

Ethylenediamine-d₈

Section 1. Chemical product and company identifications

Product code: D-5548

Chemical formula: C₂D₈N₂

CAS: 34281-22-6

CAS (unlabelled): 107-15-3

Synonyms: 1,2-Ethanediamine, 1,2-Diaminoethane

Supplier / Manufacturer:

C/D/N Isotopes Inc.

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TOXYSKAN HOTLINE: 1-855-780-0599

Section 2. Hazards identifications


Physical state: Liquid

Warning: Flammable liquid and vapour. Harmful if swallowed or in contact with skin. Causes severe skin burns and eye damage.

Routes of entry: Inhalation, skin and eyes

GHS (Globally Harmonized System of Classification and Labelling of Chemicals):

- GHS Classification:**
- Flammable liquids (Category 3)
 - Acute toxicity, Dermal (Category 4)
 - Acute toxicity, Oral (Category 4)
 - Skin corrosion (Category 1)
 - Serious eye damage (Category 1)
 - Respiratory sensitisation (Category 1)
 - Skin sensitisation (Category 1)

- GHS Label elements:**
- Pictograms: 
 - Signal word: Danger

- Hazards statement:**
- H226 Flammable liquid and vapour.
 - H302 + H312 Harmful if swallowed or 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.

- Precautionary statement:**
- P210 Keep away from heat/hot surfaces/sparks/open flames/ignition sources. No smoking.
 - P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
 - P280 Wear protective gloves.
 - 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 or doctor/ physician.

Section 3. Composition and information on ingredients

<u>Name</u>	<u>CAS</u>	<u>Concentration %</u>
Ethylenediamine-d ₈	34281-22-6	> 98

Section 4. First aid measures

Eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Skin contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

Section 5. Firefighting measures

Flammability of the product: Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

Lower explosion limit: 2.7 Vol%

Upper explosion limit: 16 Vol%

Auto-ignition temperature: 385 °C (725 °F)

Flash point: 38 °C (100 °F) - closed cup

Products of combustion: Hazardous decomposition products formed under fire conditions: Carbon oxides, nitrogen oxides.

Firefighting media and instructions: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Section 6. Accidental release measures

Personal precautions: Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods for cleaning up: Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

Section 7. Handling and storage

Handling: Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge.

Storage: Store at room temperature. Adequate ventilation. Protect from air. Protect from heat and ignition sources. Protect from moisture.

Section 8. Exposure Controls, Personal Protections

Engineering controls: Use mechanical exhaust or laboratory fumehood to avoid exposure.

Eyes: Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Respiratory: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US).

Hands: Handle with gloves. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Skin/body: Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Section 9. Physical and chemical properties (unlabelled)

Molecular weight: 60.10 g/mol

Physical status: Liquid

Color: Colorless

Odour: Ammoniacal

Density: 0.899 g/mL at 25 °C (77 °F)

Melting point: 8.5 °C (47.3 °F)

Boiling point: 118 °C (244 °F)

Vapour pressure: 13 hPa (10 mmHg) at 20 °C (68 °F)

Vapour density: 2.07 (Air = 1)

Partition coefficient (octanol/water): log Pow: -2.04

Water solubility: Soluble

Section 10. Stability and reactivity

Stability and reactivity: Absorbs carbon dioxide from air. Stable under recommended storage conditions.

Incompatibility: Oxidizing agents, phosphorus halides, aldehydes, organic halides.

Products of combustion: Hazardous decomposition products formed under fire conditions: Carbon oxides, nitrogen oxides.

Reactivity conditions: Heat, flames and sparks. Air. Exposure to moisture.

Section 11. Toxicological information (unlabelled)

Toxicological data: Ethylenediamine

Information on ingredients:

<u>Name</u>	<u>CAS</u>	<u>LD₅₀</u>	<u>LC₅₀</u>
Ethylenediamine	107-15-3	Oral - Rat - 1,200 mg/kg Dermal Dermal - Rabbit - 560 mg/kg	Inhalation - Rat - 4 h - 14.7 mg/l

Potential acute effects

- **Eyes:** May cause eye irritation.
- **Skin:** Harmful if absorbed through skin. May cause skin irritation.
- **Inhalation:** May be harmful if inhaled. May cause respiratory tract irritation.
- **Ingestion:** Harmful if swallowed.

Potential chronic effects

- **Carcinogenic effects:** Carcinogenicity - This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification. IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- **Mutagenic effects:** No data available.
- **Teratogenic effects:** No data available.
- **Medical conditions aggravated by overexposure:** No data available.

Section 12. Ecological information

Ecological data:

<u>Name</u>	<u>Results</u>	<u>Species</u>	<u>Period</u>
Ethylenediamine	115.7 mg/l LC50	Pimephales promelas	96 h
	3 mg/l EC50	Daphnia magna	48 h
	0.16 mg/l NOEC	Daphnia magna	21 d
	151 mg/l EC50	Pseudokirchneriella subcapitata	96 h

Effects on environment: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Mobility: No data available.

Environmental precautions: No data available.

Persistence and degradability: Readily biodegradable.

Bioaccumulative potential: No data available.

Section 13. Disposal considerations

Waste disposal: Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Section 14. Transportation information

Classification DOT/IMDG/IATA label:

Shipping name: Ethylenediamine

UN number: UN1604

Class: 8 (3)

Packaging group: II

Additional information: None

Section 15. Regulatory information

UNITED STATES: NFPA classification



Health: 3
Flammable: 2
Reactivity: 0
Specials conditions: None

Legend: 4: Severe, 3: High, 2: Moderate, 1: Slightly, 0: Not hazardous

U.S. Federal regulations:

TSCA 8(b) inventory: Ethylenediamine

SARA 302/304/311/312 extremely hazardous substances: Not Listed

SARA 302/304 emergency planning and notification: Not Listed

SARA 302/304/311/312 hazardous chemicals: Not Listed

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard: Listed

CWA (Clean Water Act) 307: Not Listed

CWA (Clean Water Act) 311: Not Listed

CAA (Clean Air Act) 112 accidental release prevention: Not Listed

CAA (Clean Air Act) 112 regulated flammable substances: Not Listed

CAA (Clean Air Act) 112 regulated toxic substances: Not Listed

State regulations:

DEA List I Chemicals (Precursor Chemicals): Not Listed

DEA List II Chemicals (Essential Chemicals): Not Listed

Substances in Massachusetts: Listed

Dangerous substances in New Jersey: Listed

New York – Dangerous substances with acute effects: Not Listed

Dangerous substances in Pennsylvania – right to know: Listed

WHMIS (Canada):



B3 - Combustible liquid



D2A - Very toxic material causing other toxic effects
D2B - Toxic material causing other toxic effects



E - Corrosive material

Section 16. Additional information

References:

- ANSI Z400.1, MSDS Standard, 2001.
- Manufacturer's Material Safety Data Sheet.
- 29CFR Part 1910.1200 OSHA MSDS Requirements.
- 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. -Canada
- Gazette Part II, Vol. 122, No. 2 Registration SOR/88-64 31 December, 1987 Hazardous Products Act "Ingredient Disclosure List".
- Federal act on the controlled products
- Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2002.
- Toxicological repertory, HSC.
- Material safety data sheet from the components.

Date of issue: December 13th, 2016

Version: 1

Elaborated by: Toxyscan Inc., 1-866-780-0599

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