

SAFETY DATA SHEET



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All non-emergency numbers should be directed
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DIETHYLAMINE

SDS No. M0064

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Diethylamine

Synonyms: Ethanamine, N-Ethyl

Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

2. HAZARDS IDENTIFICATION



Classification:

Flammable Liquids: GHS Category 2

Acute Toxicity, Oral: GHS Category 4

Acute Toxicity, Inhalation: GHS Category 4

Acute Toxicity, Dermal: GHS Category 3

Skin Corrosion/Irritation: GHS Category 1 A

Eye Damage: GHS Category 1

Label Elements

Signal Word: DANGER!

Hazard Statements:

H225 - Highly flammable liquid and vapor.

H302 - Harmful if swallowed.

H312 - Harmful in contact with skin.

H314 - Causes severe skin burns and eye damage.

H332 - Harmful if inhaled.

Precautionary Statements:

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.

Clear focus. Consistent results. Complete confidence.

P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
 P264 Wash skin thoroughly after handling.
 P271 Use only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P310 Immediately call a POISON CENTER/doctor.
 P370+P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.
 P501 Dispose of contents/ container to an approved waste disposal plant.

Emergency Overview

May be fatal if swallowed, inhaled, or absorbed through the skin. Causes burns by all exposure routes. Highly flammable liquid or vapor. Vapor may cause flash fire. Target Organs: Eyes, skin, and mucous membranes.

HMIS Rating:

Health – 3* Flammability – 3 Physical Hazard – 0 PPE – User supplied

NOTE: HMIS ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. These ratings are based on the inherent properties of this chemical under expected conditions of normal use and are not intended to be used in emergency situations. PPE is determined by the user based on their needs and conditions.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS No</u>	<u>Percent</u>	<u>Hazardous</u>
Diethylamine	109-89-7	>90%	Yes

4. FIRST-AID MEASURES

Inhalation: If inhaled, remove to fresh air. If not breathing, begin artificial respiration, but DO NOT give mouth-to-mouth resuscitation. Get medical attention.

Ingestion: If swallowed, get medical attention immediately; DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Discard contaminated clothing and shoes.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. FIRE FIGHTING MEASURES

Flammability: Extremely flammable liquid and vapor (GHS Category 1)

Auto-ignition Temperature: Information not available.

Flash Point: -23° C (-9° F)

Flammable Limits: Lower Limit – 1.8 vol %, Upper Limit – 10.1 vol %

Products of Combustion: May decompose into toxic products under fire conditions (nitrogen oxides, carbon monoxide, carbon dioxide, amines).

Specific Fire Hazards: As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Vapors may cause flash fire. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

Specific Explosion Hazards: None

Fire Fighting Media: For small fires, use dry chemical, carbon dioxide, water spray, or alcohol-resistant foam. Water may be ineffective.

National Fire Protective Association (Estimated): Health - 3, Flammability - 3, Reactivity - 0

NOTE: NFPA ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. They are for use by emergency personnel to address the hazards that are presented by short term, acute exposure to this product under fire, spill, or similar emergencies. Ratings involve data and interpretations that may vary from company to company.

6. ACCIDENTAL RELEASE MEASURES

Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Water can be used to create a non-flammable mixture. Provide ventilation to the affected area and remove all ignition sources. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Always use proper personal protective equipment as described in section 8.

7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Keep container tightly closed and away from heat, spark, and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks, or open flames. Use with adequate ventilation. Avoid breathing vapor or mist.

Storage: Keep in a flammables area away from all sources of ignition and oxidizing materials. Keep in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from acids. Protect from moisture.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protection: Wear protective chemical goggles or appropriate eye protection. Use appropriate protective gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Exposure Limits:

ACGIH – 5 ppm TWA; Skin – potential significant contribution to overall exposure by cutaneous route

NIOSH – 10 ppm TWA; 30 mg/m³ TWA; 200 ppm IDLH

OSHA Final PELs – 25 ppm TWA; 75 mg/m³ TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Clear, colorless liquid.

Odor: Fishy ammonia like odor

Odor Threshold: <1 ppm

Molecular Formula: (C₂H₅)₂NH

Molecular Weight: 73.13

Auto-ignition Temperature: Information not available.

Flash Point: -23° C (-9° F)

Flammable Limits: Lower Limit – 1.8 vol %, Upper Limit – 10.1 vol %

pH: Very alkaline.

Boiling Point: 55-58° C @ 760 mm Hg

Freezing/Melting Point: -50° C

Decomposition Temperature: Not available.

Specific Gravity: 0.71 g/cm³

Vapor Density (Air=1): 2.5

Vapor Pressure: 195 mm Hg @ 20° C.

Viscosity: Not available.

Solubility: Miscible in water.

Conductivity (-33.5°C): Conductive; Conductivity = 2.2x10⁵ pS/m; Dielectric Constant = NA; Relaxation Time Constant = NA

10. STABILITY AND REACTIVITY

Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Ignition sources, excess heat.

Incompatibility with Various Substances: Aldehydes, Alcohols, Dicyanofurazan, Ketones, phenols, Acids, Halogenated hydrocarbon, Oxidizing agents, Epoxides.

Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, carbon dioxide, amines.

Hazardous Polymerization: Will not occur

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact

Acute Exposure Hazards:

INHALATION HAZARD: Cause burns in respiratory tract, coughing, and pulmonary edema. Animal studies with diethylamine have shown lung, liver, and heart damage from overexposure.

INGESTION HAZARD: Causes gastrointestinal tract burns. May be harmful if swallowed.

SKIN CONTACT HAZARD: Causes skin burns. May be absorbed through the skin in harmful amounts. Prolonged or repeated contact may dry the skin and cause irritation.

EYE CONTACT HAZARD: Causes eye burns. Vapor may cause eye irritation. A 10% aqueous solution caused severe eye burns in rabbits.

Chronic Exposure Hazards: Chronic exposure may produce effects similar to acute exposure.

Animal Toxicity:

Inhalation, rat: LC50 = 4000 ppm/4H;

Oral, mouse: LD50 = 500 mg/kg;

Oral, rat: LD50 = 540 mg/kg;

Skin, rabbit: LD50 = 577 uL/kg;

Carcinogenicity: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65

Epidemiology: Edema of the epithelium of the cornea, generally without pain, has been produced by amine vapors, causing colored halos to be seen around lights, usually in the evening, after industrial exposure to the vapors of various amines.

Teratogenicity: No information available.

Reproductive Effects: No information available.

Mutagenicity: No information available.

Neurotoxicity: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Fish: Rainbow Trout: LC50 = 25-198 mg/L, 96H

Water flea: Daphnia: EC50 = 56 mg/L, 48H

Algae: Green Algae: EC50 = 20 mg/L, 96H

Environmental Fate:

Readily biodegradable. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use, or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. TRANSPORT INFORMATION

US DOT

Proper Shipping Name: Diethylamine

Hazard Class: 3(8)

UN Number: UN1154

Packing Group: II

IMDG

Proper Shipping Name: Diethylamine

Hazard Class: 3(8)

UN Number: UN1154

Packing Group: II

IATA

Proper Shipping Name: Diethylamine

Hazard Class: 3(8)

UN Number: UN1154

Packing Group: II

15. REGULATORY INFORMATION

US Federal Regulations:

CERCLA Hazardous Substances: CAS#109-89-7 – 100 lb final RQ; 45.4 kg final RQ

SARA Section 302: Does not have a TPQ

SARA Codes: CAS#109-89-7 – acute, fire

Section 313: Diethylamine (CAS# 109-89-7) is not subject to SARA Title III Section 313 reporting requirements.

OSHA: Not considered highly hazardous by OSHA.

US State Regulations:

CAS#109-89-7 is on the following state right-to-know lists: New Jersey, Pennsylvania, and Massachusetts

California Prop 65: California No Significant Risk Level: Not listed

16. OTHER INFORMATION

Originally Prepared: 6/18/2008

Last Revised: 11/11/2020 – Updated pictograms, hazard classification, hazard statements, and precautionary statements in Section 2.

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