MATERIAL SAFETY DATA SHEET

N-AMINOETHYLPIPERAZINE (N-AEP)

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Chemical Name: N-Aminoethylpiperazine; N-AEP, AEP
Manufacturer Information:
Delamine B.V.
Barchman Wuytierslaan 10
3818 LH Amersfoort
PO Box 473
3800 AL Amersfoort, The Netherlands
Tel: +31 33 4676897

FOR EMERGENCIES, CONTACT CHEMTREC 1-800-424-9300 OR 1-703-527-3887

2. COMPOSITION/INGREDIENT DESCRIPTION

Chemical Name	CAS #	OSHA Hazardous(Y/N)	Concentration (%)
N-Aminoethylpiperazine	140-31-8	Y	approx. 100

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: CORROSIVE TO EYES, SKIN, AND RESPIRATORY TRACT. HARMFUL IF SWALLOWED OR ABSORBED THROUGH SKIN. CHEMICALS OF THIS TYPE MAY CAUSE SENSITIZATION BY INHALATION OR SKIN CONTACT.

Physical Appearance and Odor: Colorless liquid, ammonia-like odor

POTENTIAL HEALTH EFFECTS:
Acute Eye: Corrosive to eyes. May cause permanent damage and blindness. Vapors can cause a non-permanent vision problem of seeing “halos” or a “blue haze”.
Acute Skin: Corrosive. Chemicals of this type may cause sensitization upon prolonged or repeated exposure. Material may be absorbed through the skin.
Acute Inhalation: May cause severe irritation to respiratory tract, with coughing, nausea and sore throat. Chemicals of this type may cause sensitization upon prolonged or repeated exposure.
Acute Ingestion: Corrosive to gastrointestinal tract.
Chronic Effects: None known.

4. FIRST AID MEASURES

Eye Contact: Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Seek immediate medical attention.

4. FIRST AID MEASURES (continued)

Skin Exposure: Remove contaminated clothing and shoes. Wash with plenty of soap and water, for at least 15 minutes. Seek immediate medical attention. Launder contaminated clothing and shoes before re-use.
Inhalation: If respiratory irritation or distress occurs, remove victim to fresh air. Seek medical attention if respiratory irritation or distress continues.
Ingestion: Do not induce vomiting. If victim is conscious and alert, give 1-2 glasses of water to drink. Do not give anything by mouth to an unconscious person. Seek immediate medical attention. Do not leave victim unattended.
Medical Conditions Possibly Aggravated by Exposure: Skin contact may aggravate existing skin disease.
Notes to Physician: All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. Treat symptomatically. No specific antidote available.

5. FIRE FIGHTING MEASURES

Flash point: 200F (93C)
Autoignition Temperature: 572F (300C)
Flammability limits (vol/vol%): Lower: 1.1% Upper: 9.4%
Extinguishing Media: water spray, fog, dry chemical, foam, CO_2
Special Fire Fighting Procedures: Firefighters should wear NIOSH/MSHA-approved self-contained breathing apparatus and full protective clothing. Cool containers exposed to fire with water.
Unusual Fire and Explosion Hazards: Closed containers may rupture due to buildup of pressure when exposed to extreme heat.
Hazardous Decomposition Materials Under Fire Conditions: Oxides of carbon, oxides of nitrogen, ammonia

6. ACCIDENTAL RELEASE MEASURES

Evacuation Procedures and Safety: Wear appropriate protective gear for the situation. (See Personal Protection information in Section 8).
Cleanup and Disposal of Spill: Absorb with an inert absorbent. Sweep up, and place in an appropriate closed container for disposal and/or incineration, avoiding contact with spilled material. Clean up residual material by washing area with water. Collect washings for disposal.
Environmental and Regulatory Reporting: Do not flush to drain. Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE

Maximum Storage Temperatures: Store at <40C (<104F)
Handling: Persons with a history of dermal or respiratory sensitization should not work with, or near, this material. Avoid breathing vapors. Avoid direct or prolonged contact with skin and eyes.
Storage: Store in tightly-closed, original container. Store in an area that is cool, dry, dark and well-ventilated. Do not re-use container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Introductory Remarks: These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application.

Exposure Guidelines: The following limits apply to components of this material.

Chemical

None

Engineering Controls: General area dilution/exhaust ventilation.

Respiratory Protection: When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with regulatory standards and/or industrial recommendations. Self-contained or supplied-air respiratory equipment is recommended.

Eye/Face Protection: Safety glasses with side shields, goggles or face shield are recommended.

Skin Protection: Skin contact should be minimized through the use of chemical-resistant gloves and boots, and suitable protective clothing.

Work Practice Controls: The following general measures should be taken when working or handling this material: 1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored. 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet. 3) Wash exposed skin promptly to remove accidental splashes of contact with this material.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical properties here represent typical properties of this product. Contact the manufacturer for exact specifications.

Physical Appearance: Colorless liquid

Odor: Ammonia-like odor

pH: 12 (@ 10% aq, 68F, 20C)

Specific Gravity: 0.986

Water Solubility: Soluble

Melting Point Range: -31F to -34F (-17C to -19C)

Boiling Point Range: 400F (222C)

Freezing Point Range: Not determined

Vapor Pressure: <0.01 mm Hg at 68F (20C)

Vapor Density: 4.5 (air = 1)

10. STABILITY AND REACTIVITY

Chemical Stability: This material is stable under normal handling and storage conditions described in Section 7.

Conditions to be Avoided: Heat, open flame, sparks.

10. STABILITY AND REACTIVITY

Materials/Chemicals to be Avoided: Strong oxidizing agents, acids, halogenated organic compounds, aldehydes, carbon disulfide, vinyl acetate, copper and its alloys.
Hazardous Decomposition Products: Oxides of carbon, oxides of nitrogen, ammonia.
Hazardous Polymerization: Not applicable

11. TOXICOLOGICAL INFORMATION

Acute Eye Irritation: Extremely irritating, rabbit.
Acute Skin Irritation: Corrosive, rabbit. Positive sensitization (guinea pig).
Acute Dermal Toxicity: LD_{50} = 894 mg/kg, rabbit.
Acute Respiratory Irritation: No data available
Acute Inhalation Toxicity: No data available. However, this material, like many corrosive substances, when present in an aerosol form, may present a risk of pulmonary edema, which may be fatal.
Acute Oral Toxicity: LD_{50} = 2140 mg/kg, rat.
Chronic Toxicity: This product does not contain any substances that are considered by OSHA, NTP, IARC or ACGIH to be "probable" or "suspected" human carcinogens. Negative mutagenic activity in the Ames test, Chinese hamster ovary, human chromosomal aberration, and mouse micronucleus. In a 28-day dermal study, no evidence of systemic toxicity was observed in rats at doses as high as 1000 mg/kg/day. No additional test data found for product

12. ECOLOGICAL INFORMATION

Ecotoxicological Information: 96-hour LC_{50} >100 mg/L, unspecified fish, 48-hour EC_{50} = 32-58mg/L, daphnia magna, 96-hour (growth rate) EC_{50} >1000 mg/L, algae, biomass EC_{50} =495 mg/L, algae.

Chemical Fate Information: Not readily, nor inherently, biodegredable. Activated sludge respiration EC_{50} =1600 mg/L.

13. DISPOSAL CONSIDERATIONS

Waste disposal Method: Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from Federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

Container Handling and Disposal: Rinse containers before disposal. Do not allow rinsate to enter the water systems. **EPA Hazardous Waste = YES**
EPA RCRA Hazardous Waste Codes: "C" = Corrosive

14. TRANSPORTATION INFORMATION

Note: The listed transportation classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

US Department of Transportation:

Shipping name: N-Aminoethylpiperazine
Hazard Class: 8
ID#: UN2815
Packing Group: III
Labels: Corrosive
Emergency Guide#: 153

15. REGULATORY INFORMATION

Inventory Status:

US (TSCA): Yes
Canada (DSL): Yes
Europe (EINECS/ELINCS): Yes
Australia (AICS): Yes
Japan (MITI): Yes
Korea (KECL): Yes
Philippines (PICCS): Yes

Where: Yes = all ingredients are listed on the inventory, Exempt = All ingredients are either on the inventory or exempt from the requirements of listing, No = Not determined, or one or more ingredients are not on the inventory and are not exempt from listing.

SARA Title III Hazard Classes:

Fire Hazard: No
Reactive Hazard: No
Release of Pressure: No
Acute Health Hazard: Yes
Chronic Health Hazard: No

SARA Extremely Hazardous Substances/CERCLA Hazardous Substances: None

California Proposition 65: This product does not contain any components that are regulated under Proposition 65.

16. OTHER INFORMATION

National Fire Protection Association ("NFPA") Hazard Ratings:

Health: 3 (Severe)
Flammability: 1 (Slight)
Instability: 0 (Minimal)

16. OTHER INFORMATION (continued)

National Paint and Coatings Hazardous Materials Identification System ("HMIS") Hazard Ratings:

Health: 3 (Severe)

Flammability: 1 (Slight)

Physical Hazard: 0 (Minimal)

Reason for Revision(s): New MSDS

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END OF MATERIAL SAFETY DATA SHEET