



**SAFETY DATA SHEET**  
**According to Regulation (EC) No. 1907/2006**

## Ethylenediamine, EDA

### 1. IDENTIFICATION OF THE SUBSTANCE OR PREPARATION AND THE COMPANY/UNDERTAKING

<b>Product label name</b> Ethylenediamine	
<b>Supplier</b> DELAMINE B.V. Barchman Wuytierslaan 10 3818 LH Amersfoort PO Box 473 3800 AL Amersfoort The Netherlands Tel.: +31-334676897	
<b>E-mail address of person responsible for safety data sheet</b> SDS.Delamine@delamine.com	
<b>Emergency telephone</b> T +31570679211 F +31570679801 AkzoNobel Chemicals-Deventer-NL	
<b>Intended use</b> Chemical intermediate	
<b>Date of last issue / Revision number</b> 2008/10/30 / 3.09	

### 2. HAZARDS IDENTIFICATION

Flammable. May be very toxic by inhalation of aerosols. Harmful in contact with skin and if swallowed. Causes burns. May cause sensitization by inhalation and skin contact.
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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is to be considered as a substance in conformance to EC directives.			
Information on hazardous ingredients			
<b>Chemical description</b> Ethylenediamine			
<b>Composition / information on ingredients</b>			
<b>Number</b>	<b>% w/w</b>	<b>CAS-number</b>	<b>Chemical name</b>
1	approx. 100	000107-15-3	Ethylenediamine

	Index-No.	EC-number	Symbol(s) (EU classification)	Risk-phrase(s)
1	612-006-00-6	203-468-6	C	R10 R21/22 R34 R42/43

### 4. FIRST AID MEASURES

<b>Symptoms and effects</b> Corrosive to eyes, skin and upper respiratory tract. May be very toxic by inhalation of aerosols ( Do not delay treatment of exposed individuals, death may result ).
<b>First aid</b>
<b>General</b> In all cases of doubt, or when symptoms persist, seek medical attention.



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**Inhalation**

Provide fresh air, rest, half upright position. Seek medical advice after significant exposure.

**Skin**

Remove immediately all contaminated clothing. Wash off with soap and water. Seek medical advice if irritation develops. Launder contaminated clothes with plenty of water before reuse. Destroy contaminated shoes if made of leather.

**Eye**

Rinse immediately and as long as possible with plenty of water (at least 15 minutes). Eyelids should be held away from the eyeball to ensure thorough rinsing. DO NOT remove contact lenses. Always seek medical attention.

**Ingestion**

Only when conscious, rinse mouth, give plenty of water to drink. DO NOT induce vomiting. Seek medical advice.

**Advice to physician**

No specific antidote known. Symptomatic treatment is advised. If burn is present treat as any thermal burn after decontamination. If necessary evacuation of the stomach contents should be undertaken by means carrying the least likelihood of aspiration (e.g. gastric lavage in combination with endotracheal intubation).

### 5. FIRE-FIGHTING MEASURES

**Extinguishing media**

water, spray, foam, sand, Carbon dioxide, dry powder.

**Unsuitable extinguishing media**

halones.

**Hazardous decomposition / combustion products**

Nitrous gases may be produced.

**Protective equipment**

Wear self contained breathing apparatus. Wear a standard aluminised firefighting suit.

**Other information**

Cool closed containers with water. Do not direct a solid stream of water or foam into the burning material; this may cause spattering and spread the fire. Water used to extinguish a fire should not be allowed to enter the drainage system or water courses.

**Fire and explosion hazard**

Toxic fumes.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**

For personal protection see Section 8.

**Environmental precautions**

Treat using the best available techniques before discharge into drains or the aquatic environment.

**Methods for cleaning up**

Absorb with sand, sweep up and put into a container for disposal. Flush remainder with water.

**Other information**

Eliminate all sources of ignition, and do not generate flames or sparks.

### 7. HANDLING AND STORAGE

**Handling**

Persons with a history of sensitization of the skin or the respiratory tract should not be employed in any process in which this product is used. Transfer and handle product only in closed system. When using do not eat, drink or smoke. Avoid contact with skin and eyes. Use only in well-ventilated areas. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

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<b>Fire and explosion prevention</b> Keep away from sources of ignition - No smoking.
<b>Storage requirements</b> Store in a dry well ventilated place away from sources of heat and direct sunlight. Store in closed containers preferably under nitrogen.
<b>Other information</b> Store in a dry well ventilated place away from sources of heat and direct sunlight. Store in closed containers preferably under nitrogen. Storage temperature preferred between 11-50 °C. Avoid contact with atmospheric moisture.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<b>Engineering controls</b> Take precautionary measures against static discharges. Use only in closed system. Do not use copper, nickel and cobalt containing alloys in process equipment. Ensure good ventilation and local exhaustion of the working area.	
<b>Personal protection</b>	
	<b>Respiratory</b> When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. emergency equipment in case of inhalable dust formation or. When aerosols are present the combined cartridge K/P should be used.
	<b>Hand</b> Protective neoprene gloves.
	<b>Eye</b> Wear tightly fitting safety goggles.
	<b>Skin and body</b> Protective neoprene boots and protective clothing.
	<b>Other information</b> Launder contaminated clothes with plenty of water before reuse. Contaminated leather items (shoes, belts, watch bands etc.) should be removed and destroyed.

<b>Ethylenediamine</b>		
Time Weighted Average (TWA) (private grenswaarde)	18 mg/m <sup>3</sup>	

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b> liquid
<b>Colour</b> colourless
<b>Odour</b> ammonia like
<b>Boiling point/range</b> 117 °C
<b>Melting point/range</b> 11 °C
<b>Flash point</b> 40 °C ( Pensky-Martens, closed cup )
<b>Flammability</b> not determined

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<b>Explosive properties</b> not determined
<b>Oxidising properties</b> not applicable
<b>Vapour pressure</b> 1.14 kPa (20 °C )
<b>Density</b> 896 kg/m <sup>3</sup> (20 °C )
<b>Bulk density</b> not applicable
<b>Solubility in water</b> Completely miscible
<b>Solubility in other solvents</b> not available
<b>pH value</b> 12 (100 g/l water, 20 °C )
<b>Partition coefficient n-octanol/water</b> Log Pow: < 0
<b>Relative vapour density (air=1)</b> 2.1
<b>Viscosity</b> 1.6 mPa.s ( 20 °C )
<b>Autoignition temperature</b> 385 °C
<b>Explosion limits</b> LEL: 2.7 Vol % UEL: 16.6 Vol %

### 10. STABILITY AND REACTIVITY

<b>Conditions to avoid</b> Formation of an aerosol.
<b>Stability</b> Stable under recommended storage and handling conditions (see section 7).
<b>Incompatibles</b> acids, chlorinated hydrocarbons, oxidising agents, copper and copper alloys, nickel, cobalt.
<b>Hazardous decomposition products</b> Nitrous gases may be produced.

### 11. TOXICOLOGICAL INFORMATION

<b>Ethylenediamine</b>
<b>Acute toxicity</b>
<b>Oral LD50</b> rat: 625-2700 mg/kg
<b>Dermal LD50</b> rabbit: 560 mg/kg
<b>Inhalation LC50</b> rat: 29 mg/l, 8 hours ( vapour ) May be very toxic by inhalation of aerosols

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<b>Irritation</b>
<b>Skin</b> Corrosive
<b>Eye</b> Corrosive
<b>Respiratory</b> Highly irritating.
<b>Sensitization</b> Causing skin sensitization. Causing sensitization of the respiratory tract.
<b>Genotoxicity</b> Not mutagenic
<b>Other toxicological information</b> subchronic (90 days) oral toxicity, rat: No Observed Effect Level $\leq 50$ mg/kg/day. not carcinogenic. Not embryotoxic. Not teratogenic.

### 12. ECOLOGICAL INFORMATION

<b>Ethylenediamine</b>
<b>Ecotoxicity</b>
<b>fish</b> Acute toxicity, 96h-LC50: 640 mg/l ( Poecilia reticulata )
<b>daphnia</b> Acute toxicity, 48h-EC50: 17 mg/l ( Daphnia magna )
<b>algae</b> Acute toxicity, 72h-IC50: 71 mg/l ( Selenastrum capricornutum )
<b>bacteria</b> Acute toxicity, E50: 29 mg/l ( Pseudomonas putida ) Acute toxicity, E50: 3 mg/l ( Nitrifying bacteria )
<b>Fate</b>
<b>Degradation Biotic</b> Readily biodegradable ( Closed bottle test )
<b>Other information</b> Activated sludge respiration inhibition test EC50 : 1600 mg/l. Chronic toxicity (28 days ) : No Observed Effect Level $> 10$ mg/l ( Gasterostues aculeatus ) Chronic toxicity (21 days ) : No Observed Effect Level 2 mg/l ( Daphnia magna )

### 13. DISPOSAL CONSIDERATIONS

<b>Product</b> Incineration is recommended.
<b>Contaminated packaging</b> Containers which cannot be cleaned should be disposed of in the same manner as the substance.
<b>Other information</b> For further advice contact manufacturer.

### 14. TRANSPORT INFORMATION

<i>Land transport</i>
<b>Class</b> 8



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<b>Classification Code</b> CF1
<b>RID class</b> 8
<b>Packing group</b> II
<b>Hazard Identification No.</b> 83
<b>Substance Identification No.</b> 1604
<b>TREM-Card or ERG number</b> CEFIC TEC(R)- 80GCF1-II
<b>UN number</b> 1604
<b>Proper Shipping Name</b> ETHYLENEDIAMINE
<b>Other information</b> Transport label(s): 8 + 3

<i>Sea transport (IMO / IMDG-code)</i>
<b>Class</b> 8
<b>Packing group</b> II
<b>UN number</b> 1604
<b>EMS</b> F-E, S-C
<b>Marine pollutant</b> no
<b>Proper Shipping Name</b> Ethylenediamine
<b>Other information</b> Transport label(s): 8 + 3

<i>Air transport (ICAO-TI / IATA-DGR)</i>
<b>UN number</b> 1604
<b>Class</b> 8
<b>Packing group</b> II
<b>Proper Shipping Name</b> Ethylenediamine
<b>Other information</b> Transport label(s): 8 + 3

### 15. REGULATORY INFORMATION

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<b>Product label name</b> Ethylenediamine
<b>Labelling according to EC directives</b>
<b>EC-number</b> 2034686
<b>Classification based on</b> Annex-VI

<b>R(isk) phrase(s) (EU classification)</b>	
<b>Code</b>	<b>Description</b>
R10	Flammable
R21/22	Harmful in contact with skin and if swallowed
R34	Causes burns
R42/43	May cause sensitization by inhalation and skin contact

<b>S(afety) phrase(s) (EU classification)</b>	
<b>Code</b>	<b>Description</b>
S23	Do not breathe fumes
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection
S45.	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

<b>Symbol(s) (EU classification)</b>	
	
CORROSIVE	

<b>Other information</b> TSCA Inventory (USA): yes DSL (Canada): yes
<b>German Water Hazard Class (WGK)</b> 2

### 16. OTHER INFORMATION

<b>R-phrase information</b>
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Ethylenediamine	R10 R21/22 R34 R42/43	Flammable Harmful in contact with skin and if swallowed Causes burns May cause sensitization by inhalation and skin contact

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<b>Changes were made in section</b> Composers
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