
| <b>Hazardous Reactions</b>              | None under normal processing.   |

## 11. Toxicological information

### Acute Toxicity

|                                     |             |
|-------------------------------------|-------------|
| <b>Product Information</b>          |             |
| <b>LD50 Oral VALUE</b>              | 866 mg/kg   |
| <b>LC50 Inhalation (DUST) VALUE</b> | >20 mg/L/4h |

**Component Information**

| Component       | LD50 Oral                              | LD50 Dermal          | LC50 Inhalation      |
|-----------------|--|----------------------|----------------------|
| Ethylenediamine | 637 mg/kg ( Rat )<br>866 mg/kg ( Rat ) | 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** May cause sensitization by skin contact

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Component       | CAS No   | IARC       | NTP        | ACGIH      | OSHA       | Mexico     |
|-----------------|----------|------------|------------|------------|------------|------------|
| Ethylenediamine | 107-15-3 | Not listed | Not listed | Not listed | Not listed | Not listed |

**Mutagenic Effects** Mutagenic effects have occurred in microorganisms.

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** Respiratory system  
**STOT - repeated exposure** None known

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** 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: 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 overexposure may be headache, dizziness, tiredness, nausea and vomiting

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

**Ecotoxicity**

Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants. Contains a substance which is: Harmful to aquatic organisms. The product contains following substances which are hazardous for the environment. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

| Component       | Freshwater Algae                          | Freshwater Fish  | Microtox                                     | Water Flea          |
|-----------------|---|--|--|---------------------|
| Ethylenediamine | 151 mg/L EC50 = 96 h 645 mg/L EC50 = 72 h | 180 - 560 mg/L LC50 96 h 115.7 mg/L LC50 96 h 191 - 254 mg/L LC50 96 h 98.6 - 131.6 mg/L LC50 96 h | EC50 = 20 mg/L 15 min<br>EC50 = 29 mg/L 17 h | 17 mg/L EC50 = 48 h |

**Persistence and Degradability** Persistence is unlikely

**Bioaccumulation/ Accumulation** No information available.

**Mobility** . Will likely be mobile in the environment due to its water solubility.

| Component       | log Pow |
|-----------------|---------|
| Ethylenediamine | -1.221  |

### 13. Disposal considerations

**Waste Disposal Methods** 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.

### 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 |
|-----------------|----------|------|---|-----------------------------|
| Ethylenediamine | 107-15-3 | X    | ACTIVE  | -                           |

#### Legend:

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

X - Listed

'-' - Not Listed

**TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)**

Not applicable

**TSCA 12(b)** - Notices of Export

Not applicable

#### International Inventories

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

| Component       | CAS No   | DSL | NDL | EINECS    | PICCS | ENCS | ISHL | AICS | IECSC | KECL |
|-----------------|----------|-----|-----|-----------|-------|------|------|------|-------|------|
| Ethylenediamine | 107-15-3 | X   | -   | 203-468-6 | X     | X    | X    | X    | X     | X    |

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

#### U.S. Federal Regulations

**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

**SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

**CWA (Clean Water Act)**

| Component       | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|-----------------|----------------------------|-----------------------------|------------------------|---------------------------|
| Ethylenediamine | X                          | 5000 lb                     | -                      | -                         |

**Clean Air Act** Not applicable

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

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

| Component       | Hazardous Substances RQs | CERCLA Extremely Hazardous Substances RQs | SARA Reportable Quantity (RQ) |
|-----------------|--------------------------|---|-------------------------------|
| Ethylenediamine | 5000 lb                  | 5000 lb                                   | 5000 lb<br>2270 kg            |

**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 |
|-----------------|---------------|------------|--------------|----------|--------------|
| Ethylenediamine | X             | X          | X            | -        | X            |

**U.S. Department of Transportation**

Reportable Quantity (RQ): Y  
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 |
|-----------------|---|
| Ethylenediamine | Release STQs - 20000lb                        |

**Other International Regulations**

**Mexico - Grade** Moderate risk, Grade 2

**Authorisation/Restrictions according to EU REACH**

| Component       | CAS No   | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High |
|-----------------|----------|---|---|--|
| Ethylenediamine | 107-13-6 |   |   |  |



|                 |          |   |  | <b>Concern (SVHC)</b>   |
|-----------------|----------|---|--|---|
| Ethylenediamine | 107-15-3 | - | Use restricted. See item 75.<br>(see link for restriction details) | SVHC Candidate list - 203-468-6 - Respiratory sensitising properties (Article 57(f) - human health) |

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

#### REACH links

<https://echa.europa.eu/authorisation-list>

<https://echa.europa.eu/substances-restricted-under-reach>

<https://echa.europa.eu/candidate-list-table>

#### Safety, health and environmental regulations/legislation specific for the substance or mixture

| Component       | CAS No   | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|-----------------|----------|----------|------------------------------|---------------------------|--|
| Ethylenediamine | 107-15-3 | Listed   | Not applicable               | Not applicable            | Not applicable                             |

#### Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

#### Other International Regulations

| Component       | CAS No   | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|-----------------|----------|---|--|----------------------------|------------------------------------|
| Ethylenediamine | 107-15-3 | Not applicable  | Not applicable   | Not applicable             | Not applicable                     |

### 16. Other information

#### Prepared By

Health, Safety and Environmental Department  
Email: chem.techinfo@thermofisher.com  
www.thermofisher.com

#### Creation Date

14-May-2009

#### Revision Date

28-Mar-2024

#### Print Date

28-Mar-2024

#### Revision Summary

New emergency telephone response service provider.

#### 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**