

MATERIAL SAFETY DATA SHEET

DIETHYLENETRIAMINE

Section 1: Chemical Product Details

Product Name: Diethylenetriamine
 CAS#: 111-40-0
 TSCA 8(b) inventory: Diethylenetriamine
 Synonym: DETA
 Chemical Name: Bis(2-aminoethyl) amine
 Chemical Formula: C₄H₁₃N₃

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Diethylenetriamine	111-40-0	100

Toxicological Data on Ingredients: Diethylenetriamine: ORAL (LD50): Acute: 1080 mg/kg [Rat.].
 DERMAL (LD50): Acute:
 1090 mg/kg [Rabbit.].

Section 3: Hazards Identification

Potential Acute Health Effects: Very hazardous in case of skin contact (irritant, sensitizer), of eye contact (irritant). Hazardous in case of ingestion, of inhalation. Corrosive to skin and eyes on contact. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects: Hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, liver. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Finish by rinsing thoroughly with running water to avoid a possible infection. Cold water may be used.

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Skin Contact: If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion: Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention. **Serious Ingestion:** Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 399°C (750.2°F)

Flash Points: CLOSED CUP: 98.9°C (210°F). OPEN CUP: 101.7°C (215.1°F) (Cleveland).

Flammable Limits: LOWER: 2% UPPER: 6.7%

Products of Combustion: These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂...).

Fire Hazards in Presence of Various Substances: Slightly flammable to flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

SMALL FIRE: Use DRY chemical powder. **LARGE FIRE:** Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: When heated to decomposition, it emits toxic fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid.

Large Spill: Corrosive liquid. Stop leak if without risk. Absorb with DRY earth, sand or other noncombustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions: Keep container dry. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/ spray. Never add water to this product in case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as acids.

Storage: Alkalis may be stored in heavy duty gauge steel containers. Keep container dry. Keep in a cool place. Ground all equipment containing material. Corrosive materials should be stored in a separate safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection: Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: TWA: 1 (ppm) from ACGIH (TLV) TWA: 4.2 (mg/m³) from ACGIH Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Clear viscous liquid.)

Odor: Ammoniacal. (Slight.)

Taste: Not available.

Molecular Weight: 103.17 g/mole

Color: Yellow.



pH (1% soln/water): 10 [Basic.]
Melting Point: -39°C (-38.2°F)
Specific Gravity: 0.96 (Water = 1)
Density: 3.56 (Air = 1)
Volatility: Not available.

Odor Threshold: Not available.

Iconicity (in Water): Not available.

Dispersion Properties: See solubility in water. Solubility: Partially soluble in cold water, hot water.

Boiling Point: 207.1°C (404.8°F)

Critical Temperature: Not available.

Vapor Pressure: 0.22 mm of Hg (@ 20°C) Vapor

Water/Oil Dist. Coeff.: Not available.

Section 10: Stability and Reactivity

Data Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with acids. Slightly reactive to reactive with oxidizing agents.

Corrosivity: Corrosive in presence of copper.

Special Remarks on Reactivity: Absorbs CO₂ from air.

Special Remarks on Corrosivity: Incompatible with copper alloys. Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Eye contact. Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD₅₀): 1080 mg/kg [Rat.]. Acute dermal toxicity (LD₅₀): 1090 mg/kg [Rabbit.].

Chronic Effects on Humans: The substance is toxic to kidneys, liver.

Other Toxic Effects on Humans: Very hazardous in case of skin contact (irritant, sensitizer). Hazardous in case of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Material is destructive to tissue of the mucous membranes and upper respiratory tract.

Section 12: Ecological

Information Eco toxicity:

Not available.

BOD₅ and COD:

Not available.



Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal

Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 8: Corrosive liquid.

Identification: Corrosive liquids

n.o.s. : 2079 PG: II

Special Provisions for Transport:

Not available.

Section 15: Other Regulatory Information

Not Available

Section 16: Other Information

Not Available