

# SAFETY DATA SHEET



HEPA-S200

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

### 1.1 Product identifier

**Product name** : HEPA-S200  
**Other means of identification** : Not available.

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

**Product use** : Intermediate. Chemical synthesis.

### 1.3 Details of the supplier of the safety data sheet

Delamine B.V.  
 Stationsplein 121  
 3818LE Amersfoort  
 The Netherlands  
 Telephone number: +31-334224600  
**e-mail address of person responsible for this SDS** : sds.delamine@delamine.com

### 1.4 Emergency telephone number

**Supplier**  
**Telephone number** : ☎ 352 323 3500 (24 h)

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : Mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Acute Tox. 4, H302  
 Acute Tox. 4, H312  
 Skin Corr. 1B, H314  
 Eye Dam. 1, H318  
 Skin Sens. 1, H317  
 Aquatic Acute 1, H400  
 Aquatic Chronic 1, H410

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

**Ingredients of unknown toxicity** : 100 percent of the mixture consists of component(s) of unknown acute inhalation toxicity

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

**Hazard pictograms** :



**Signal word** : Danger

**Hazard statements** : H302 + H312 - Harmful if swallowed or in contact with skin.  
 H314 - Causes severe skin burns and eye damage.  
 H317 - May cause an allergic skin reaction.  
 H410 - Very toxic to aquatic life with long lasting effects.

## SECTION 2: Hazards identification

### Precautionary statements

- Prevention** : P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.  
P260 - Do not breathe vapour.  
P273 - Avoid release to the environment.
- Response** : P391 - Collect spillage.  
P303 + P361 + P353 + P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a POISON CENTER or physician.  
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 physician.
- Storage** : Not applicable.
- Disposal** : Not applicable.
- Hazardous ingredients** : Amines, polyethylenepoly-  
Polyethylene polyamine, pentaethylenehexamine fraction  
Amines, polyethylenepoly-, tetraethylenepentamine fraction
- Supplemental label elements** : EUH071 - Corrosive to the respiratory tract.
- Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Not applicable.

### 2.3 Other hazards

- Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII** : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
- Other hazards which do not result in classification** : None known.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
Amines, polyethylenepoly-	REACH #: 01-2119485823-28 EC: 268-626-9 CAS: 68131-73-7 Index: 612-121-00-1	≥25 - ≤50	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1) EUH071	[1]
Polyethylene polyamine, pentaethylenehexamine fraction	REACH #: 01-2119485826-22 Listed no.: 701-266-7 CAS: -	≥25 - ≤50	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1) EUH071	[1]
Amines, polyethylenepoly-, tetraethylenepentamine fraction	REACH #: 01-2119487290-37 EC: 292-587-7 CAS: 90640-66-7 (Other	≥10 - ≤25	Acute Tox. 4, H312 Skin Corr. 1B, H314 Eye Irrit. 2, H319	[1]

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### SECTION 3: Composition/information on ingredients

	means of identification CAS no. 112-57-2) Index: 612-060-00-0		Aquatic Chronic 2, H411 EUH071  <b>See Section 16 for the full text of the H statements declared above.</b>
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There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy

Occupational exposure limits, if available, are listed in Section 8.

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

#### 4.2 Most important symptoms and effects, both acute and delayed

## SECTION 4: First aid measures

### Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : ☑ Corrosive to the respiratory tract. Causes burns.
- Skin contact** : Causes severe burns. Harmful in contact with skin. May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed.

### Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness
- Inhalation** : ☑ Adverse symptoms may include the following:  
respiratory tract irritation  
coughing
- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur
- Ingestion** : Adverse symptoms may include the following:  
stomach pains

### 4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam. Dry sand or other suitable absorbent. Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : Do not use water jet.

### 5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : In a fire or if heated, a pressure increase will occur and the container may burst. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous combustion products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides

### 5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
- Additional information (Explosibility)** : Not considered to be a product presenting a risk of explosion.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**6.2 Environmental precautions**

- : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

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

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spill product.

**6.4 Reference to other sections**

- : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from acids. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.


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

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Separate from acids. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

**Seveso Directive - Reporting thresholds (in tonnes)****Danger criteria**

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## SECTION 7: Handling and storage

Category	Notification and MAPP threshold	Safety report threshold
 1: Hazardous to the aquatic environment - Acute 1 or Chronic 1	100	200

### 7.3 Specific end use(s)

Section 7. Handling and storage: The information in this section contains generic advice and guidance.

## SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

### 8.1 Control parameters

#### Occupational exposure limits

No exposure limit value known.

**Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.


#### DNELs/DMELs

**DNEL/DMEL Summary** : Not applicable.

#### PNECs

**PNEC Summary** : Not applicable.

### 8.2 Exposure controls

**Appropriate engineering controls** :  Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

#### Individual protection measures

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

#### Skin protection

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

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Recommended: Wear suitable gloves tested to EN374.  
> 8 hours (breakthrough time): butyl rubber (thickness  $\geq 0.3$  mm), nitrile rubber (thickness  $\geq 0.4$  mm), Chloroprene (thickness  $\geq 0.65$  mm).
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- Recommended: Combination filtering device (DIN EN 14387), Filter type: A-P2.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****Appearance**

- Physical state** : Liquid.
- Colour** : Yellow. [Dark.]
- Odour** : Ammonia.
- Odour threshold** : Not available.
- pH** : 11.7 (Calculated value for the mixture)
- Melting point/freezing point** :  $< -40^{\circ}\text{C}$  (Calculated value for the mixture)
- Initial boiling point and boiling range** :  $> 375^{\circ}\text{C}$  (Calculated value for the mixture)
- Flash point** : Closed cup:  $159^{\circ}\text{C}$  (Calculated value for the mixture)
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not applicable.
- Upper/lower flammability or explosive limits** : Not available.
- Vapour pressure** : 0.0001 kPa [room temperature] (Calculated value for the mixture)
- Vapour density** : Not available.
- Relative density** : Not available.
- Density** : 1.01 g/cm<sup>3</sup> [ $20^{\circ}\text{C}$ ] (Calculated value for the mixture)
- Solubility(ies)** : Not available.
- Solubility in water** :  $> 50$  g/l (Calculated value for the mixture)
- Partition coefficient: n-octanol/ water** : -3.6 (Calculated value for the mixture)
- Auto-ignition temperature** :  $> 330^{\circ}\text{C}$  (Calculated value for the mixture)
- Decomposition temperature** : Not available.

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## SECTION 9: Physical and chemical properties

- Viscosity** : Dynamic (room temperature): 600 mPa·s  
**Explosive properties** : Not considered to be a product presenting a risk of explosion.  
**Oxidising properties** : No oxidising ingredients present.

### 9.2 Other information

No additional information.

## SECTION 10: Stability and reactivity

- 10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- 10.2 Chemical stability** : The product is stable.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.  
Under normal conditions of storage and use, hazardous polymerisation will not occur.
- 10.4 Conditions to avoid** : aerosol or mist formation.  
Keep away from heat, sparks and flame. Do not smoke.
- 10.5 Incompatible materials** : Reactive or incompatible with the following materials: oxidizing materials, metals, acids. Chlorinated hydrocarbon.
- 10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure	Remarks
Amines, polyethylenepoly-	LD50 Dermal [OECD 402]	Rabbit - Male, Female	1465.4 mg/kg	-	test substance: CAS no. 90640-67-8 (read-across)
	LD50 Oral [OECD 401]	Rat - Male, Female	1716.2 mg/kg	-	test substance: CAS no. 90640-67-8 (read-across)
Polyethylene polyamine, pentaethylenehexamine fraction	LD50 Dermal [OECD 402]	Rabbit - Male, Female	1465.4 mg/kg	-	test substance: CAS no. 90640-67-8 (read-across)
	LD50 Oral	Rat	1600 mg/kg	-	-
	LD50 Oral [OECD 401]	Rat - Male, Female	1716.2 mg/kg	-	test substance: CAS no. 90640-67-8 (read-across)
Amines, polyethylenepoly-, tetraethylenepentamine fraction	LD50 Dermal	Rabbit - Male	1260 mg/kg	-	-
	LD50 Oral	Rat - Male	3221 mg/kg	-	-



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## SECTION 11: Toxicological information

**Conclusion/Summary** : Harmful if swallowed or in contact with skin.

### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
HEPA-S200	1843.7	1441.9	N/A	N/A	N/A
amines, polyethylenepoly-	1716.2	1465.4	N/A	N/A	N/A
Polyethylene polyamine, pentaethylenehexamine fraction	1600	1465.4	N/A	N/A	N/A
Amines, polyethylenepoly-, tetraethylenepentamine fraction	3221	1260	N/A	N/A	N/A

### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation	Remarks
amines, polyethylenepoly-	Skin - Visible necrosis [OECD 404]	Rabbit	-	4 hours	14 days	test substance: CAS no. 90640-67-8 (read-across)
	Eyes - Severe irritant [OECD 405]	Rabbit	-	1 hours	-	test substance: CAS no. 90640-67-8 (read-across)
Polyethylene polyamine, pentaethylenehexamine fraction	Skin - Visible necrosis [OECD 404]	Rabbit	-	4 hours	14 days	test substance: CAS no. 90640-67-8 (read-across)
	Eyes - Severe irritant [OECD 405]	Rabbit	-	1 hours	-	test substance: CAS no. 90640-67-8 (read-across)
Amines, polyethylenepoly-, tetraethylenepentamine fraction	Skin - Severe irritant [OECD 435]	Mammal - species unspecified	-	-	-	-

### Conclusion/Summary

**Skin** : Causes severe burns.

**Eyes** : Causes serious eye damage.

### Sensitisation

Product/ingredient name	Route of exposure	Species	Result	Remarks
amines, polyethylenepoly-	skin	Guinea pig	Sensitising [OECD 406]	test substance: CAS no. 90640-67-8 (read-across)
Polyethylene polyamine, pentaethylenehexamine fraction	skin	Guinea pig	Sensitising [OECD 406]	test substance: CAS no. 90640-67-8 (read-across)

### Conclusion/Summary

**SECTION 11: Toxicological information**

**Skin** : May cause an allergic skin reaction.

**Mutagenicity**

Product/ingredient name	Test	Experiment	Result	Remarks
Amines, polyethylenepoly-	OECD 471	Experiment: In vitro Subject: Bacteria	Negative	test substance: CAS no. 90640-67-8 (read-across)
	OECD 477	Experiment: In vivo Subject: Insect	Negative	test substance: CAS no. 90640-67-8 (read-across)
	OECD 474	Experiment: In vivo Subject: Mammalian-Animal	Negative	test substance: CAS no. 112-24-3 (read-across)
Polyethylene polyamine, pentaethylenehexamine fraction	OECD 471	Experiment: In vitro Subject: Bacteria	Negative	test substance: CAS no. 90640-67-8 (read-across)
	OECD 477	Experiment: In vivo Subject: Insect	Negative	test substance: CAS no. 90640-67-8 (read-across)
	OECD 474	Experiment: In vivo Subject: Mammalian-Animal	Negative	test substance: CAS no. 90640-67-8 (read-across)
Amines, polyethylenepoly-, tetraethylenepentamine fraction	OECD 476	Experiment: In vitro Subject: Mammalian-Animal	Positive	-
	OECD 474	Experiment: In vivo Subject: Mammalian-Animal	Negative	test substance: CAS no. 90640-67-8 (read-across)
	OECD 471	Experiment: In vitro Subject: Bacteria	Equivocal	-

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

**Carcinogenicity**

**Conclusion/Summary** : No known significant effects or critical hazards.

**Reproductive toxicity**

**Conclusion/Summary** : No data available for this end-point, hence this classification is not considered to be applicable.

**Teratogenicity**

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## SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure	Remarks
Amines, polyethylenepoly-	Negative - Oral [OECD 414]	Rat	400 mg/kg NOAEL	-	-
Amines, polyethylenepoly-, tetraethylenepentamine fraction	Negative - Oral	Rat	400 mg/kg NOAEL	-	test substance: CAS no. 4067-16-7 (read-across)
	Negative - Dermal [OECD 414]	Rabbit	125 mg/kg NOAEL	12 days; 6 hours per day	test substance: CAS no. 90640-67-8 (read-across)

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

### Specific target organ toxicity (single exposure)

Not available.

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

**Information on likely routes of exposure** : Not available.

### Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** :  Corrosive to the respiratory tract. Causes burns.
- Skin contact** : Causes severe burns. Harmful in contact with skin. May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed.

### Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness
- Inhalation** :  Adverse symptoms may include the following:  
respiratory tract irritation  
coughing
- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur
- Ingestion** : Adverse symptoms may include the following:  
stomach pains

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

#### Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

#### Long term exposure

- Potential immediate effects** : Not available.

**SECTION 11: Toxicological information**

**Potential delayed effects** : Not available.

**Potential chronic health effects**

Product/ingredient name	Result	Species	Dose	Exposure	Remarks
Amines, polyethylenepoly-	Sub-chronic LOAEL Oral [OECD 408]	Rat - Male, Female	50 mg/kg	-	test substance: CAS no. 38260-01-4 (read-across).
Polyethylene polyamine, pentaethylenehexamine fraction	Sub-chronic LOAEL Oral [OECD 408]	Rabbit - Male, Female	50 mg/kg	-	test substance: CAS no. 38260-01-4 (read-across).
Amines, polyethylenepoly-, tetraethylenepentamine fraction	Sub-chronic LOAEL Oral [OECD 408]	Rat - Male, Female	50 mg/kg	-	test substance: CAS no. 38260-01-4 (read-across).
	Sub-acute NOEL Dermal [OECD 410]	Rabbit - Male, Female	200 mg/kg systemic toxicity	20 days; 5 days per week	-
	Sub-acute NOAEL Dermal [OECD 410]	Rabbit - Male, Female	1.25 mg/cm <sup>2</sup> Local effects	20 days; 5 days per week	-

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

**General** : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

**Carcinogenicity** : No known significant effects or critical hazards.

**Mutagenicity** : No known significant effects or critical hazards.

**Teratogenicity** : No known significant effects or critical hazards.

**Developmental effects** : No known significant effects or critical hazards.

**Fertility effects** : No known significant effects or critical hazards.

**Other information** : Not available.

**SECTION 12: Ecological information****12.1 Toxicity**

Product/ingredient name	Result	Species	Exposure	Remarks
Amines, polyethylenepoly-	Acute EC50 0.23 mg/l Fresh water [OECD 201]	Algae - Pseudokirchnerella subcapitata	72 hours	-
	Acute EC50 2.2 mg/l Fresh water	Daphnia - Daphnia magna	48 hours	-
	Acute LC50 100 mg/l Fresh water	Fish - Poecilia reticulata	96 hours	-
	Chronic NOEC 0.16 mg/l Fresh water [OECD 201]	Algae - Pseudokirchnerella subcapitata	72 hours	-
Polyethylene polyamine, pentaethylenehexamine fraction	Acute EC50 0.7 mg/l Fresh water [OECD 201]	Algae - Pseudokirchnerella subcapitata	72 hours	-
	Acute EC50 17.5 mg/l Fresh water	Daphnia - Daphnia magna	48 hours	-

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Amines, polyethylenepoly-, tetraethylenepentamine fraction	Acute LC50 180 mg/l Fresh water	Fish - Poecilia reticulata	96 hours	-
	Chronic NOEC 0.25 mg/l Fresh water [OECD 201]	Algae - Pseudokirchnerella subcapitata	72 hours	-
	Chronic NOEC 0.8 mg/l Fresh water [OECD 202]	Daphnia - Daphnia magna	21 days	test substance: CAS no. 90640-67-8 (read-across)
	Acute EC50 6.8 mg/l Fresh water [OECD 201]	Algae - Pseudokirchnerella subcapitata	72 hours	-
	Acute EC50 24.1 mg/l Fresh water	Daphnia - Daphnia magna	48 hours	-
	Acute LC50 420 mg/l Fresh water	Fish - Poecilia reticulata	96 hours	-
	Chronic EC10 1.9 mg/l Fresh water	Daphnia - Daphnia magna	21 days	test substance: CAS no. 90640-67-8 (read-across)
Chronic NOEC 0.5 mg/l Fresh water [OECD 201]	Algae - Pseudokirchnerella subcapitata	72 hours	-	

**Conclusion/Summary** : Very toxic to aquatic life with long lasting effects.

### 12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Amines, polyethylenepoly-	OECD 302A	16 % - Not readily - 84 days	-	-
	OECD 301D	0 % - Not readily - 162 days	-	-
Polyethylene polyamine, pentaethylenehexamine fraction	OECD 302A	18 % - Not readily - 84 days	-	-
	OECD 301D	0 % - Not readily - 162 days	-	-
Amines, polyethylenepoly-, tetraethylenepentamine fraction	OECD 302A	17 % - Not readily - 84 days	-	-
	OECD 301D	0 % - Not readily - 162 days	-	-

**Conclusion/Summary** : There are no data available on the mixture itself.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Amines, polyethylenepoly-	-	-	Not readily
Polyethylene polyamine, pentaethylenehexamine fraction	-	-	Not readily
Amines, polyethylenepoly-, tetraethylenepentamine fraction	-	-	Not readily

### 12.3 Bioaccumulative potential

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Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
HEPA-S200	-3.6	-	low
amines, polyethylenepoly-	-3.67	-	low
Polyethylene polyamine, pentaethylenehexamine fraction	-3.67	-	low
Amines, polyethylenepoly-, tetraethylenepentamine fraction	-2.6	-	low

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

### 12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

**12.6 Other adverse effects** : No known significant effects or critical hazards.

## SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance.

### 13.1 Waste treatment methods

#### Product

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

The allocation of waste identity numbers/waste descriptions must be carried out according to the EWC, specific to the industry and process.

**Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

#### Packaging

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible.

**Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
<b>14.1 UN number</b>	UN2735	UN2735	UN2735	UN2735

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## SECTION 14: Transport information

<b>14.2 UN proper shipping name</b>	<b>POLYAMINES, LIQUID, CORROSIVE, N.O.S.</b> (amines, polyethylenepoly-, Polyethylene polyamine, pentaethylenehexamine fraction)	<b>POLYAMINES, LIQUID, CORROSIVE, N.O.S.</b> (amines, polyethylenepoly-, Polyethylene polyamine, pentaethylenehexamine fraction)	<b>POLYAMINES, LIQUID, CORROSIVE, N.O.S.</b> (amines, polyethylenepoly-, Polyethylene polyamine, pentaethylenehexamine fraction)	<b>Polyamines, liquid, corrosive, n.o.s.</b> (amines, polyethylenepoly-, Polyethylene polyamine, pentaethylenehexamine fraction)
<b>14.3 Transport hazard class(es)</b>	8	8	8	8
<b>Label</b>				
<b>14.4 Packing group</b>	III	III	III	III
<b>14.5 Environmental hazards</b>	Yes.	Yes.	Marine Pollutant: Yes	Yes. The environmentally hazardous substance mark is not required.

### Additional information

#### ADR/RID

: The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

**Hazard identification number** 80

**Limited quantity** 5 L

**Special provisions** 274

**Tunnel code** (E)

#### ADN

: The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

**Special provisions** 274

#### IMDG

: The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

**Emergency schedules** F-A, S-B

**Special provisions** 223, 274

#### IATA

: The environmentally hazardous substance mark may appear if required by other transportation regulations.

**Quantity limitation** Passenger and Cargo Aircraft: 5 L. Packaging instructions: 852.

Cargo Aircraft Only: 60 L. Packaging instructions: 856. Limited Quantities -

Passenger Aircraft: 1 L. Packaging instructions: Y841.

**Special provisions** A3, A803

#### 14.6 Special precautions for user

: **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

#### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

: Not applicable.

## SECTION 15: Regulatory information

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

#### EU Regulation (EC) No. 1907/2006 (REACH)

##### Annex XIV - List of substances subject to authorisation

##### Annex XIV

None of the components are listed.

##### Substances of very high concern

None of the components are listed.

## SECTION 15: Regulatory information

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Not applicable.

### Other EU regulations

#### Ozone depleting substances (1005/2009/EU)

Not listed.

#### Prior Informed Consent (PIC) (649/2012/EU)


Not listed.

#### Seveso Directive

This product is controlled under the Seveso Directive.

#### Danger criteria

##### Category

1: Hazardous to the aquatic environment - Acute 1 or Chronic 1

### National regulations

**Hazchem code** : 2X

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol (Annexes A, B, C, E)

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.



#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

**Australia inventory (AICS)** : All components are listed or exempted.  
**Canada** : All components are listed or exempted.  
**China** : All components are listed or exempted.  
**Europe** :  At least one component is not listed.  
**New Zealand** : All components are listed or exempted.  
**Philippines** : All components are listed or exempted.  
**Republic of Korea** : All components are listed or exempted.  
**Taiwan** : All components are listed or exempted.  
**United States** : All components are listed or exempted.  
**Viet Nam** :  All components are listed or exempted.

**15.2 Chemical safety assessment** : Chemical Safety Assessments for all substances in this product are either Complete or Not applicable.



## SECTION 16: Other information

Indicates information that has changed from previously issued version.

### Abbreviations and acronyms

: ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway  
 ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road  
 ATE = Acute Toxicity Estimate  
 BCF = Bioconcentration Factor  
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
 DMEL = Derived Minimal Effect Level  
 DNEL = Derived No Effect Level  
 EUH statement = CLP-specific Hazard statement  
 EWC = European Waste Catalogue  
 IATA = International Air Transport Association  
 IBC = Intermediate Bulk Container  
 IMDG = International Maritime Dangerous Goods  
 LogPow = logarithm of the octanol/water partition coefficient  
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
 N/A = Not available  
 PBT = Persistent, Bioaccumulative and Toxic  
 PNEC = Predicted No Effect Concentration  
 RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail  
 RRN = REACH Registration Number  
 SGG = Segregation Group  
 vPvB = Very Persistent and Very Bioaccumulative

### Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	Calculation method Calculation method Expert judgment On basis of test data Calculation method Calculation method Calculation method

### Full text of abbreviated H statements

<p>302 H312 H314 H317 H318 H319 H400 H410 H411</p>	<p>Harmful if swallowed. Harmful in contact with skin. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. Causes serious eye irritation. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects. Toxic to aquatic life with long lasting effects.</p>
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### Full text of classifications [CLP/GHS]

<p>Acute Tox. 4, H302 Acute Tox. 4, H312 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Aquatic Chronic 2, H411 EUH071 Eye Dam. 1, H318 Eye Irrit. 2, H319 Skin Corr. 1B, H314 Skin Sens. 1, H317</p>	<p>ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2 Corrosive to the respiratory tract. SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 SKIN CORROSION/IRRITATION - Category 1B SKIN SENSITISATION - Category 1</p>
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## SECTION 16: Other information

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### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.