

**Safety data sheet as per COMMISSION REGULATION (EU) No 453/2010  
of 20 May 2010 amending Regulation (EC) No 1907/2006  
Product: Ethylenediamine**



**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1 Product identifier**

**Trade name: Ethylenediamine/ 1,2-diaminoethane**

**CAS No.: 107-15-3**

**EC No.: 203-468-6**

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

**Relevant identified uses:** manufacture of substances

**Uses identified against:** no information available

**1.3 Details of the supplier of the safety data sheet:**

**Manufacturer/Supplier:**

Prasol Chemicals Ltd.,  
Prasol House, Plot No.A-17/2/3,  
T.T.C. Indl. Area, Khairne M.I.D.C.,  
Navi Mumbai - 400 710  
Maharashtra, India.  
Tel: +91-22-27782555  
Fax: +91-22-27782430

**Further information obtainable from:**

Mr. Dhaval Parikh

e-mail:sales@prasolchem.com; inquiry@prasolchem.com

**Information in case of emergency:**

Product safety department Tel: +91-22- 27782555; Fax:+91-22- 27782430

Other Comments (e.g. language(s) of the phone service): English

**SECTION 2: Hazards identification**

**2.1 Classification of the substance or mixture**

**2.1.1 Classification according to Regulation (EC) No 1272/2008 (CLP)**



**GHS02**  
Flame



**GHS05**  
Corrosion



**GHS06**  
Skull and  
crossbones



**GHS08**  
Health  
hazard

Flam. Liq. 3	H226	Flammable liquid and vapour.
Acute Tox. 4	H302	Harmful if swallowed
Acute Tox. 3	H311	Toxic in contact with skin
Skin Corr. 1B	H314	Causes severe skin burns and eye damage
Skin Sens. 1B	H317	May cause an allergic skin reaction
Acute Tox. 4	H332	Harmful if inhaled
Resp. Sens. 1	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects

**2.1.2 Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Xn Harmful; Xi Irritant

R10 Flammable

R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

C, R34 Causes burns

Xi; R36/38 Irritating to eyes and skin.

R42/43 May cause sensitization by inhalation and skin contact

**Information concerning particular hazards for human and environment:** Not applicable

**2.2 Label elements**

**Labeling according to Regulation (EC) No 1272/2008 (CLP)**

**Hazard pictograms**

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GHS02  
Flame



GHS05  
Corrosion



GHS06  
Skull and  
crossbones



GHS08  
Health  
hazard

**Signal word** Danger

**Hazard-determining components of labeling:** Void

**Hazard statements**

H226 Flammable liquid and vapour.

H302 Harmful if swallowed

H311 Toxic in contact with skin

H314 Causes severe skin burns and eye damage

H317 May cause an allergic skin reaction

H332 Harmful if inhaled

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H412 Harmful to aquatic life with long lasting effects

**Precautionary statements**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P261 Avoid breathing mist, vapours or spray.

P280 Wear protective gloves/ eye protection/ face protection.

P284 Wear respiratory protection. P405: Store locked up.

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.

P305 + P351 + P338 + P310 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 or doctor/ physician.

P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician.

**2.3 Other hazards**

**Results of PBT and vPvB assessment:** The substance is not PBT / vPvB

**SECTION 3: Composition/information on ingredients**

**Chemical characterization:**

CAS No.	Description
107-15-3	Ethylenediamine
EC Number	: 203-468-6

**Additional information:**

**Molecular Formula:** C<sub>2</sub>H<sub>8</sub>N<sub>2</sub>                      **Molecular Weight:** 60g/mol

**SECTION 4: First aid measures**

**4.1 General information:** Consult a physician. Show this safety data sheet to the doctor in attendance.

**After inhalation:** If breathed in, move person into fresh air. If not breathing, give artificial respiration.

**After skin contact:** Wash off with soap and plenty of water. Take victim immediately to hospital.

**After eye contact:** Rinse thoroughly with plenty of water for at least 15 minutes.

**After swallowing:** Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water.

**4.2 Most important symptoms and effects, both acute and delayed** Refer Section 2

**4.3 Indication of any immediate medical attention and special treatment needed** No further relevant information.

**Information for doctor:** Treat symptomatically and supportively.

**SECTION 5: Firefighting measures**

**5.1 Suitable extinguishing agents:**

For small (incipient) fires, use media such as alcohol resistant foam, dry chemical, or carbon dioxide. For large fires, use water spray, fog or foam. Do not use water jet. Use very large quantities (flooding) of water applied

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as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

**5.2 Special hazards arising from the substance or mixture** Carbon oxide, nitrogen oxides

**5.3 Advice for firefighters:** Wear self-contained breathing apparatus for firefighting if necessary.

**Additional information** Use water spray to cool unopened containers

## **SECTION 6: Accidental release measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

**6.2 Environmental precautions:** Dilute with plenty of water. Do not allow to enter sewers/ surface or ground water.

### **6.3 Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations

### **6.4 Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment

See Section 13 for disposal information

## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling:**

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Take measures to prevent the buildup of electrostatic charge.

**Information about fire - and explosion protection:** Keep ignition sources away. Do not smoke.

### **7.2 Conditions for safe storage, including any incompatibilities:**

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

**Information about storage in one common storage facility:** Store away from incompatible materials.

**Further information about storage conditions:** Store away from moisture. Store in cool and dry place.

**7.3 Specific end use(s)** No further relevant information available

## **SECTION 8: Exposure controls/personal protection**

### **8.1 Control parameters**

**Ingredients with limit values that require monitoring at the workplace:**

Ethylenediamine TWA 10 ppm/ 25 mg/m<sup>3</sup> (NIOSH)

**Additional information:** The lists valid during the making were used as basis.

### **8.2 Exposure controls** Effective exhaust ventilation system

Ensure that eyewash stations and safety showers are close to the workstation location.

### **Personal protective equipment:**

**General protective and hygienic measures:**

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work. Avoid contact with the eyes and skin.

### **Respiratory protection:**

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Protection of hands:** Protective gloves, butyl rubber

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

### **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

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**Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Eye protection:** Tightly sealed goggles with side shields

**Body protection:**

Complete suit protecting against chemicals. Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

**General Information**

<b>Appearance</b>	: Slightly yellow liquid
<b>Odour</b>	: Amine like
<b>Odour threshold</b>	: not determined
<b>pH</b>	: not determined (pK <sub>a</sub> 10.6)
<b>Melting point/Melting range</b>	: 11.1°C
<b>Initial Boiling point/Boiling range</b>	: 117°C
<b>Flash point</b>	: 38°C
<b>Evaporation rate</b>	: not determined
<b>Flammability (solid, gas)</b>	: not applicable
<b>Upper/lower flammability or explosive limits:</b>	
Lower: 2% (w/w)	
Upper: 17% (w/w)	
<b>Danger of explosion</b>	: Containers may explode in fire
<b>Vapour pressure at 27°C</b>	: 17.3hPa
<b>Vapour density</b>	: 2.1
<b>Relative density at 20°C</b>	: 0.895
<b>Solubility in / Miscibility with water</b>	: miscible (1000g/L)
<b>Partition coefficient (n-octanol/water) at 20°C: log Pow</b>	: -1.62 (pH>12)
<b>Auto-ignition temperature</b>	: 405°C
<b>Decomposition temperature</b>	: not determined
<b>Viscosity</b>	: not determined
<b>Explosive properties</b>	: not explosive (structural reasons)
<b>Oxidising properties</b>	: not oxidizing (structural reasons)
<b>9.2 Other information</b>	:
	pKa1= 7.23-7.44; pKa2= 9.7-10.18

**SECTION 10: Stability and Reactivity**

**10.1 Reactivity** No dangerous reactions known.

**10.2 Chemical stability**

Under storage at normal ambient temperatures (minus 40° C to + 40° C), the product is stable.

No hazardous reaction when handled and stored according to provisions.

**10.3 Possibility of hazardous reactions** No known hazardous reactions

**10.4 Conditions to avoid** Heat, flames and sparks.

**10.5 Incompatible materials:** Reacts with copper, aluminium, zinc and their alloys; Strong acids and oxidizing agents  
Halogenated compounds

**10.6 Hazardous decomposition products:** carbon oxides, nitrogen oxides

**SECTION 11: Toxicological information**

**11.1 Information on toxicological effects**

**Acute toxicity:**

LD50	oral	866mg/kg bw/ day	rat	Toxicity Category IV
LC50	inhalation	14.7 mg/L for 1h	rat	Toxicity Category IV

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LD50 dermal 560 mg/kg rabbit Toxicity Category IV  
**Skin corrosion/irritation:** corrosive1B (rat)  
**Serious eye damage/irritation:** Category 1-irreversible effects on the eye (rabbit)  
**Respiratory or skin sensitization:** sensitizer Category 1B  
**Germ cell mutagenicity:** weakly mutagenic  
**Carcinogenicity:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.  
**Reproductive toxicity:** no data  
**STOT-single exposure:** Inhalation - May cause respiratory irritation. - Lungs  
**STOT-repeated exposure:** LOAEL 114 mg/kg bw/day (oral)  
NOAEC144mg/m<sup>3</sup> (air)  
NOAEL was 8.3 mg/kg bw (dermal)  
**Aspiration hazard:** no data available  
**Additional information:** To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Aquatic toxicity:

LC50	96h	640mg/l	(Poecilia reticulata, guppy)
EC50	48h	16.7mg/L	(Daphnia magna, water flea) harmful
NOEC	21d	0.16mg/L	(Daphnia magna) long term
ErC50	72h	645 mg/l	(Pseudokirchnerella subcapitata, blue green algae)
(NOEC ~3.2 mg/l.)			

### 12.2 Persistence and degradability

**Biodegradation** readily biodegradable (95% in 28 days)

### 12.3 Bio accumulative potential. low potential for bioaccumulation

### 12.4 Mobility in soil The product is miscible in water and readily biodegradable in both water and soil.

Accumulation is not expected. Groundwater contamination is unlikely

### 12.5 Results of PBT and vPvB assessment not PBT / vPvB due to Low persistence and low bioaccumulation

### 12.6 Other adverse effects No further relevant information available

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product:

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging:** Disposal must be made according to official regulations.

**Recommended cleansing agents:** Water, if necessary together with cleansing agents.

## SECTION 14: Transport information

### Land Transport (ADR/RID)

### Marine Transport (IMDG)

### Air Transport (ICAO/ IATA)

#### 14.1 UN/ID Number: 1604

#### 14.2 UN proper shipping name: ETHYLENEDIAMINE

#### 14.3 Transport hazard class: 8

#### 14.4 Packaging group: II

#### 14.5 Environmental hazards: not a marine pollutant

#### 14.6 Special precautions for the user:

**Danger code (Kemler)** : 8(3)

**EMS Number** : F-E, S-C

#### 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: no data available

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**SECTION 15: Regulatory information**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

This safety datasheet complies with the requirements of COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006

**Hazard pictograms** Please refer section 2

**Signal word** Danger

**Labeling according to EU guidelines:**

**Code letter and hazard designation of product:** Please refer section 2

**Risk phrases:** Please refer section 2

**15.2 Chemical safety assessment** A Chemical Safety Assessment has not been carried out and will be applicable at the time of REACH Registration.

**Substances of very high concern (SVHC) according to REACH, Article 57** The substance is not listed as SVHC.

**SECTION 16: Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**Department issuing MSDS:**

Product safety department.

**Contact:**

Tel: +91-22- 27782555

Fax: +91-22- 27782430

**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

CAS: Chemical Abstracts Service (division of the American Chemical Society)

ErC50: EC50 in terms of reduction of growth rate

EC: European Inventory of Existing Commercial Chemical Substances

EC50: concentration which give s half-maximal response

EMS: Emergency Schedule

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

IMDG: International Maritime Code for Dangerous Goods

LC50: Lethal concentration, 50 percent LD50: Lethal dose, 50 percent

NOEC: No Observed Effect Level

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

**Sources**

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

ECHA: <http://echa.europa.eu/registration-dossier/-/registered-dossier/15765/1>

Aldrich SDS:

<http://www.sigmaaldrich.com/MSDS/MSDS/DisplayMSDSPage.do?country=IN&language=en&productNumber=E26266&brand=SIAL&PageToGoToURL=http%3A%2F%2Fwww.sigmaaldrich.com%2Fcatalog%2Fproduct%2Fsial%2Fe26266%3Flang%3Den>

**Data compared to the previous version altered.**

- Section 1: Chemical Product and Company Identification
- Section 3: Composition and Information on Ingredients
- Section 4: First Aid Measures
- Section 5: Fire and Explosion Data
- Section 6: Accidental Release Measures
- Section 7: Handling and Storage
- Section 8: Exposure Controls/Personal Protection
- Section 9: Physical and Chemical Properties
- Section 10: Stability and Reactivity Data
- Section 11: Toxicological Information
- Section 12: Ecological Information
- Section 13: Disposal Considerations