



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

Ethylenediamine, EDA

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

Product label name Ethylenediamine	
Supplier DELAMINE B.V. Barchman Wuytierslaan 10 3818 LH Amersfoort PO Box 473 3800 AL Amersfoort The Netherlands Tel.: +31-334676897	
E-mail address of person responsible for safety data sheet SDS.Delamine@delamine.com	
Emergency telephone AkzoNobel Chemicals-Deventer-NLT +31 570 679211 F +31 570 679801	
Intended use Chemical intermediate	
Date of last issue / Revision number 2010/06/02 / 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			
Chemical description Ethylenediamine			
Composition / information on ingredients			
Number	% w/w	CAS-number	Chemical name
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

Symptoms and effects 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).
First aid
General 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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Fire and explosion prevention Keep away from sources of ignition - No smoking.
Storage requirements Store in a dry well ventilated place away from sources of heat and direct sunlight. Store in closed containers preferably under nitrogen.
Other information 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

Engineering controls 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.
Personal protection
Respiratory 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.
Hand Protective neoprene gloves.
Eye Wear tightly fitting safety goggles.
Skin and body Protective neoprene boots and protective clothing.
Other information Launder contaminated clothes with plenty of water before reuse. Contaminated leather items (shoes, belts, watch bands etc.) should be removed and destroyed.

Ethylenediamine		
Agency OES-TWA	25 mg/m ³	

9. PHYSICAL AND CHEMICAL PROPERTIES

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

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

10. STABILITY AND REACTIVITY

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

11. TOXICOLOGICAL INFORMATION

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

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

12. ECOLOGICAL INFORMATION

Ethylenediamine
Ecotoxicity
fish Acute toxicity, 96h-LC50: 640 mg/l (Poecilia reticulata)
daphnia Acute toxicity, 48h-EC50: 17 mg/l (Daphnia magna)
algae Acute toxicity, 72h-IC50: 71 mg/l (Selenastrum capricornutum)
bacteria Acute toxicity, E50: 29 mg/l (Pseudomonas putida) Acute toxicity, E50: 3 mg/l (Nitrifying bacteria)
Fate
Degradation Biotic Readily biodegradable (Closed bottle test)
Other information 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

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

14. TRANSPORT INFORMATION

<i>Land transport</i>
Class 8



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Classification Code CF1
RID class 8
Packing group II
Hazard Identification No. 83
Substance Identification No. 1604
UN number 1604
Proper Shipping Name ETHYLENEDIAMINE
Other information Transport label(s): 8 + 3

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

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

15. REGULATORY INFORMATION

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

R(isk) phrase(s) (EU classification)	
Code	Description
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

S(afety) phrase(s) (EU classification)	
Code	Description
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).

Symbol(s) (EU classification)	
	
CORROSIVE	

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

16. OTHER INFORMATION

R-phrase information



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Chemical name	R(isk) phrase(s) (EU classification)	
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

History
Date of printing/ pdf file generated 2010/07/23
Revision 3.09
Composed by M. Gyimesi J. Bos
Changes were made in section Composers
<small>This information only concerns the above mentioned product and does not need to be valid if used with other product(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.</small>