SAFETY DATA SHEET

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) (OSHA HCS)

SECTION 1. IDENTIFICATION

Product name	:	Ethylenediamine Anhydrous
Product code	:	E0077

Manufacturer or supplier's details

Company name of supplier	:	TCI America
Address	:	9211 N. Harborgate Street Portland, OR 97203 U.S.A.
Telephone	:	+1-800-4238616/+1-503-2831681
Telefax	:	+1-888-5201075/+1-503-2831987
E-mail address	:	sales-US@TCIchemicals.com

Chemical Emergencies: TCI America (8:00am - 5:00pm) PST +1-503-2867624
Transportation Emergencies: Chemtrec 24-Hour +1-800-4249300 (U.S.A.)/+1-703-5273887 (International)

Recommended use of the chemical and restrictions on use

Recommended use	:	Use as laboratory reagent

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	:	Category 3
Acute toxicity (Oral)	:	Category 4
Acute toxicity (Dermal)	:	Category 3
Skin corrosion	:	Category 1B
Serious eye damage	:	Category 1
Respiratory sensitization	:	Category 1
Skin sensitization	:	Category 1
Specific target organ toxicity - single exposure	:	Category 1 (Blood, Respiratory system, Kidney)
Specific target organ toxicity - repeated exposure	:	Category 2 (Liver, Kidney)
Short-term (acute) aquatic hazard	:	Category 2

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements :
H226 Flammable liquid and vapor.
H302 Harmful if swallowed.
H311 Toxic in contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H370 Causes damage to organs (Blood, Respiratory system, Kidney).
H373 May cause damage to organs (Liver, Kidney) through prolonged or repeated exposure.
H401 Toxic to aquatic life.

Precautionary Statements : **Prevention:**

P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing must not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P285 In case of inadequate ventilation wear respiratory protection.

Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310 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 CENTER/ doctor.
P307 + P311 IF exposed: Call a POISON CENTER or doctor/ physician.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Components

Chemical name	CAS RN	Concentration (% w/w)
Ethylenediamine Anhydrous	107-15-3	>= 90 - <= 100

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

If inhaled : Remove person to fresh air and keep comfortable for breathing.Immediately call a POISON CENTER or doctor/ physician.

In case of skin contact : Take off all contaminated clothing immediately.If on skin, rinse well with water.Call a POISON CENTER or doctor/ physician.

In case of eye contact : Rinse with plenty of water.If easy to do, remove contact lens, if worn.Immediately call a POISON CENTER or doctor/ physician.

If swallowed : Immediately call a POISON CENTER or doctor/ physician.Rinse mouth.Do NOT induce vomiting.

Most important symptoms and effects, both acute and delayed : None known.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Dry powder, Foam, Water spray, Carbon dioxide (CO2)
Specific hazards during fire fighting	:	No information available.
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Immediately evacuate personnel to safe areas. Remove undamaged containers from fire area if it is safe to do so.
Special protective equipment for fire-fighters	:	Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Wear suitable protective equipment.Keep people away from and upwind of spill/leak.Ensure adequate ventilation.Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.
Environmental precautions	:	Prevent product from entering drains.
Methods and materials for containment and cleaning up	:	Collect as much of the spill as possible with a suitable absorbent material.

SECTION 7. HANDLING AND STORAGE

Technical measures	:	Prevent generation of vapor or mist.Take precautionary measures against static discharge.Use explosion-proof equipment.
Local/Total ventilation	:	Ensure adequate ventilation. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Use a local exhaust ventilation.
Advice on safe handling	:	Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not subject to grinding, shock or friction. Wash hands and face thoroughly after handling.
Conditions for safe storage	:	Keep container tightly closed. Store in a cool and shaded area. Keep in a well-ventilated place. Use explosion-proof equipment. Protect from moisture. Keep under inert gas. Store locked up.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS RN	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Ethylenediamine Anhydrous	107-15-3	TWA	10 ppm	ACGIH
		TWA	10 ppm 25 mg/m3	NIOSH REL
		TWA	10 ppm 25 mg/m3	OSHA Z-1
		TWA	10 ppm 25 mg/m3	OSHA P0

Engineering measures : Install a closed system or local exhaust.Also install safety shower and eye bath.

Personal protective equipment

Respiratory protection	:	Gas mask, Self-contained breathing apparatus
Hand protection	:	Impervious gloves
Eye protection	:	Safety glasses, Safety goggles, Face-shield
Skin and body protection	:	Impervious protective clothing

*Use personal protective equipment(PPE) approved under appropriate government standards and follow local and national regulations.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Color	:	colorless
Odor	:	No data available

Odor Threshold	:	1.0 ppm
pH	:	11.9 (77 °F / 25 °C) (as aqueous solution)
Melting point/freezing point	:	50 °F / 10 °C
Boiling point/boiling range	:	241 °F / 116 °C
Flash point	:	93 °F / 34 °C
Flammability (solid, gas)	:	No data available
Upper explosion limit / Upper flammability limit	:	16.6 %(V)
Lower explosion limit / Lower flammability limit	:	2.5 %(V)
Vapor pressure	:	1.4 kPa (68 °F / 20 °C)
Relative vapor density	:	2.1
Relative density	:	0.90
Solubility(ies)		
Water solubility	:	completely miscible
Solubility in other solvents	:	
soluble	:	Alcohol
slightly soluble	:	Ether
Partition coefficient: n-octanol/water	:	-1.2
Autoignition temperature	:	725 °F / 385 °C
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Molecular weight	:	60.10 g/mol

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No data available
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	None under normal processing.
Conditions to avoid	:	Electrical spark Open flame Electrostatic discharge Exposure to air. Exposure to moisture.
Incompatible materials	:	Oxidizing agents, Acids, Metals
Hazardous decomposition products	:	Carbon monoxide, Carbon dioxide (CO2), Nitrogen oxides (NOx)

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Acute oral toxicity	:	LD50 (Rat): 1,200 mg/kg
Acute inhalation toxicity	:	LCLo (Rat): 4000 ppm Exposure time: 8 h Test atmosphere: gas
Acute dermal toxicity	:	LD50 (Rabbit): 657 mg/kg

Skin corrosion/irritation

Result	:	Causes burns.

Serious eye damage/eye irritation

Result	:	Irreversible effects on the eye

Respiratory or skin sensitization

Assessment	:	May cause sensitization by inhalation.
Assessment	:	May cause sensitization by skin contact.

Germ cell mutagenicity : No information available.

Carcinogenicity

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified

as a known or anticipated carcinogen by NTP.

Reproductive toxicity : No information available.

STOT-single exposure

Target Organs : Blood, Respiratory system, Kidney

Assessment : Causes damage to organs.

STOT-repeated exposure

Target Organs : Liver, Kidney

Assessment : May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity : No information available.

Aspiration toxicity : No information available.

RTECS No. : KH8575000 (Ethylenediamine Anhydrous)

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicology Assessment

Acute aquatic toxicity : Toxic to aquatic life.

Persistence and degradability

Biodegradability : 39% (NO2), 94% (NH3) (by BOD), 100% (by HPLC), 96% (by TOC)

Bioaccumulative potential

Bioconcentration factor (BCF) : <1

Mobility in soil

Distribution among environmental compartments : Koc: 4766

Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Disposal in accordance with local and national regulations.Take precautions against ignition or explode.Entrust disposal to a licensed waste disposal company.

Contaminated packaging : Disposal in accordance with local and national regulations.Before disposal of used container, remove contents completely.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No. : UN 1604

Proper shipping name : Ethylenediamine

Class : 8

Subsidiary risk : 3

Packing group : II

IMDG-Code

UN number : UN 1604

Proper shipping name : ETHYLENEDIAMINE

Class : 8

Subsidiary risk	:	3
Packing group	:	II
EmS Code	:	F-E, S-C
Marine pollutant	:	no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number	:	UN 1604
Proper shipping name	:	Ethylenediamine
Class	:	8
Subsidiary risk	:	3
Packing group	:	II
ERG Code	:	132
Marine pollutant	:	no

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Components	CAS RN	Component RQ (lbs)	Calculated product RQ (lbs)
Ethylenediamine Anhydrous	107-15-3	5000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS RN	Component RQ (lbs)	Calculated product RQ (lbs)
Ethylenediamine Anhydrous	107-15-3	5000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

Components	CAS RN	Component TPQ (lbs)
Ethylenediamine Anhydrous	107-15-3	10000

SARA 311/312 Hazards : No SARA Hazards

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
The following chemical(s) are listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):

Ethylenediamine Anhydrous 107-15-3 >= 90 - <= 100 %

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

Ethylenediamine Anhydrous 107-15-3 >= 90 - <= 100 %

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Ethylenediamine Anhydrous 107-15-3 >= 90 - <= 100 %

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Ethylenediamine Anhydrous 107-15-3 >= 90 - <= 100 %

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations

Massachusetts Right To Know

Ethylenediamine Anhydrous	107-15-3

Pennsylvania Right To Know

Ethylenediamine Anhydrous	107-15-3

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

California List of Hazardous Substances

Ethylenediamine Anhydrous	107-15-3

California Permissible Exposure Limits for Chemical Contaminants

Ethylenediamine Anhydrous	107-15-3

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Revision Date : 10/08/2024

This SDS was prepared sincerely based on the information obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority. The products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling operations, sufficient care should be taken, in addition to the safety measures suitable for the given situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.