Safety Data Sheet

Ethylenediamine

CAROLINA®
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Section 1 Product Description

Product Name:	Ethylenediamine
Recommended Use:	Science education applications
Synonyms:	1,2 - Diaminoethane
Distributor:	Carolina Biological Supply Company 2700 York Road, Burlington, NC 27215 1-800-227-1150
Chemical Information:	800-227-1150 (8am-5pm (ET) M-F)
Chemtrec:	800-424-9300 (Transportation Spill Response 24 hours)

Section 2 Hazard Identification

Classification of the chemical in accordance with paragraph (d) of §1910.1200;

DANGER

Flammable liquid and vapor. Harmful if swallowed or if inhaled. Toxic in contact with skin. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

GHS Classification:
Skin Corrosion/Irritation Category 1B, Serious Eye Damage/Eye Irritation Category 1, Respiratory Sensitisation Category 1, Skin Sensitisation Category 1, Flammable Liquid Category 3, Acute Toxicity - Dermal Category 3, Hazardous to the aquatic environment - Acute Category 3, Hazardous to the aquatic environment - Chronic Category 3, Acute Toxicity - Inhalation Gas Category 4, Acute Toxicity - Oral Category 4

Acute Toxicity Inhalation Vapor Contains	100 % of the mixture consists of ingredient(s) of unknown toxicity
Acute Toxicity Inhalation Dust/Mist Contains	100 % of the mixture consists of ingredient(s) of unknown toxicity

Section 3 Composition / Information on Ingredients

Chemical Name	CAS #	%
Ethylenediamine	107-15-3	100

Section 4 First Aid Measures

Emergency and First Aid Procedures

Inhalation:	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
Eyes:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Skin Contact:	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF ON SKIN: Wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.
Ingestion:	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical when fighting fires. Water or foam may cause frothing if liquid is burning but it still may be a useful extinguishing agent if carefully applied to the surface of the fire. Do Not direct a stream of water into the hot burning liquid.

Fire Fighting Methods and Protection: Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.

Fire and/or Explosion Hazards: Vapors may travel back to ignition source. Closed Containers exposed to heat may explode. In use, may form flammable/explosive vapor-air mixture. Flammable.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

Section 6 Spill or Leak Procedures

Steps to Take in Case Material Is Released or Spilled: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits. Ventilate the contaminated area. Evaporation of volatile substances can lead to the displacement of air creating an environment that can cause asphyxiation. Persons not wearing appropriate protective equipment should be excluded from area of spill until clean-up has been completed. Shut off ignition sources; including electrical equipment and flames. Do not allow smoking in the area. Avoid breathing dust/fume/gas/mist/vapors/spray.

Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container Avoid creating dusts. Eliminate ignition sources. If a vacuum is used, ensure that the material is wetted or otherwise treated so an explosive dust atmosphere is not created within the vacuum.

Section 7 Handling and Storage

Handling: 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. Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Do no eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation wear respiratory protection. Keep container tightly closed in a cool, well-ventilated place. Keep away from sources of ignition - No smoking. This material should be kept in an area suitable for the storage of flammable liquids. Store away from oxidizing agents, sparks and flame. After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Avoid contact with skin and eyes. Use only in well-ventilated areas.

Storage: Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up. Keep container tightly closed in a cool, well-ventilated place.

Storage Code: Red - Flammables. Store in approved flammable containers. Store away from oxidizing materials.

Section 8 Protection Information

	ACGIH		OSHA PEL	
Chemical Name	**(TWA)**	**(STEL)**	**(TWA)**	**(STEL)**
Ethylenediamine	10 ppm TWA	N/A	10 ppm TWA; 25 mg/m3 TWA	N/A

Control Parameters

Engineering Measures: Local exhaust ventilation, process enclosures, or other engineering controls are necessary when handling or using this product to avoid overexposure. Ventilation should effectively remove and prevent buildup of any vapor/mist/fume generated from the handling of this product.

Personal Protective Equipment (PPE): Lab coat, apron, eye wash, safety shower.

Respiratory Protection: No respiratory protection required under normal conditions of use. Wear a NIOSH approved respirator if levels above the exposure limits are possible.

Respirator Type(s):	NIOSH approved air purifying respirator with organic vapor/acid gas cartridge and dust/mist filter.
Eye Protection:	Wear chemical splash goggles when handling this product. Have an eye wash station available.
Skin Protection:	Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work. Where use can result in skin contact, practice good personal hygiene. Use impervious gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly.
Gloves:	Butyl rubber, Impervious rubber

Section 9 Physical Data

Formula: C2H8N2
Molecular Weight: 60.1
Appearance: Liquid
Odor: No data available
Odor Threshold: No data available
pH: 11.9, conc: 25 % at 25 °C (aqueous solution)
Melting Point: No data available
Boiling Point: 118 C
Flash Point: No data available 34 C
Flammable Limits in Air: LEL: 2.7%; UEL: 16.6% N/A

Vapor Pressure: 10.7 mmHg 20 °C
Evaporation Rate (BuAc=1): 0.91
Vapor Density (Air=1): 2.1
Specific Gravity: 0.901 at 25 °C
Solubility in Water: Soluble
Log Pow (calculated): -1.221
Autoignition Temperature: No data available
Decomposition Temperature: No data available
Viscosity: No data available
Percent Volatile by Volume: 100%

Section 10 Reactivity Data

Reactivity:	No data available
Chemical Stability:	Stable under normal conditions.
Conditions to Avoid:	Sparks, open flame, other ignition sources, and elevated temperatures.
Incompatible Materials:	Aldehydes, Organic halides, Strong oxidizing agents
Hazardous Polymerization:	Will not occur

Section 11 Toxicity Data

Routes of Entry Inhalation, ingestion, eye or skin contact.
Symptoms (Acute): Respiratory disorders, Liver disorders, Impaired Kidney Function
Delayed Effects: No data available

Acute Toxicity:

Chemical Name	CAS Number	Oral LD50	Dermal LD50	Inhalation LC50
Ethylenediamine	107-15-3	Oral LD50 Rat = 1200 mg/kg	Dermal LD50 Rabbit 560 mg/kg	Not determined

Carcinogenicity:

Chemical Name	CAS Number	IARC	NTP	OSHA
No data available	107-15-3	Not listed	Not listed	Not listed

Chronic Effects:

Mutagenicity:	No evidence of a mutagenic effect.
Teratogenicity:	No evidence of a teratogenic effect (birth defect).
Sensitization:	Evidence of a sensitization effect.
Reproductive:	No evidence of negative reproductive effects.
Target Organ Effects:	
Acute:	See Section 2
Chronic:	Not listed as a carcinogen by IARC, NTP or OSHA.

Section 12 Ecological Data

Overview: Moderate ecological hazard. This product may be dangerous to plants and/or wildlife. Highly/very toxic to fish and other water organisms.
Mobility: No data
Persistence: No data
Bioaccumulation: No data
Degradability: No data
Other Adverse Effects: No data

Chemical Name	CAS Number	Eco Toxicity
Ethylenediamine	107-15-3	48 HR EC50 DAPHNIA MAGNA 17 MG/L 72 HR EC50 PSEUDOKIRCHNERIELLA SUBCAPITATA 645 MG/L 96 HR EC50 PSEUDOKIRCHNERIELLA SUBCAPITATA 151 MG/L

Section 13 Disposal Information

Disposal Methods: Dispose in accordance with all applicable Federal, State and Local regulations. Always contact a permitted waste disposer (TSD) to assure compliance.
Waste Disposal Code(s): Not Determined

Section 14 Transport Information

Ground - DOT Proper Shipping Name:
UN1604, Ethylenediamine, 8, (3), PG II, Ltd Qty < 1 Lt.

Air - IATA Proper Shipping Name:
UN number: 1604 Class: 8 (3) Packing group: II Proper shipping name: Ethylenediamine

Section 15 Regulatory Information

TSCA Status: All components in this product are on the TSCA Inventory.

Chemical Name	CAS Number	§ 313 Name	§ 304 RQ	CERCLA RQ	§ 302 TPQ	CAA 112(2) TQ
Ethylenediamine	107-15-3	No	5000 lb RQ	5000 lb final RQ; 2270 kg final RQ	10000 lb TPQ	No

Section 16 Additional Information

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The information provided in this (Material) Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the (Material) Safety Data Sheet.

Glossary

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
CAS	Chemical Abstract Service Number	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
DOT	U.S. Department of Transportation	ppm	Parts per million
IARC	International Agency for Research on Cancer	RCRA	Resource Conservation and Recovery Act
N/A	Not Available	SARA	Superfund Amendments and Reauthorization Act
		TLV	Threshold Limit Value
		TSCA	Toxic Substances Control Act
		IDLH	Immediately dangerous to life and health