

**Section 1: Identification**

**Product Name** Ethylenediamine  
**Commercial Name** Not available.  
**Product Use** Scientific research and development  
**Restrictions On Use** Not available

**Product Code** 50-1749

**Company** PCCA  
9901 South Wilcrest  
Houston, TX 77099  
Phone: 1-800-331-2498  
Fax: 1-800-874-5760

In case of emergency contact:  
**CHEMTREC (24hr) 1-800-424-9300**

**Section 2: Hazard(s) Identification**

**OSHA Haz Com:** Flammable liquids - Category 3 Acute toxicity - Category 4 - Oral Acute toxicity - Category 4 - Inhalation  
**CFR 1910.1200** Acute toxicity - Category 3 - Dermal Skin corrosion - Category 1B Serious eye damage - Category 1  
Respiratory sensitisation - Sub-category 1B Skin sensitisation - Sub-category 1B

**Signal Word** DANGER

**Hazard Statement(s)** Flammable liquid and vapour. Harmful if swallowed or if inhaled. Toxic in contact with skin. Causes severe skin burns and eye damage. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Pictogram(s) or Symbol(s)**



**Precautionary Statement(s):**

**Prevention**

Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ ventilating/ lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist or vapours. Wash skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves, protective clothing, eye protection and/or face protection. In case of inadequate ventilation wear respiratory protection.

**Response**

IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER and/or doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER and/or doctor. If skin irritation or rash occurs: Get medical advice/ attention. If experiencing respiratory symptoms: Call a POISON CENTER/ doctor. Take off contaminated clothing and wash before reuse. In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

**Storage**

Store in a well-ventilated place. Keep cool. Store locked up.

**Disposal**

Dispose of contents and/or container to an approved waste disposal plant.

**Section 3: Composition/Information on Ingredients**

**Substance/Mixture** Substance  
**Components** Ethylenediamine Anhydrous  
**% By Weight** 100  
**CAS#** 107-15-3  
**Molecular Weight** 60.1 g/mole  
**Chemical Formula** C<sub>2</sub>H<sub>8</sub>N<sub>2</sub>  
**Synonym(s)** 1,2-Ethanediamine



## Safety Data Sheet

For Compliance with OSHA 29 CFR 1910.1200 and ANSI Z400.1-1998

Ethylenediamine

50-1749

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### Mixtures

Name	CAS#	% by Weight	TLV/PEL	LC50/LD50
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Not Available

**Section 4: First-Aid Measures**

<b>Inhalation</b>	Move person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.
<b>Skin Contact</b>	Immediate continued and thorough washing in flowing water for at least 30 minutes is imperative while removing contaminated clothing. Prompt medical consultation is essential. Wash clothing before reuse. Properly dispose of leather items such as shoes, belts, and watchbands. Suitable emergency safety shower facility should be immediately available.
<b>Eye Contact</b>	Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.
<b>Ingestion</b>	Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth unless the person is fully conscious.
<b>Symptoms/Effects</b>	
<b>Acute</b>	Harmful if swallowed or if inhaled. Toxic in contact with skin. May cause an allergic skin reaction. Causes serious eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Causes severe burns.
<b>Delayed</b>	Harmful if swallowed or if inhaled. Toxic in contact with skin. May cause an allergic skin reaction. Causes serious eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Causes severe burns.

**Immediate Medical Attention**

Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. Due to irritant properties, swallowing may result in burns and/or ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal or esophageal control if lavage is done. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Repeated excessive exposure may aggravate preexisting lung disease.

**Section 5: Fire-Fighting Measures****Suitable Extinguishing Media**

Water fog or fine spray.. Dry chemical fire extinguishers.. Carbon dioxide fire extinguishers.. Foam.. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective..

**Unsuitable Extinguishing Media**

Not available.

**Products of Combustion**

During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.. Combustion products may include and are not limited to:.. Nitrogen oxides.. Carbon monoxide.. Carbon dioxide. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur.

**Firefighters Special Equipment and Precautions**

Keep people away. Isolate fire and deny unnecessary entry.. Stay upwind. Keep out of low areas where gases (fumes) can accumulate.. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed.. Burning liquids may be extinguished by dilution with water.. Do not use direct water stream. May spread fire.. Eliminate ignition sources.. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves).. Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location.. For protective equipment in post-fire or non-fire clean-up situations, see Section 8 of the safety data sheet.

**Section 6: Accidental Release Measures**

Evacuate area. Only trained and properly protected personnel must be involved in clean-up operations. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Vapor explosion hazard. Keep out of sewers. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Milsorb®. Sand. Do NOT use absorbent materials such as: Ground corn cobs. Moist organic absorbents. Peat moss. Remove with shovel. Large spills: Dike area to contain spill. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

## Section 7: Handling and Storage

Handling: Keep away from heat, sparks and flame. Do not get in eyes, on skin, on clothing. Do not swallow. Avoid prolonged or repeated contact with skin. Avoid breathing vapor. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. No smoking, open flames or sources of ignition in handling and storage area. Electrically ground and bond all equipment. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION. Storage: Minimize sources of ignition, such as static build-up, heat, spark or flame. Keep container tightly closed. Do not store in: Brass. Bronze. Copper. Copper alloys.

## Section 8: Exposure Controls/Personal Protection

<b>Exposure Limits</b>	Dow IHG TWA 5 ppm ACGIH TWA 10 ppm OSHA Z-1 TWA 25 mg/m3 10 ppm OSHA P0 TWA 25 mg/m3 10 ppm
<b>Engineering Controls</b>	Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.
<b>Personal Protection</b>	Eye/face protection: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator. Skin protection Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Avoid gloves made of: Chlorinated polyethylene. Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier. Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply. The following should be effective types of air-purifying respirators: Organic vapor cartridge.

**Section 9: Physical and Chemical Properties**

<b>Appearance</b>	Liquid. Colorless to yellow		
<b>Odor</b>	Ammoniacal		
<b>Odor Threshold</b>	Not available		
<b>Melting Point</b>	Not available.	<b>pH</b>	11.5 Literature 1% aqueous solution
<b>Freezing Point</b>	11 °C ( 52 °F) Literature	<b>Vapor Pressure</b>	9.75 mmHg Literature
<b>Boiling Point/Range</b>	117 °C ( 243 °F) Literature	<b>Vapor Density</b>	Not available
<b>Decomposition temperature</b>	Not available	<b>Viscosity</b>	Not available
<b>Partition Coefficient: n-octanol/water</b>	log Pow: -1.6 Measured	<b>Evaporation Rate</b>	0.9 Literature
<b>Flash Point</b>	closed cup 38 °C ( 100 °F) T	<b>Autoignition temperature</b>	385 °C (725 °F) Literature
<b>Flammability</b>	Not available.	<b>Flammability or Explosive Limits:</b>	
		<b>Lower</b>	4.2 % vol Literature
		<b>Upper</b>	14.4 % vol Literature
<b>Solubility(ies)</b>	1,000 g/L at 20 °C (68 °F) Literature		
<b>Other</b>	Relative Vapor Density (air = 1) 2.1 at 20 °C (68 °F) Literature Relative Density (water = 1) 0.897 at 20 °C (68 °F) / 20 °C Literature Dynamic Viscosity 1.265 - 1.725 cP at 20 °C (68 °F) Literature Oxidizing properties No Molecular weight 60.10 g/mol Literature Molecular formula C2H8N2		

**Section 10: Stability and Reactivity**

<b>Reactivity</b>	Not available.
<b>Chemical Stability</b>	Thermally stable at typical use temperatures.
<b>Hazardous Polymerization</b>	Polymerization will not occur.
<b>Conditions to Avoid</b>	Exposure to elevated temperatures can cause product to decompose. Reaction with carbon dioxide may form an amine carbamate. Smoke may be generated depending on vapor pressure of mixture. Product absorbs carbon dioxide from the air.
<b>Incompatible Materials</b>	Avoid contact with oxidizing materials. Avoid contact with: Acids. Acrylates. Alcohols. Aldehydes. Halogenated hydrocarbons. Ketones. Nitrites. Avoid contact with metals such as: Brass. Bronze. Copper alloys. Avoid contact with absorbent materials such as: Ground corn cobs. Moist organic absorbents. Peat moss.
<b>Hazardous Decomposition Products</b>	Decomposition products depend upon temperature, air supply and the presence of other materials.. Decomposition products can include and are not limited to:..Carbon monoxide.. Carbon dioxide.. Ammonia.. Volatile amines.. Nitrogen oxides.

**Section 11: Toxicological Information**
**RTECS** KH8575000

**Acute Toxicity**

Harmful if swallowed or if inhaled., Toxic in contact with skin Acute Oral toxicity: Low toxicity if swallowed. Swallowing may result in gastrointestinal irritation or ulceration. Swallowing may result in burns of the mouth and throat. Based on product testing: LD50, Rat, male and female, 866 mg/kg Acute dermal toxicity: Prolonged or widespread skin contact may result in absorption of harmful amounts. Based on product testing: LD50, Rabbit, male, 560 mg/kg Acute inhalation toxicity: Vapor concentrations are attainable which could be hazardous on single exposure. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. Based on product testing: LC50, Rat, male, 4 Hour, vapour, 14.7 mg/l Estimated

**Skin Corrosion/Irritation**

Causes severe burns.

**Serious Eye Damage/Irritation**

Causes serious eye damage.

**Respiratory or Skin Sensitization**

May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Germ Cell Mutagenicity**

Not available

**Carcinogenicity**

Not available

**Reproductive Toxicity**

Not available

**Routes of Entry**

Ingestion, Inhalation, Skin contact, Eye contact.

**Symptoms Related to Exposure**

Not available

**Potential Health Effects**

Not available.

**Target Organ(s)**

Not available.

**Section 12: Ecological Information****Ecotoxicity**

Acute toxicity to fish Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested). LC50, Poecilia reticulata (guppy), semi-static test, 96 Hour, 640 mg/l Acute toxicity to aquatic invertebrates EC50, Daphnia magna (Water flea), static test, 48 Hour, 16.7 mg/l Acute toxicity to algae/aquatic plants EC50, Pseudokirchneriella subcapitata (algae), static test, 72 Hour, Growth rate inhibition, 645 mg/l EbC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Biomass, 151 mg/l, Method Not Specified. Toxicity to bacteria EC50, Bacteria, 16 Hour, 500 - 1,000 mg/l Long-term (chronic) aquatic hazard Chronic toxicity to fish NOEC, Fish, semi-static test, 28 d, survival, > 10 mg/l Chronic toxicity to aquatic invertebrates NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 0.16 mg/l

**Persistence and Degradability**

Material is readily biodegradable.

**Bioaccumulative Potential**

Bioconcentration potential is low (BCF < 100 or Log Pow < 3)

**Mobility in Soil**

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

**Other Adverse Effects**

Not available.

**Section 13: Disposal Considerations****Waste Disposal**

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

**Disposal of Container**

Not available

**Other Considerations**

Not available.

**Section 14: Transport Information**



## Safety Data Sheet

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Ethylenediamine

50-1749

### DOT Classification

Proper shipping name Ethylenediamine UN number UN 1604 Class 8 (3) Packing group II Reportable Quantity Ethylenediamine

### Section 15: Regulatory Information

#### Regulations

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312 Flammable (gases, aerosols, liquids, or solids) Acute toxicity (any route of exposure) Respiratory or skin sensitisation Skin corrosion or irritation Serious eye damage or eye irritation Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313 This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313. Pennsylvania Worker and Community Right-To-Know Act: To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute. California Prop. 65 This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm. United States TSCA Inventory (TSCA) All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

#### Other

Not available

### Section 16: Other Information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.