

Diethylamine (DEA) - MSDS

Typical MSDS (Material Safety Data Sheet)

Please note: This MSDS is provided for information purposes only and should not be considered as an official document.

1. Product Identification

Synonyms: N-Ethyl-Ethanamine, Diethamine, DEN

CAS No.: 109-89-7

Molecular Weight: 73.14

Chemical Formula: (C₂H₅)₂NH

Appearance: Clear, colorless liquid.

Odor: Ammonia odor.

Solubility: Completely soluble in water.

Specific Gravity: 0.707 @ 20C/4C

pH: Strongly alkaline.

% Volatiles by volume @ 21C: 100

Boiling Point: 55C

Melting Point: -50C

Vapor Density (Air=1): 2.53

Vapor Pressure (mm Hg): 400 @ 38C

Evaporation Rate (BuAc=1): 16.9

2. Hazards Identification

Emergency Overview

DANGER! EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE. CORROSIVE. HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES BURNS TO ANY AREA OF CONTACT. AFFECTS THE CARDIOVASCULAR SYSTEM.

SAF-T-DATA Ratings

Health Rating: 3 - Severe (Life)

Flammability Rating: 3 - Severe (Flammable)

Reactivity Rating: 1 - Slight

Contact Rating: 4 - Extreme (Corrosive)

Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER

Storage Color Code: Red (Flammable)

Potential Health Effects

Inhalation:

Corrosive. Vapors irritate the respiratory tract causing coughing, chest pain, or breathing difficulties. Exposure to moderately high concentrations of the vapor may cause severe pulmonary edema. Experimental animals exposed to 100ppm showed severe heart tissue degeneration.

Ingestion:

Corrosive. Harmful if swallowed. May cause burns of the digestive system including mouth, throat and stomach with severe abdominal pain and possible collapse. Ingestion may cause death if not treated promptly. Ingestion has been linked to cardiovascular effects in laboratory animals.

Skin Contact:

Corrosive. Contact can cause irritation with redness, pain, and possible skin burns. Covered contact with wet clothing can cause severe skin burns. May be absorbed through the skin.

Eye Contact:

Corrosive. Vapors irritate the eyes, causing tears, redness, pain, blurred vision. Corneal edema may occur. Liquid contact will produce serious eye injury, possibly blindness.

Chronic Exposure:

Repeated contact of eyes with vapors may result in swelling of the eyes and blurred vision. Chronic exposure may affect kidney and liver. Animal studies have shown target organ effects on the heart.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders, eye problems, asthma, liver or kidney disorders, or impaired respiratory function may be more sensitive to the effects of the substance.

3. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call for medical help immediately.

Ingestion:

DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Call a doctor immediately. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call for medical help immediately. Wash clothing before reuse.

Eye Contact:

Flush eyes immediately with soft but strong stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call for medical help immediately.

4. Fire Fighting Measures

Fire:

Flash point: 134C

Autoignition temperature: 662C

Flammable limits in air % by volume: lel: 1.8; uel: 10.1

Extremely Flammable. Contact with strong oxidizers may cause fire and explosions.

Explosion:

Above flash point, vapor-air mixtures are explosive (see flammable limits above). Vapors can spread on surfaces to distant ignition source and flash back. Sensitive to static discharge.

Fire Extinguishing Media:

Dry chemical, alcohol foam or carbon dioxide. Water may be ineffective. Use water to cool fire-exposed containers, to dilute spills, to flush spills, and to disperse vapors.

Special Information:

In the event of a fire, wear full protective clothing and self-contained breathing apparatus with full facepiece. This highly flammable liquid must be kept away from sparks, open flame, hot surfaces, and all sources of heat and ignition. Fight fire from protected location

5. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 7. Isolate exposed area. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g. dry sand), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! Use water spray to keep vapor concentrations below explosive limits.

6. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may occur. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Do not add nitrites or other nitrosating agents; a nitrosamine, which may cause cancer, may be formed. Empty containers may contain explosive vapors. Flush empty containers with water to remove residual flammable liquid and vapors. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and

7. Exposure Controls/Personal Protection

Airborne Exposure Limits:

-*OSHA Permissible Exposure Limit (PEL):*
25 ppm (TWA)

-*ACGIH Threshold Limit Value (TLV):*
5 ppm (TWA), 15 ppm (STEL), skin,
A4-not classifiable as a human carcinogen.

Ventilation System:

A system of local and/or general exhaust is recommended to keep exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.

Personal Respirators :

If the exposure limit is exceeded a full facepiece respirator with an ammonia/methylamine cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect in oxygen-deficient atmospheres.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or overalls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash facilities in work area.

8. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

Burning may produce ammonia, carbon monoxide, carbon dioxide, nitrogen oxides.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Strong oxidizers, acids, cellulose nitrate, some metals and dicyanofuroxan. N-nitrosamines, many of which are known to be potent carcinogens, may be formed when this product comes in contact with nitrous acid, nitrates, or atmospheres with high nitrous oxide concentrations.

Conditions to Avoid:

Heat, flames, ignition sources and incompatibles.

9. Toxicological Information

Oral rat LD50: 540 mg/kg;

Inhalation rat LC50: 4000 ppm/4H;

Skin rabbit LD50: 820 mg/kg;

Investigated: as a mutagen.

Cancer Lists : NTP Carcinogen

10. Ecological Information

Environmental Hazards:

When released into the air the material may be removed from the atmosphere to a moderate extent by wet deposition. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. This material is not expected to significantly bioaccumulate. This material has an estimated bioconcentration factor (BCF) of less than 100. When released into the water, this material is expected to have a half-life between 1 and 10 days. When released into water, this material is expected to readily biodegrade. When released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material may leach into groundwater. When released into the soil, this material is expected to quickly evaporate.

Environmental Toxicity:

This material is not expected to be toxic to aquatic life. The LC50/96-hour values for fish are over 100 mg/l.

11. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a approved waste facility. Processing, use or contamination of this product may change the waste management options. Local disposal regulations may vary. Dispose of container and unused contents in accordance with the local regulations.

http://www.chemfinder.co.uk/diethylamine_MSDS_DEA.html