

Ethylenediamine

SECTION 1. IDENTIFICATION

Product Identifier	Ethylenediamine
Other Means of Identification	1,2-Diaminoethane, Dimethylenediamine, EDA
Product Code(s)	ET4610
Product Family	Organic solution
Recommended Use	Laboratory and industrial use.
Restrictions on Use	None known.
Supplier Identifier	Alphachem Limited, 2485 Milltower Court, Mississauga, Ontario, L5N 5Z6, (905) 821-2995
Emergency Phone No.	CANUTEC CANADA, 613-996-6666, 24 Hours
SDS No.	1424

SECTION 2. HAZARD IDENTIFICATION

Classified according to Canada's Hazardous Products Regulations (WHMIS 2015) and the US Hazard Communication Standard (HCS 2012).

Classification

Flammable liquid - Category 3; Acute toxicity (Oral) - Category 4; Acute toxicity (Dermal) - Category 3; Acute toxicity (Inhalation) - Category 4; Skin corrosion - Category 1B; Serious eye damage - Category 1; Respiratory sensitization - Category 1; Skin sensitization - Category 1

Label Elements



Signal Word:
Danger

Hazard Statement(s):

Flammable liquid and vapour.
Harmful if swallowed or if inhaled.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary Statement(s):

Prevention:
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Keep container tightly closed.
Ground and bond container and receiving equipment.

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Use explosion-proof electrical, ventilating, and lighting equipment.
Use non-sparking tools.
Take action to prevent static discharges.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Wash hands and skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

Response:

IF SWALLOWED: Call a POISON CENTRE or doctor if you feel unwell.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF ON SKIN: Wash with plenty of water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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

Continue rinsing.

Immediately call a POISON CENTRE or doctor.

Storage:

Store in a well-ventilated place. Keep cool.

Store locked up.

Disposal:

Dispose of contents and container in accordance with local, regional, national and international regulations.

Other Hazards

Toxic to aquatic life.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance:

Chemical Name	CAS No.	%	Other Identifiers	Other Names
Ethylenediamine	107-15-3	> 98	1, 2-Diaminoethane, Dimethylenediamine, EDA	

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by Poison Centre or doctor. Seek immediate medical attention.

Skin Contact

Immediately rinse with lukewarm, gently flowing water for 15-20 minutes. Immediately call a Poison Centre or doctor.

Eye Contact

Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for 15-20 minutes, while holding the eyelid(s) open. Immediately call a Poison Centre or doctor. Specific treatment is required.

Ingestion

Rinse mouth with water. Do not induce vomiting. If vomiting occurs, have person lie on side in the recovery position. Rinse mouth with water again. Immediately call a Poison Centre or doctor.

First-aid Comments

Provide general supportive measures (comfort, warmth, rest).

Consult a doctor and/or the nearest Poison Control Centre for all exposures except under minor instances of inhalation or skin contact.

All first aid procedures should be periodically reviewed by a doctor familiar with the material and its conditions of use in the workplace.

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Most Important Symptoms and Effects, Acute and Delayed

If swallowed: can burn the lips, tongue, throat and stomach. Symptoms may include nausea, vomiting, stomach cramps and diarrhea. If in eyes: contact causes severe burns with redness, swelling, pain and blurred vision. Permanent damage including blindness can result. If on skin: contact can cause pain, redness, burns, and blistering. Permanent scarring can result.

Immediate Medical Attention and Special Treatment

Special Instructions

General advice, consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog.

Unsuitable Extinguishing Media

None known.

Specific Hazards Arising from the Product

May travel a considerable distance to a source of ignition and flash back to a leak or open container. Closed containers may rupture violently when heated releasing contents.

In a fire, the following hazardous materials may be generated: very toxic carbon monoxide, carbon dioxide; corrosive, oxidizing nitrogen oxides.

Special Protective Equipment and Precautions for Fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full

protective gear. Evacuate area. Fight fire from a safe distance or a protected location. Approach fire from upwind to avoid hazardous vapours or gases. Move containers from fire area if it can be done without risk. Otherwise, use water in flooding quantities as a spray or fog to keep fire-exposed containers cool and absorb heat. Use water spray to dilute spills to non-flammable mixtures. Use water spray to flush spills away from ignition sources. For a massive fire, immediately evacuate the area and use unmanned hose holder or monitor nozzles.

Chemical protective clothing (e.g. chemical splash suit) and positive pressure SCBA may be necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Use the personal protective equipment recommended in Section 8 of this safety data sheet. Increase ventilation to area or move leaking container to a well-ventilated and secure area. Eliminate all ignition sources. Use grounded, explosion-proof equipment. Remove or isolate incompatible materials as well as other hazardous materials. Notify government occupational health and safety and environmental authorities.

Environmental Precautions

Do not allow into any sewer, on the ground or into any waterway. If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas.

Methods and Materials for Containment and Cleaning Up

Stop or reduce leak if safe to do so. Contain spill with earth, sand, or absorbent material which does not react with spilled material.

Small spills or leaks: contain and soak up spill with absorbent that does not react with spilled product. Place used absorbent into suitable, covered, labelled containers for disposal. Flush spill area.

Large spills or leaks: contact emergency services and manufacturer/supplier for advice.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Wear personal protective equipment to avoid direct contact with this chemical. Avoid breathing in this product. Only use

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where there is adequate ventilation. Eliminate heat and ignition sources such as sparks, open flames, hot surfaces and static discharge. Post "No Smoking" signs. Use non-sparking tools. Never add water to a corrosive. Always add corrosives slowly to COLD water. Prevent accidental contact with incompatible chemicals. Keep containers tightly closed when not in use or empty.

Conditions for Safe Storage

Store in an area that is: cool, dry, well-ventilated, out of direct sunlight and away from heat and ignition sources, separate from incompatible materials (see Section 10: Stability and Reactivity). Keep amount in storage to a minimum. Protect from conditions listed in Conditions to Avoid in Section 10 (Stability and Reactivity). Store in the original, labelled, shipping container.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Chemical Name	ACGIH TLV®		OSHA PEL		AIHA WEEL	
	TWA	STEL	TWA	Ceiling	8-hr TWA	TWA
Ethylenediamine	10 ppm A4 Skin		10 ppm			

Ethylenediamine:

"SKIN" NOTATION: Contact with skin, eyes, and mucous membranes can contribute to the overall exposure and may invalidate the TLV. Consider measures to prevent absorption by these routes.

A4 = Not classifiable as a human carcinogen.

Appropriate Engineering Controls

Use local exhaust ventilation and enclosure, if necessary, to control amount in the air. Provide eyewash and safety shower if contact or splash hazard exists. Use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots.

Suitable materials are: neoprene rubber, Viton®.

The following materials should NOT be used: natural rubber, nitrile rubber, polyvinyl alcohol, polyvinyl chloride.

Respiratory Protection

For non-routine or emergency situations: wear a NIOSH approved powered air-purifying respirator with an appropriate cartridge.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	Light yellow liquid. Absorbs moisture from the air. Lachrymator (causes tearing of the eyes).
Odour	Ammonia-like
Odour Threshold	2.5 - 28 mg/m3
pH	11.9 (25% solution)
Melting Point/Freezing Point	8.5 °C (47.3 °F) (melting); 8.5 °C (47.3 °F) (freezing)
Initial Boiling Point/Range	116 - 118 °C (241 - 244 °F)
Flash Point	33 °C (91 °F) (closed cup)
Evaporation Rate	0.91 (n-butyl acetate = 1)
Flammability (solid, gas)	Not applicable

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Upper/Lower Flammability or Explosive Limit	14.4% (upper); 4.2% (lower)
Vapour Pressure	1.33 kPa (9.98 mm Hg) at 20 °C
Vapour Density (air = 1)	2.1
Relative Density (water = 1)	0.898 at 25 °C
Solubility	Soluble in all proportions in water; Soluble in all proportions in ketones (e.g. acetone).
Partition Coefficient, n-Octanol/Water (Log Kow)	0.05
Auto-ignition Temperature	385 °C (725 °F)
Decomposition Temperature	Not available
Viscosity	Not available (kinematic); 1.54 centipoises at 25 °C (dynamic)
Other Information	
Physical State	Liquid
Molecular Weight	60.12

SECTION 10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

Data not available.

Conditions to Avoid

Open flames, sparks, static discharge, heat and other ignition sources. High temperatures. Moisture. Temperatures above 33.0 °C (91.4 °F)

Incompatible Materials

Acid anhydrides (e.g. acetic anhydride), strong acids (e.g. hydrochloric acid), oxidizing agents (e.g. peroxides), aldehydes (e.g. acetaldehyde).

Hazardous Decomposition Products

Very toxic carbon monoxide, carbon dioxide; corrosive, oxidizing nitrogen oxides.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Inhalation; skin contact; eye contact; ingestion.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Ethylenediamine	4000 ppm (rat) 8-hour exposure	1160 mg/kg (rat)	657 mg/kg (rabbit)

Skin Corrosion/Irritation

Animal tests show skin corrosion.

Serious Eye Damage/Irritation

Causes serious eye damage based on skin corrosion information.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

Toxic, can cause death.

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Ingestion

Toxic, can cause death.

Aspiration Hazard

No information was located.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

No information was located.

Respiratory and/or Skin Sensitization

Respiratory sensitizer. Skin sensitizer.

Carcinogenicity

Chemical Name	IARC	ACGIH®	NTP	OSHA
Ethylenediamine	Not Listed	A4	Not Listed	Not Listed

A4 – Not classifiable as a human carcinogen.

Reproductive Toxicity**Development of Offspring**

No information was located.

Sexual Function and Fertility

No information was located.

Effects on or via Lactation

No information was located.

Germ Cell Mutagenicity

No information was located.

Interactive Effects

No information was located.

SECTION 12. ECOLOGICAL INFORMATION

This section is not required by WHMIS. This section is not required by OSHA HCS 2012.

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal Methods**

Bury in a licensed landfill or burn in an approved incinerator according to federal, provincial/state, and local regulations.

SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
US DOT	UN1604	ETHYLENEDIAMINE	8 (3)	II
Canadian TDG	UN1604	ETHYLENEDIAMINE	8 (3)	II

Special Precautions Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION**Safety, Health and Environmental Regulations**

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Canada**Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)**

Listed on the DSL.

USA**Toxic Substances Control Act (TSCA) Section 8(b)**

Listed on the TSCA Inventory.

SECTION 16. OTHER INFORMATION

NFPA Rating	Health - 3	Flammability - 2	Instability - 0
SDS Prepared By	Alphachem Limited		
Phone No.	(905)-821-2995		
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References	CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS).		
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