

MSDS Number: **E4500** * * * * * *Effective Date: 11/21/08* * * * * *
Supercedes: 01/16/06

MSDS **Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

ETHYLENEDIAMINE

1. Product Identification

Synonyms: 1,2-Ethanediamine; 1,2-diaminoethane

CAS No.: 107-15-3

Molecular Weight: 60.10

Chemical Formula: NH₂(CH₂)₂NH₂

Product Codes:

J.T. Baker: 9299

Mallinckrodt: 1844

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent
Hazardous ----- -----	-----	-----
Ethylenediamine Yes	107-15-3	100%

3. Hazards Identification

Emergency Overview

DANGER! CORROSIVE. CAUSES BURNS TO ANY AREA OF CONTACT. HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. VAPOR IS IRRITATING TO EYES AND RESPIRATORY TRACT. MAY CAUSE ALLERGIC SKIN AND RESPIRATORY TRACT REACTION. MAY AFFECT LIVER AND KIDNEYS. FLAMMABLE LIQUID AND VAPOR.

SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 3 - Severe (Poison)
Flammability Rating: 2 - Moderate
Reactivity Rating: 2 - Moderate
Contact Rating: 4 - Extreme (Corrosive)
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER
Storage Color Code: Red (Flammable)

Potential Health Effects

Depending on the intensity and duration of exposure, health effects may vary from mild irritation to severe destruction of tissue.

Inhalation:

Corrosive. Inhalation causes irritation of the nose, throat, and respiratory system. Symptoms may include coughing, sore throat, labored breathing. Serious cases may be fatal. May cause allergic reaction in sensitive individuals.

Ingestion:

Corrosive. Harmful if swallowed. Sore throat, abdominal pain, vomiting, and diarrhea may occur.

Skin Contact:

Corrosive. Toxic. Causes severe irritation with redness, pain, possibly burns. May be absorbed through the skin. May cause allergic reaction in sensitive individuals.

Eye Contact:

Corrosive. Vapors irritate the eyes. Liquid causes burns.

Chronic Exposure:

Exposure may cause an allergic skin and respiratory reaction in some individuals. Liver, kidneys and lungs may be damaged from repeated exposure.

Aggravation of Pre-existing Conditions:

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

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

Ingestion:

DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Call a physician immediately.

Skin Contact:

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

Eye Contact:

Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.

5. Fire Fighting Measures

Fire:

Flash point: 40C (104F) CC

Autoignition temperature: 385C (725F)

Flammable limits in air % by volume:

l_{el}: 2.5; u_{el}: 12.0

Flammable Liquid

(u_{el} @100C)

Explosion:

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to distant ignition source and flash back.

Sensitive to static discharge.

Fire Extinguishing Media:

Dry chemical, alcohol foam or carbon dioxide. Use water spray to cool fire-exposed containers, to dilute liquid, and control vapor.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. 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., vermiculite, dry sand, earth), 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 reduce vapors.

7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. 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. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

-OSHA Permissible Exposure Limit (PEL): 10 ppm (TWA)

-ACGIH Threshold Limit Value (TLV): 10 ppm (TWA) skin,
A4 - Not classifiable as a human carcinogen.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee

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. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, a full facepiece respirator with organic vapor 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 workers in oxygen-deficient atmospheres.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, 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 fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

Colorless liquid.

Odor:

Amine-like odor.

Solubility:

Soluble in water.

Specific Gravity:

0.89 @ 25C / 4C

pH:

11.9 25C (25% solution).

% Volatiles by volume @ 21C (70F):

100

Boiling Point:

117C (243F)

Melting Point:

8.5C (46F)

Vapor Density (Air=1):

2.07

Vapor Pressure (mm Hg):

10.7 @ 20C (68F)

Evaporation Rate (BuAc=1):

0.91

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage. Air sensitive. Absorbs carbon dioxide from air.

Hazardous Decomposition Products:

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

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Acids, strong oxidizers, chlorinated organic compounds, copper alloys. Decomposes upon heating. Corrosive toward aluminum, zinc.

Conditions to Avoid:

Heat, flames, ignition sources and incompatibles.

11. Toxicological Information

Ethylenediamine: Oral rat LD50: 1200 mg/Kg. Skin rabbit LD50: 730 uL/kg.

Irritation skin rabbit: 10 mg/24H severe; eye rabbit: 750 ug/24H severe; Investigated as a mutagen, reproductive effector.

-----\Cancer Lists\-----

Ingredient Category	---NTP Carcinogen---		IARC
	Known	Anticipated	
Ethylenediamine (107-15-3)	No	No	None

12. Ecological Information

Environmental Fate:

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 may evaporate to a moderate extent. When released into water, this material may biodegrade to a moderate extent. When released into water, this material is not expected to evaporate significantly. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to be readily removed from the atmosphere by wet deposition.

Environmental Toxicity:

The LC50/96-hour values for fish are over 100 mg/l.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: ETHYLENEDIAMINE

Hazard Class: 8, 3

UN/NA: UN1604

Packing Group: II

Information reported for product/size: 4L

International (Water, I.M.O.)

Proper Shipping Name: ETHYLENEDIAMINE

Hazard Class: 8, 3

UN/NA: UN1604

Packing Group: II

Information reported for product/size: 4L

International (Air, I.C.A.O.)

Proper Shipping Name: ETHYLENEDIAMINE

Hazard Class: 8, 3

UN/NA: UN1604

Packing Group: II

Information reported for product/size: 4L

15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----
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Ingredient	TSCA	EC	Japan	
Australia				
Ethylenediamine (107-15-3)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----
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Ingredient	Korea	DSL	NDSL	Phil.	--Canada--
Ethylenediamine (107-15-3)	Yes	Yes	No	Yes	

-----\Federal, State & International Regulations - Part 1\-----
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Ingredient	-SARA 302-	TPQ	List	Chemical	-----SARA 313-----
Ethylenediamine (107-15-3)	5000	10000	No	No	

-----\Federal, State & International Regulations - Part 2\-----
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Ingredient	CERCLA	-RCRA-	-TSCA-
Ethylenediamine (107-15-3)	5000	261.33	8(d)

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No
Reactivity: No (Pure / Liquid)

Australian Hazchem Code: 2P

Poison Schedule: None allocated.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **3** Flammability: **2** Reactivity: **0**

Label Hazard Warning:

DANGER! CORROSIVE. CAUSES BURNS TO ANY AREA OF CONTACT. HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. VAPOR IS IRRITATING TO EYES AND RESPIRATORY TRACT. MAY CAUSE ALLERGIC SKIN AND RESPIRATORY TRACT REACTION. MAY AFFECT LIVER AND KIDNEYS. FLAMMABLE LIQUID AND VAPOR.

Label Precautions:

- Do not breathe vapor.
- Do not get in eyes, on skin, or on clothing.
- Keep container closed.
- Use only with adequate ventilation.
- Wash thoroughly after handling.
- Keep away from heat, sparks and flame.

Label First Aid:

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In all cases call a physician immediately.

Product Use:

Laboratory Reagent.

Revision Information:

No Changes.

Disclaimer:

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