1. Substance/preparation and company identification

Company
BASF CORPORATION
100 Campus Drive
Florham Park, NJ 07932, USA

24 Hour Emergency Response Information
CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP

Molecular formula: C(2)H(8)N(2)
Chemical family: diamines
Synonyms: 1,2-Ethanediamine

2. Composition/information on ingredients

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Content (W/W)</th>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>107-15-3</td>
<td>&gt;= 99.5 %</td>
<td>ethylenediamine</td>
</tr>
<tr>
<td>7732-18-5</td>
<td>&lt;= 0.5 %</td>
<td>Water</td>
</tr>
</tbody>
</table>

3. Hazard identification

Emergency overview
DANGER: CORROSIVE. FLAMMABLE LIQUID. SENSITIZER.
CONTAINS MATERIAL WHICH CAN CAUSE LIVER DAMAGE.
CONTAINS MATERIAL WHICH CAN CAUSE KIDNEY DAMAGE.
CONTAINS MATERIAL WHICH CAN CAUSE LUNG DAMAGE.
CAUSES EYE BURNS.
CAUSES SKIN BURNS.
CAUSES RESPIRATORY TRACT BURNS.
Use with local exhaust ventilation.
Wear NIOSH-certified chemical goggles.
Wear protective clothing.
Eye wash fountains and safety showers must be easily accessible.
Wear full face shield if splashing hazard exists.
Wear a NIOSH-certified (or equivalent) organic vapour respirator.

Potential health effects

Primary routes of exposure
Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:
Harmful by inhalation. Harmful if swallowed. Harmful in contact with skin.
Ethylenediamine vapors may be irritating to the eyes, nose and respiratory tract and may produce hypersensitivity. Direct contact with the skin may be highly corrosive and may cause burns to the skin. Direct contact with the eyes may be corrosive and may cause permanent eye damage.

**Irritation:**
Corrosive to the skin, eyes and respiratory system.

**Sensitization:**
Caused skin sensitization in animal studies. SISA-Daten an BASF-Referenzstoff übertragen

**Repeated dose toxicity:**
Repeated skin contact may produce sensitization. Repeated inhalation overexposure may produce liver, lung, and kidney injury. Repeated gavage exposure to experimental animals have been known to produce liver, kidney, uterine and eye effects such as cataracts, conjunctivitis, cloudy cornea and retinal atrophy. Ethylenediamine does not produce toxicity to reproductive organs and has not been found to be teratogenic or carcinogenic.

**Medical conditions aggravated by overexposure:**
Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product. See MSDS section 11 - Toxicological information.

**Aquatic toxicity:**
Acutely toxic for aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

### 4. First-aid measures

**General advice:**
Remove contaminated clothing.

**If inhaled:**
Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

**If on skin:**
Wash affected areas thoroughly with soap and water. Remove contaminated clothing. Wash soiled clothing immediately. Immediate medical attention required.

**If in eyes:**
In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Immediate medical attention required.

**If swallowed:**
Do not induce vomiting. Rinse mouth and then drink plenty of water. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

### 5. Fire-fighting measures

**Flash point:** 38 °C (DIN 51755)
Autoignition: 405 °C (DIN 51794)
Lower explosion limit: 3.1 % (V) (34.5 °C)
Upper explosion limit: 18.0 % (V) (70.0 °C)

Suitable extinguishing media:
water fog, foam, dry extinguishing media, gaseous extinguishing media, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water

Hazards during fire-fighting:
No particular hazards known.

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
If exposed to fire, keep containers cool by spraying with water.

NFPA Hazard codes:
Health: 3 Fire: 2 Reactivity: 0 Special:

6. Accidental release measures

Personal precautions:
Avoid inhalation. Avoid contact with the skin, eyes and clothing.
Ensure adequate ventilation. Wear appropriate respiratory protection. Extinguish sources of ignition nearby and downwind.

Environmental precautions:
Substance/product is RCRA hazardous due to its properties. Do not discharge into drains/surface waters/groundwater.

Cleanup:
Spills should be contained, solidified, and placed in suitable containers for disposal.

7. Handling and storage

Handling

General advice:
See MSDS section 10 - Stability and reactivity. See MSDS section 5 - Fire fighting measures. Containers should be opened carefully in well-ventilated areas to avoid static discharge.

Protection against fire and explosion:
See MSDS section 5 - Fire fighting measures. Avoid all sources of ignition: heat, sparks, open flame. Take precautionary measures against static discharges.

Storage

General advice:
Containers should be stored tightly sealed in a dry place.

Storage incompatibility:
General: Segregate from acids and acid forming substances.

Storage stability:
Storage temperature: 20 °C
8. Exposure controls and personal protection

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>OSHA PEL</th>
<th>ACGIH TWA value</th>
<th>Skin Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethylenediamine</td>
<td>10 ppm</td>
<td>10 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Advice on system design:
Provide local exhaust ventilation to control vapours/mists.

Personal protective equipment

Respiratory protection:
Wear a NIOSH-certified (or equivalent) amine/organic vapor respirator.

Hand protection:
Chemical resistant protective gloves

Eye protection:
Wear face shield or tightly fitting safety goggles (chemical goggles) if splashing hazard exists.

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to DIN-EN 465).

General safety and hygiene measures:
Eye wash fountains and safety showers must be easily accessible. Wear protective clothing as necessary to prevent contact. Employees should shower at the end of the shift. Wash soiled clothing immediately.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>liquid</td>
</tr>
<tr>
<td>Odour</td>
<td>amine-like</td>
</tr>
<tr>
<td>Colour</td>
<td>colourless to yellow</td>
</tr>
<tr>
<td>pH value</td>
<td>12.2</td>
</tr>
<tr>
<td>Melting point</td>
<td>10.7 °C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>117 - 118 °C</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>70 mbar</td>
</tr>
<tr>
<td>Density</td>
<td>0.898 g/cm³</td>
</tr>
<tr>
<td>Partitioning coefficient n-octanol/water (log Pow):</td>
<td>-1.3 (measured)</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>1.6 mPa.s</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>(miscible)</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

Substances to avoid:
Aluminum, zinc, polyvinylchloride

Hazardous reactions:
Evolution of heat under influence of acids.
The product is chemically stable.

Decomposition products:
carbon monoxide, carbon dioxide

Thermal decomposition:
120 °C (DSC (DIN 51007))

**Corrosion to metals:**
No corrosive effect on metal.

**11. Toxicological information**

**Acute toxicity**

**Oral:**
LD50/rat: 866 mg/kg
Moderately toxic.

**Inhalation:**
LC50/rat: > 20 mg/l / 4 h

**Dermal:**
LD50/rat: approx. 1,000 mg/kg

**Skin irritation:**
rabbit: Corrosive. (BASF-Test)

**Eye irritation:**
rabbit: Corrosive.

**Sensitization:**
sensitizing

**Chronic toxicity**

**Genetic toxicity:**
Results from a number of mutagenicity studies with microorganisms, mammalian cell culture and mammals are available. Taking into account all of the information, there is no indication that the substance is mutagenic.

**Reproductive toxicity:**
The results of animal studies gave no indication of a fertility impairing effect.

**Developmental toxicity/teratogenicity:**
Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.
After the uptake of small doses toxicity to development will not be expected in humans.

**12. Ecological information**

**Environmental fate and transport**

**Biodegradation:**
Test method: OECD 301C; ISO 9408; 92/69/EEC, C.4-F, activated sludge
Degree of elimination: 93 - 95 % (28 d)
Evaluation: Readily biodegradable (according to OECD criteria).

**Bioaccumulation:**
Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

**Adsorbable organically-bound halogen (AOX):**

This product contains no organically-bound halogen.

**Environmental toxicity**

**Acute and prolonged toxicity to fish:**

semistatic
Fathead minnow/LC50 (96 h): 115.7 mg/l
Nominal concentration. Literature data.

**Acute toxicity to aquatic invertebrates:**

OECD Guideline 202, part 1 static
Daphnia magna/EC50 (48 h): 3 mg/l
Nominal concentration. Literature data.

**Toxicity to aquatic plants:**

Directive 88/302/EEC, part C, p. 89 green algae (72 h): 71 mg/l
Nominal concentration. Literature data.

**Toxicity to microorganisms:**

DIN/EN/ISO 10712 bacterium/EC50 (17 h): 29 mg/l
Nominal concentration. Literature data.

OECD Guideline 209 activated sludge, domestic/EC20 (60 min): 1,600 mg/l
Nominal concentration. Literature data.

**Other ecotoxicological advice:**

Due to the pH-value of the product, neutralization is generally required before discharging sewage into treatment plants.

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**13. Disposal considerations**

**Waste disposal of substance:**
Incorporate or dispose of in a RCRA-licensed facility.
Do not discharge into waterways or sewer systems without proper authorization.

**Container disposal:**
Empty containers with less than 1 inch of residue may be landfilled at a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers. If containers are not empty, they must be disposed of in a RCRA-licensed facility.

**RCRA:** D001

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**14. Transport information**

**Land transport**

**USDOT**

Proper shipping name: ETHYLENEDIAMINE
Hazard class: 8
ID-number: UN 1604
Packing group: II
# Safety data sheet
## Ethylenediamine

**Revision date:** 2006/06/21  
**Version:** 3.0

### Sea transport
- **IMDG**
- **Proper shipping name:** ETHYLENEDIAMINE  
- **Hazard class:** 8  
- **ID-number:** UN 1604  
- **Packing group:** II  
- **Marine pollutant:** NO

### Air transport
- **IATA/ICAO**
- **Proper shipping name:** ETHYLENEDIAMINE  
- **Hazard class:** 8  
- **ID-number:** UN 1604  
- **Packing group:** II

## 15. Regulatory information

### Federal Regulations
- **Registration status:**  
  TSCA, US released / listed
- **OSHA hazard category:** Chronic target organ effects reported, Acute target organ effects reported, ACGIH TLV established, Corrosive to skin and/or eyes, Sensitizer, Toxic - dermal, Combustible Liquid

### CERCLA RQ
- **CAS Number:** 107-15-3  
- **Chemical name:** ethylenediamine

### SARA hazard categories (EPCRA 311/312):  
- Fire, Acute, Chronic

### State regulations

### State RTK
- **CAS Number:** 107-15-3  
- **Chemical name:** ethylenediamine  
- **State RTK:** MA, NJ, PA

## 16. Other information

### HMIS III rating
- **Health:** 3  
- **Flammability:** 2  
- **Physical hazard:** 0

HMIS uses a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates high hazard.
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