



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

Polyethyleneamines, HEPA

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

| | |
|--|--|
| Product label name Polyethyleneamines | |
| 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 2009/06/18 / 3.11 | |

2. HAZARDS IDENTIFICATION

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|---|
| Causes burns. Harmful in contact with skin and if swallowed. May be very toxic by inhalation of aerosols May cause sensitization by inhalation and skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. |
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3. COMPOSITION/INFORMATION ON INGREDIENTS

| This product is to be considered as a preparation in conformance to EC directives. | | | |
|--|------------|-------------|------------------------|
| Information on hazardous ingredients | | | |
| Chemical description Polyethyleneamines | | | |
| Composition / information on ingredients | | | |
| Number | % w/w | CAS-number | Chemical name |
| 1 | approx. 30 | 004067-16-7 | Pentaethylenhexamine |
| 2 | approx. 70 | 068131-73-7 | Polyethylenepolyamines |

| | Index-No. | EC-number | Symbol(s) (EU classification) | Risk-phrase(s) |
|---|--------------|-----------|-------------------------------|-----------------------|
| 1 | 612-064-00-2 | 223-775-9 | C N | R34 R43 R50/53 |
| 2 | 612-121-00-1 | 268-626-9 | C N | R21/22 R34 R43 R50/53 |

4. FIRST AID MEASURES

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| 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 |



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General

In all cases of doubt, or when symptoms persist, seek medical attention.

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.

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.

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 1 ppm v/v they must use appropriate certified respirators.

Fire and explosion prevention

Keep away from sources of ignition - No smoking.

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Storage requirements

Store in a dry well ventilated place away from sources of heat and direct sunlight. Store in closed containers preferably under nitrogen. 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 1 ppm v/v they must use appropriate certified respirators. Use self-contained or supplied-air respiratory equipment or respirator with Filter K. 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.

In this country no exposure limit has been established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

liquid

Colour

yellow

Odour

ammonia like

Boiling point/range

> 350 °C

Melting point/range

not determined

Flash point

184 °C (Pensky-Martens, closed cup)

Flammability

not determined

Explosive properties

not determined

Oxidising properties

not applicable

Vapour pressure

< 0.001 kPa (20 °C)

Density

1015 kg/m³ (20 °C)

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| Bulk density not applicable |
| Solubility in water Completely miscible |
| Solubility in other solvents not available |
| pH value approx. 12 (100 g/l water, 20 °C) |
| Partition coefficient n-octanol/water Log Pow: < 0 |
| Relative vapour density (air=1) not determined |
| Viscosity 600 mPa.s (20 °C) |
| Autoignition temperature > 300 °C |
| Explosion limits not determined |

10. STABILITY AND REACTIVITY

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| 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

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| Polyethylenepolyamines |
| Acute toxicity |
| Oral LD50 rat: > 2000 mg/kg (female) 1350-2000 mg/kg (male) |
| Inhalation LC50 May be very toxic by inhalation of aerosols |
| Irritation |
| Skin Corrosive |
| Eye Corrosive |
| Respiratory Highly irritating |
| Sensitization Causing skin sensitization Causing sensitization of the respiratory tract |

12. ECOLOGICAL INFORMATION



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|---|---|
| Polyethylenepolyamines | |
| Ecotoxicity | |
| fish | Acute toxicity, 96h-LC50: 100 mg/l (Poecilia reticulata) |
| daphnia | Acute toxicity, 48h-EC50: 2 mg/l (Daphnia magna) |
| algae | Acute toxicity, 72h-IC50: 0.2 mg/l (Selenastrum capricornutum) |
| bacteria | Acute toxicity, EC50: 5 mg/l (Pseudomonas putida) Acute toxicity, EC50: 319 mg/l (Nitrifying bacteria) |
| Fate | |
| Degradation Biotic | |
| Not Readily biodegradable (Closed bottle test) | |
| Other information | |
| Activated sludge respiration inhibition test EC50 : 3200 mg/l | |

13. DISPOSAL CONSIDERATIONS

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|-------------------------------|---|
| 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

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| Land transport |
| Class 8 |
| Classification Code C7 |
| RID class 8 |
| Packing group III |
| Hazard Identification No. 80 |
| Substance Identification No. 2735 |
| UN number 2735 |
| Proper Shipping Name POLYAMINES, LIQUID, CORROSIVE, N.O.S. HIGHER ETHYLENE POLYAMINES HEPA. |
| Other information Transport label(s): 8 ADR Tunnel code: E |

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| <i>Sea transport (IMO / IMDG-code)</i> |
| Class 8 |
| Packing group III |
| UN number 2735 |
| EMS F-A, S-B |
| Marine pollutant no |
| Proper Shipping Name Polyamines, liquid, corrosive, n.o.s. HIGHER ETHYLENE POLYAMINES HEPA. |
| Other information Transport label(s): 8 |

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|---|
| <i>Air transport (ICAO-TI / IATA-DGR)</i> |
| UN number 2735 |
| Class 8 |
| Packing group III |
| Proper Shipping Name Polyamines, liquid, corrosive, n.o.s. HIGHER ETHYLENE POLYAMINES HEPA. |

15. REGULATORY INFORMATION

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|---|
| Product label name Polyethyleneamines |
| Labelling according to EC directives |
| EC-number See section 3 |
| Classification based on Annex-VI |



| R(isk) phrase(s) (EU classification) | |
|--------------------------------------|--|
| Code | Description |
| R21/22. | Harmful in contact with skin and if swallowed. |
| R34. | Causes burns. |
| R43. | May cause sensitization by skin contact. |
| R50/53. | Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. |

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| S(afety) phrase(s) (EU classification) |
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| Code | Description |
|------------|---|
| 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). |
| S60. | This material and its container must be disposed of as hazardous waste. |
| S61. | Avoid release to the environment. Refer to special instructions/Safety data sheets. |

| Symbol(s) (EU classification) | |
|---|---|
|  |  |
| CORROSIVE | DANGEROUS FOR THE ENVIRONMENT |

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| Other information TSCA Inventory (USA): yes. Substance and/or product listed in Directive 96/82/EC. |
| German Water Hazard Class (WGK) 2 |

16. OTHER INFORMATION

| R-pharse information | | |
|------------------------|--------------------------------------|--|
| Chemical name | R(isk) phrase(s) (EU classification) | |
| Pentaethylenehexamine | R34 R43 R50/53 | Causes burns May cause sensitization by skin contact Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment |
| Polyethylenepolyamines | R21/22 R34 R43 R50/53 | Harmful in contact with skin and if swallowed Causes burns May cause sensitization by skin contact Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment |

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| History |
| Date of printing/pdf file generated 2010/07/23 |
| Revision 3.11 |
| Composed by M. Gyimesi J. Bos |



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Changes were made in section
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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.