SAFETY DATA SHEET



Polyethyleneamines, HEPA-S140

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

1.1 Product identifier

Product name : Polyethyleneamines, HEPA-S140

 Index number
 : 612-121-00-1

 EC number
 : 268-626-9

REACH Registration number

Registration number	Legal entity
01-2119485823-28	Delamine BV

CAS number : 68131-73-7 **Product description** : Not applicable

Product type : Liquid.

Other means of : HEPA; Crude polyamine bottoms

identification

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

Product use : Adhesives, binding agents Biocide. Complexing agents Fuel. Fuel additive. Heat

transfer agents Impregnation agents Intermediate. Laboratory activities Lubricants

and additives Pharmaceuticals. Surface-active agents

Area of application : Industrial applications.

Identified uses

consumer uses of ethyleneamines

Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% - Professional

Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0. 5% - Professional

Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0. 5% - Industrial

Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% - Industrial

Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 100% - Industrial

Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 2% - Industrial

Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 2% - Professional

Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 0. 5% - Industrial

Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 0. 5% - Professional

Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Professional

Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Professional

Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Industrial

Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form -

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

Use of preparations containing EA up to 2% - Industrial

Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form -Use of preparations containing EA up to 0.5% - Industrial

Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form -Use of preparations containing EA up to 25% - Professional

Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Professional

Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial

Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial

1.3 Details of the supplier of the safety data sheet

DELAMINE B.V.

Barchman Wuytierslaan 10

3818 LH Amersfoort

Netherlands

Telephone number: +31-334676897

e-mail address of person : SDS.Delamine@delamine.com

responsible for this SDS

1.4 Emergency telephone number

Supplier

Telephone number : GBK/Infotrac ID 104075 : International (001) 352 323 3500 (24 hours per day)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

: UVCB **Product definition**

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

Classification according to Directive 67/548/EEC [DSD]

Xn: R21/22 C: R34 R43

N: R50/53

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

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

2.2 Label elements

Hazard pictograms







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SECTION 2: Hazards identification

Signal word

: Danger

Hazard statements

Harmful if swallowed or in contact with skin. Causes severe skin burns and eye damage.

May cause an allergic skin reaction.

Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

: Wear protective gloves: > 8 hours (breakthrough time): neoprene. Wear eye or face protection. Wear protective clothing. Avoid release to the environment.

Response

: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a POISON CENTER or physician. IF IN EYES:

Immediately call a POISON CENTER or physician.

Storage

: Store locked up.

Disposal

Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients

: Amines, polyethylenepoly-

Supplemental label

: Not applicable.

elements

Annex XVII - Restrictions on the manufacture.

placing on the market and use of certain dangerous substances, mixtures and

articles

: Not applicable.

Special packaging requirements

Containers to be fitted with child-resistant

fastenings

: Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

: No.

Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

: No

Other hazards which do not result in classification : Not applicable.

SECTION 3: Composition/information on ingredients

: UVCB Substance/mixture

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SECTION 3: Composition/information on ingredients

			<u>Classification</u>		
Product/ingredient name	Identifiers	%	67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	Туре
Mines, polyethylenepoly-	REACH #: 01-2119485823-28 EC: 268-626-9 CAS: 68131-73-7 Index: 612-121-00-1	100	Xn; R21/22 C; R34 R43 N; R50/53	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	[*]
amines, polyethylenepoly-	EC: 268-626-9 CAS: 68131-73-7 Index: 612-121-00-1	93.5 - 97.5	Xn; R21/22 C; R34 R43 N; R50/53	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	[A]
3,6,9,12-tetra- azatetradecamethylenediamine	EC: 223-775-9 CAS: 4067-16-7 Index: 612-064-00-2	1.9 - 5.9	Xn; R21/22 C; R34 R43 N; R50/53	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	[B]
			See Section 16 for the full text of the R- phrases declared above.	See Section 16 for the full text of the H statements declared above.	

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

- [*] Substance
- [A] Constituent
- [B] Impurity
- [C] Stabilising additive

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.

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SECTION 4: First aid measures

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

Potential acute health effects

Eye contact

: Causes serious eye damage.

Inhalation

: May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact

: Causes severe burns. Harmful in contact with skin. May cause an allergic skin reaction.

Ingestion

: Harmful if swallowed. May cause burns to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact

: Adverse symptoms may include the following:

pain watering redness

Inhalation

: No specific data.

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.

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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

: Use an extinguishing agent suitable for the surrounding fire.Dry sand or other suitable absorbent. Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media

: Halones

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 thermal decomposition products

: Decomposition products may include the following materials: carbon dioxide carbon monoxide

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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

nitrogen oxides

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 spilt 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 spilt 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 materials 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 spilt product.

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SECTION 6: Accidental release measures

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

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

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. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. 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. 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.

Seveso II Directive - Reporting thresholds (in tonnes)

Danger criteria

	Notification and MAPP threshold	Safety report threshold
1: Hazardous to the aquatic environment - Acute 1 or Chronic 1	100	200
C9i: Very toxic for the environment	100	200

7.3 Specific end use(s)

Recommendations : No specific data.

Industrial sector specific : No specific data.

solutions

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

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SECTION 8: Exposure controls/personal protection

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

Product/ingredient name	Туре	Exposure	Value	Population	Effects
Amines, polyethylenepoly-	DNEL	Short term	8550 mg/ m³	Workers	Systemic
	DNEL	Inhalation Long term Dermal	0.91 mg/ kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	1.59 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	0.44 mg/ cm ²	Workers	Local
	DNEL	Short term Dermal	13 mg/kg bw/day	Consumers	Systemic
	DNEL	Short term Inhalation	2542 mg/ m³	Consumers	Systemic
	DNEL	Short term Oral	32 mg/kg bw/day	Consumers	Systemic
	DNEL	Short term Dermal	1.59 mg/ cm²	Consumers	Local
	DNEL	Long term Dermal	0.4 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	0.46 mg/m³	Consumers	Systemic
	DNEL	Long term Oral	0.65 mg/ kg bw/day	Consumers	Systemic
	DNEL	Long term Dermal	0.68 mg/ cm ²	Consumers	Local

PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail
Amines, polyethylenepoly-	Secondary Poisoning	0.29 mg/kg	Assessment Factors
	Fresh water	1.6 µg/l	Assessment Factors
	Marine	1.6 µg/l	Assessment Factors
	Fresh water sediment	0.14 mg/kg dwt	-
	Marine water sediment	0.14 mg/kg dwt	-
	Soil	10 mg/kg dwt	_
	Sewage Treatment	3.19 mg/l	Assessment Factors
	Plant		

8.2 Exposure controls

Appropriate engineering controls

: 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

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SECTION 8: Exposure controls/personal protection

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

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. > 8 hours (breakthrough time): neoprene

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. Recommended: neoprene Boots.

Respiratory protection

: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: ammonia filter (Type K) ammonia (Type K) and particulate filter

Environmental exposure controls

controis

: 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. [Clear.]

Colour : Brown.

Odour : Odourless.

Odour threshold : Not available.

pH : 11.4

Melting point/freezing point : -70°C Pour point - 20 C

Initial boiling point and boiling : 443°C

range

Flash point : Closed cup: 197°C

Evaporation rate : Not available.
Flammability (solid, gas) : Not applicable.
Burning time : Not applicable.
Burning rate : Not applicable.

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SECTION 9: Physical and chemical properties

Upper/lower flammability or

explosive limits

Not available.

: 0.00000077 kPa [room temperature] Vapour pressure

Vapour density : Not available. : Not available. Relative density : Not available. Solubility(ies) Solubility in water : >50 g/l

Partition coefficient: n-octanol/ : -3.67

water

Auto-ignition temperature : 370°C

Decomposition temperature : Not available. **Viscosity** Not available. **Explosive properties** : Not applicable.

Oxidising properties : None.

9.2 Other information

Density : 1.014 g/cm³ [20°C]

Physical/chemical properties

comments

: No additional information.

SECTION 10: Stability and reactivity

: No specific test data related to reactivity available for this product or its ingredients. 10.1 Reactivity

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 : Keep away from sources of ignition - No smoking. aerosol or mist formation

10.5 Incompatible materials : Reactive or incompatible with the following materials: oxidizing materials, metals and

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
3,6,9,12-tetra- azatetradecamethylenediamine	LD50 Oral	Rat	1600 mg/kg	-

Conclusion/Summary

: Oral Harmful if swallowed.

Dermal Harmful in contact with skin.

Inhalation This product is not likely to volatilise rapidly into the air because of its low vapour pressure. Not classified as dangerous

Irritation/Corrosion Conclusion/Summary

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Polyethyleneamines, HEPA-S140

SECTION 11: Toxicological information

Skin : Corrosive to the skin.

Eyes : Corrosive to eyes.

Respiratory: No data available for this end-point, hence this classification is not considered to be

applicable.

Sensitisation

Product/ingredient name	Route of exposure	Species	Result
Amines, polyethylenepoly-	skin	Guinea pig	Sensitising

Conclusion/Summary

Skin : May cause skin sensitisation.

Respiratory: No data available for this end-point, hence this classification is not considered to be

applicable.

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Amines, polyethylenepoly-	-	Experiment: In vivo Subject: Mammalian-Animal	Negative

Conclusion/Summary

: No mutagenic effect.

Carcinogenicity

Conclusion/Summary

: skin No carcinogenic effect.

Reproductive toxicity

Conclusion/Summary

: No data available for this end-point, hence this classification is not considered to be

applicable.

Teratogenicity

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

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure

: Routes of entry anticipated: Oral.

Potential acute health effects

Eve contact

: Causes serious eye damage.

Inhalation

: May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious

effects may be delayed following exposure.

Skin contact

: Causes severe burns. Harmful in contact with skin. May cause an allergic skin

reaction.

Ingestion

: Harmful if swallowed. May cause burns to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:

pain watering redness

Inhalation : No specific data.

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Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II - United Kingdom (UK)

Polyethyleneamines, HEPA-S140

SECTION 11: Toxicological information

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 and also chronic effects from short and long term exposure

Short term exposure

Potential immediate

effects

: No specific data.

Potential delayed effects

No specific data.

Long term exposure

Potential immediate

effects

: No specific data.

Potential delayed effects : No specific data.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
Amines, polyethylenepoly-	Sub-chronic LOAEL Oral	Rat	52 mg/kg	-

Conclusion/Summary

: No known significant effects or critical hazards. Not classified as dangerous

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.

Absorption: Slowly absorbed.Metabolism: Rapidly metabolised.Elimination: Rapidly excreted.

Other information : No specific data.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Amines, polyethylenepoly-	Acute EC50 0.23 mg/l	Micro-organism Algae Daphnia Fish Algae	2 days 72 hours 48 hours 96 hours 72 hours

Conclusion/Summary

: Dangerous for the environment. PNEC Intermittent release.= 0.016 mg/l

12.2 Persistence and degradability

Conclusion/Summary : This substance is not expected to bioaccumulate through food chains in the

environment. Toxic Persistent Not readily biodegradable.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Amines, polyethylenepoly-	-	-	Not readily

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SECTION 12: Ecological information

12.3 Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
Amines, polyethylenepoly-	-3.67	-	low

12.4 Mobility in soil

Soil/water partition coefficient (Koc)

: >3000

Mobility : No specific data.

12.5 Results of PBT and vPvB assessment

PBT : No.

vPvB : №o

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. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal

- Phe 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.
- **Hazardous waste**

Packaging

Methods of disposal

- : The classification of the product may meet the criteria for a hazardous waste.
- : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
- **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
14.1 UN number	UN2735	UN2735	UN2735	UN2735
14.2 UN proper shipping name	POLYAMINES, LIQUID, CORROSIVE, N.O.S.(HIGHER ETHYLENE POLYAMINES HEPA)	POLYAMINES, LIQUID, CORROSIVE, N.O.S.(Amines, polyethylenepoly-)	POLYAMINES, LIQUID, CORROSIVE, N.O.S.(Amines, polyethylenepoly-). Marine pollutant (3,6,9, 12-tetra- azatetradecamethylenediamine)	Polyamines, liquid, corrosive, n.o.s. (Amines, polyethylenepoly-)

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SECTION 14: Transport information

	•	,		
14.3 Transport hazard class(es)	8	8	8	8
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	Yes.	Yes.	Yes.	₩o.
Additional information	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)	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. Special provisions 274	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. Emergency schedules (EmS) F-A, S-B Special provisions 223, 274	he environmentally hazardous substance mark may appear if required by other transportation regulations. Passenger and Cargo Aircraft Quantity limitation: 5 L Packaging instructions: 852 Cargo Aircraft Only Quantity limitation: 60 L Packaging instructions: 856 Limited Quantities - Passenger Aircraft Quantity limitation: 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 73/78 and the IBC Code

: Not available.

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

Substances of very high concern

None of the components are listed.

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

Other EU regulations

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SECTION 15: Regulatory information

Europe inventory

: All components are listed or exempted.

Seveso II Directive

This product is controlled under the Seveso II Directive.

Danger criteria

Category

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

C9i: Very toxic for the environment

15.2 Chemical Safety

Assessment

: Complete.

15.3 Registration status

: Applicable.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate

CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No.

1272/20081

DMEL = Derived Minimal Effect Level DNEL = Derived No Effect Level

EUH statement = CLP-specific Hazard statement PBT = Persistent, Bioaccumulative and Toxic PNEC = Predicted No Effect Concentration RRN = REACH Registration Number

vPvB = Very Persistent and Very Bioaccumulative

Key literature references and sources for data

: Regulation (EC) No. 1272/2008 [CLP]; European convention concerning international road transport of dangerous goods (ADR) done in Geneva on September 30, 1957 (Dz. U. no. 35/1975, pos. 189) plus amendments; Regulation for the transport of dangerous materials on the Rhine (ADN): Occupational exposure limits: International regulations

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

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

Full text of abbreviated H statements

: H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction. H318 Causes serious eye damage.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Acute Tox. 4. H302 ACUTE TOXICITY (oral) - Category 4 Acute Tox. 4. H312 ACUTE TOXICITY (dermal) - Category 4 **ACUTE AQUATIC HAZARD - Category 1** Aguatic Acute 1, H400

Aquatic Chronic 1, H410 LONG-TERM AQUATIC HAZARD - Category 1 Eye Dam. 1, H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1

Skin Corr. 1B, H314 SKIN CORROSION/IRRITATION - Category 1B

Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1

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SECTION 16: Other information

Full text of abbreviated R phrases

: R21/22- Harmful in contact with skin and if swallowed.

R34- Causes burns.

R43- May cause sensitisation by skin contact.

R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the

aquatic environment.

Full text of classifications

[DSD/DPD]

: C - Corrosive Xn - Harmful

N - Dangerous for the environment

Training advice
Date of issue/ Date of

revision

: Ensure operatives are trained to minimise exposures. Training staff on good practice.

: 15/04/2014

Date of previous issue

: 22/11/2012

Version

: 7

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.

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Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure Identified use name: Consumer uses of ethyleneamines

scenario/List of use descriptors Sector of end use: SU21

Subsequent service life relevant for that use: No. Environmental Release Category: ERC08c, ERC08f Market sector by type of chemical product: PC01, PC09b Article category related to subsequent service life: Not applicable.

Processes and activities covered

by the exposure scenario **Assessment Method**

Not applicable.

See Section 3

Section 2: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Lube oil use

Operational conditions: Not determined

Product characteristics: Indoor/Outdoor use.

Amounts used:

Fraction of EU tonnage used in region: Not available.

Regional use tonnage (tonnes/year): 372 Fraction of Regional tonnage used locally: 25% Annual site tonnage (tonnes/year): 93 Average Local Daily Tonnage (kg/day) 254

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 365

Environment factors not influenced by risk

management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting

environmental exposure:

Release fraction to air from process (initial release prior 0.01

to RMM):

Release fraction to soil from process (initial release 0.01

prior to RMM):

Release fraction to wastewater from process (initial 0.01

release prior to RMM):

Conditions and measures related to municipal sewage

treatment plant:

Estimated substance removal from wastewater via on-

site sewage treatment (%):

Total efficiency of removal from wastewater after on-site Not available. and off-site (domestic treatment plant) RMMs (%):

Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal

(kg/d):

Assumed on-site sewage treatment plant flow (m³/d):

Not available

Not available.

Not available.

Section 2.2: Control of consumer exposure

Contributing scenario controlling consumer exposure for 0:

Physical state:

Physical state: liquid

Molecular weight: 146.23 g/mole Vapour pressure: 0.346 Pa*s at 25°C

Contributing scenarios: Operational conditions and risk management measures

Product Category(ies) 1: Adhesives, sealants Mixing and loading

Operations Conditions (consumer):

- Covers use up to 3 days/Year
- Covers use up to 25%
- For each use event, covers use amounts up to 20 g
- Covers exposure up to 5 minutes/event

Risk Management Measures (consumer): No specific risk management measure identified beyond those operational conditions stated. Avoid using at a product concentration greater than 25%

Product Category(ies) 1: Adhesives, sealants Application

Operations Conditions (consumer):

- Covers use up to 3 days/Year
- Covers use up to 5%
- For each use event, covers use amounts up to 20 g
- Covers use in room size of 20 m3
- Covers exposure up to 90 minutes/event

Risk Management Measures (consumer): No specific risk management measure identified beyond those operational conditions stated. Avoid using at a product concentration greater than 5%

Product Category(ies) 9b: Fillers, putties, plasters, modelling clay

Operations Conditions (consumer):

- Covers use up to 2 days/Year
- Covers use up to 25%
- For each use event, covers use amounts up to 200 q
- Covers exposure up to 5 minutes/event

Risk Management Measures (consumer): No specific risk management measure identified beyond those operational conditions stated. Avoid using at a product concentration greater than 25%

Product Category(ies) 9b: Fillers, putties, plasters, modelling clay Application

Operations Conditions (consumer):

- Covers use up to 2 days/Year
- Covers use up to 5%
- For each use event, covers use amounts up to 200 g
- Covers use in room size of 20 m³
- Covers exposure up to 90 minutes/event

Risk Management Measures (consumer): No specific risk management measure identified beyond those operational conditions stated. Avoid using at a product concentration greater than 5%

Section 3: Exposure estimation and reference to its source

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	5.10x10-4	1.02	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0	1.02; Regional PEC: 3.57x10-8	EUSES calculation
Soil (direct releases only)	0	1.02; Regional PEC natural soil: 1. 18x10-2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.19x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.343	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.18x10-5	7.92x10-5;Regional PEC[Total]: 6. 84x10-5	EUSES calculation
Marine water mg/l	1.18x10-6	7.89x10-6;Regional PEC[Total]: 6. 75x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	7.95x10-2; Regional PEC: 0.127	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: Consumer uses of ethyleneamines Sector of end use: SU21

Subsequent service life relevant for that use: No. Environmental Release Category: ERC08c, ERC08f Market sector by type of chemical product: PC01, PC09b

Article category related to subsequent service life: Not applicable.

Marine water sediment mg/kg dwt Not evaluated. 7.92x10-3;Regional PEC[Total]: 1. EUSES calculation 16x10-2 Local concentration PEC soil (local+regional) **Justification** Agricultural soil averaged mg/kg Not applicable. Regional PEC: 1.15x10-2 Not applicable. dwt Grassland averaged mg/kg dwt Not applicable. Not applicable. Not applicable. Groundwater mg/l Not applicable. Not applicable. Not applicable. **Local concentration** PEC air (local+regional) **Justification** During emission mg/m³ Not applicable. Not applicable. Not applicable. Annual average mg/m³ Not applicable. Not applicable. Not applicable. Annual deposition mg/m²/d Not applicable. Not applicable. Not applicable. Local concentration PEC aquatic (local+regional) **Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3:.2 Exposure estimation - Consumers

Exposure estimation and reference to its source - Consumers: 2:

Contributing Frequency (1/Year): **Body weight:** Calculation method: Weight fraction of

25%; 5%; 25%; 5%

60 kg

ConsExpo 4.1

Scenario: substance in the

3; 3; 2; 2

article::

Exposure estimation and reference to its source -

Consumers: 0:

Adhesives, sealants -Mixing and loading: Adhesives, sealants Application(s); Fillers,

putties, plasters, modelling clay -Mixing and loading; Fillers, putties, plasters, modelling clay - Application(s)

Inhalation:

Mode of release: evaporation

Exposure estimation and reference to its source -

Consumers: 1:

Exposure (minutes): Application duration: Amount/concentration Room volume (m³): Room volume x ventilation rate: (I/h):

applied (g):

5; 30; 5; 30 20; 20; 200; 200 0.6 5; 90; 5; 90 1; 20; 1; 20

Contributing Release area (cm2): Temperature (°C): Mass transfer rate: Uptake fraction Inhalation rate:

> Scenario Molecular (Update model):

weight (g/mole):

bw):

32.9 20; 500; 100; 50 20 3.09E+03 550 1

Dermal:

Application methods: instant

Surface area (Skin contact Product amount (g): **Uptake fraction (Update** Inhalation event (mg/m³):

area) cm2: model):

2; 43; 2; 22 0.05; 0.1; 0.02; 1 11.2; 3.0; 11.5; 3.1 1

Inhalation mg/m³ Dermal load (mg/cm2): Dermal External dose (mg/kg Dermal (Internal dose) mg/kg

(Concentration on day of exposure):

0.039; 0.188; 0.040; 0.191 0.208; 0.08; 0.08; 1.67 0.002; 0.001; 5E-4; 0.001 6.25; 0.12; 2.5; 0.46

Dermal (External dose) mg/kg Inhalation event/Exposure mg/ **Dermal systemic exposure** Inhalation (mg/kg/day) Long

bw/day: m³ (Short term exposure): (external dose) with gloves term exposure: (90% efficiency) mg/kg bw/day

(Long term exposure): 0.002; 0.001; 5E-4; 0.001 0.0002; 0.0001; 5E-5; 0.0001 11.2; 3.0; 11.5; 3.1 0.039; 0.188; 0.040; 0.191

bw/day:

Contributing scenario controlling co	nsumer exposure for 3:		
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Systemic, Oral	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable		Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Oral	Not applicable.	Not applicable.	Not applicable.

Section 4:: Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	Not available.
Health	Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment	Not applicable.
Health	Not applicable.
Additional guidance	Not applicable



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of

preparations containing EA up to 0.5% - Professional

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1550

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM): Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%): If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Assumed on-site sewage treatment plant flow (m³/d):

465

Indoor/Outdoor use. industrial setting

1.0x10-5

Not available.

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% Professional

Process Category: PROC21, PROC24 Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC11a

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Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 93 225 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

365 Emission Days (days/year):

Environment factors not influenced by risk management:

Not available. Local freshwater dilution factor: Local marine water dilution factor: Not available.

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to 0.01

RMM):

Release fraction to soil from process (initial release prior to 0.01

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use: Not available. Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

(%):

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

Not available.

=>53.1

5272

Section 2.1: Control of environmental exposure

Average Local Daily Tonnage (kg/day):

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Amounts used: 4650 Tonnes/year

Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): Not available.

Fraction of Regional tonnage used locally: Not available 1160 Annual site tonnage (tonnes/year):

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: Not available. Local marine water dilution factor: Not available.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5%

Professional

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

Not available. Local freshwater dilution factor: Local marine water dilution factor: Not available

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to RMM):

Release fraction to wastewater from process (initial release prior to RMM):

Release fraction to air from wide dispersive use (regional only):

Release fraction to soil from wide dispersive use (regional only):

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

Not applicable.

1860 Tonnes/year

Not available.

220

Indoor. industrial setting

1 0x10-5

Not available.

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -

Professional

Process Category: PROC21, PROC24

Sector of end use: SU22 Subsequent service life relevant for that use: No.

Environmental Release Category: ERC11a

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If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Low energy manipulation of substances bound in materials and/or articles

Product characteristics:

Solid. Covers concentrations up to 0.5%

Amounts used:

Not applicable.

Frequency and duration of use:

Not applicable.

Human factors not influenced by risk management:

Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

Indoor. professional setting

Not available

Technical conditions and measures at process level

Not applicable.

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: High (mechanical) energy work-up of substances bound in materials and/or articles

Product characteristics:

Solid. Covers concentrations up to 0.5%

Frequency and duration of use:

Not applicable.

Not applicable.

Human factors not influenced by risk management:

Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Amounts used:

Indoor, professional setting

Technical conditions and measures at process level (source) to prevent release:

Not applicable.

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases, dispersion and exposure:

Not applicable.

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Total release for regional

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Release from point source

(local exposure estimation) kg/ exposure estimation kg/day dav Waste water 0 **EUSES** calculation 2 34 **Surface water** 0 0.586 **EUSES** calculation air (direct + STP) 0.0155 2.38 **EUSES** calculation Soil (direct releases only) 4.2 **EUSES** calculation 0 **Value Justification**

Concentration in sewage (PECstp)

mg/l

EUSES calculation

Concentration in sewage sludge

mg/kg dwt

n **EUSES** calculation

Local concentration PEC aquatic (local+regional) Justification 0 6.74x10-5 **EUSES** calculation Fresh water mg/l Marine water mg/l 6 71x10-6 **EUSES** calculation Intermittent release. mg/l Not applicable Not applicable Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -

Justification

Professional

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

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Fresh water sediment mg/kg dwt	Local concentration Not evaluated.	PEC sediment (local+regional) 6.77x10-2	Justification EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Total release for regional

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	5.1x10-4	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.19x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.343	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.18x10-5	7.92x10-5	EUSES calculation
Marine water mg/l	1.18x10-6	7.89x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	7.95x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.92x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	2.66x10-13	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	5.36x10-13	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m ³	2.69x10-15	Not evaluated.	EUSES calculation
Annual average mg/m³	2.69x10-15	3.58x10-11	EUSES calculation
Annual deposition mg/m²/d	2.22x10-14	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/	Total release for regional exposure estimation kg/day	Justification
	day		
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp)	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -Professional

Justification

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Concentration in sewage sludge ng/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
resh water mg/l	0	6.74x10-5	EUSES calculation
larine water mg/l	0	6.71x10-6	EUSES calculation
ntermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
resh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
larine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
gricultural soil averaged mg/kg lwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
Ouring emission mg/m³	0	Not evaluated.	EUSES calculation
nnual average mg/m³	0	3.57x10-11	EUSES calculation
annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
licro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	1.18x10-2	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

		ergy manipulation of substance	
Route of exposure Long term exposure, Systemic, Dermal	Contributing scenarios Not applicable.	Dose/Concentration 0.001	Justification The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.06	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.12	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est		ochanical) anargy work up of a	ubstances bound in materials and/or articles
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.06	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term expecure Systemic	Not applicable	Not applicable	Not applicable

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic,

Short term exposure, Local, Dermal Not applicable.

Combined

Not applicable.

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -

Not applicable.

Not applicable.

Professional

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Short term exposure, Local, Inhalable

Not applicable.

0.12

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Not available. Health

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of

preparations containing EA up to 2% - Professional

Process Category: PROC21, PROC24

Sector of end use: SU22 Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1550 Maximum daily site tonnage (kg/day):

Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%): Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Assumed on-site sewage treatment plant flow (m³/d):

Not available.

465

Not available.

300

Indoor/Outdoor use. industrial setting

1.0x10-5

Not available.

Not available.

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2%

Professional

Process Category: PROC21, PROC24 Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

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Polyethyleneamines, HEPA-S140

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 93 225 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

365 Emission Days (days/year):

Environment factors not influenced by risk management:

Not available. Local freshwater dilution factor: Local marine water dilution factor: Not available.

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to 0.01

RMM):

Release fraction to soil from process (initial release prior to 0.01

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

(%):

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not available

Not available.

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

Not available.

=>53.1

5272

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable.

Amounts used: 4650 Tonnes/year

Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): Not available.

Fraction of Regional tonnage used locally: Not available 1160 Annual site tonnage (tonnes/year):

Average Local Daily Tonnage (kg/day): Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: Not available. Local marine water dilution factor: Not available.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2%

Professional

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

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Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Indoor/Outdoor use. industrial setting

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally:

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environment factors not influenced by risk management:

Not available. Local freshwater dilution factor: Local marine water dilution factor: Not available

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to RMM):

Release fraction to wastewater from process (initial release

prior to RMM): Release fraction to air from wide dispersive use (regional

only):

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release: Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

Not applicable.

1860 Tonnes/year

Not available.

Not available

Indoor. industrial setting

1 0x10-5

Not available.

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% -Professional

Process Category: PROC21, PROC24 Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Low energy manipulation of substances bound in materials and/or articles

Product characteristics:

Solid. Covers concentrations up to 2%

Amounts used:

Not applicable.

Frequency and duration of use:

Not applicable.

Human factors not influenced by risk management:

Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

Indoor. professional setting

Not available

Technical conditions and measures at process level

Not applicable.

(source) to prevent release:

from source towards the worker:

Technical conditions and measures to control dispersion

Not applicable.

Organisational measures to prevent/limit releases,

Not applicable.

dispersion and exposure:

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: High (mechanical) energy work-up of substances bound in materials and/or articles

Product characteristics:

Amounts used:

Solid. Covers concentrations up to 2%

Not applicable.

Frequency and duration of use:

Not applicable.

Human factors not influenced by risk management:

Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

Indoor, professional setting

exposure:

Not applicable.

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

Organisational measures to prevent/limit releases,

Not applicable.

from source towards the worker:

dispersion and exposure:

Not applicable.

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Total release for regional

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Release from point source

(local exposure estimation) kg/ exposure estimation kg/day dav Waste water 0 **EUSES** calculation 2 34 **Surface water** n 0.586 **EUSES** calculation air (direct + STP) 0.0155 2.38 **EUSES** calculation Soil (direct releases only) 4.2 **EUSES** calculation 0

Concentration in sewage (PECstp)

Value Justification

mg/l

EUSES calculation

Concentration in sewage sludge

mg/kg dwt

n **EUSES** calculation

Local concentration PEC aquatic (local+regional) Justification 0 6.74x10-5 **EUSES** calculation Fresh water mg/l Marine water mg/l 6 71x10-6 **EUSES** calculation Intermittent release. mg/l Not applicable Not applicable Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% -

Justification

Professional

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

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Fresh water sediment mg/kg dwt	Local concentration Not evaluated.	PEC sediment (local+regional) 6.77x10-2	Justification EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Total release for regional

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	5.1x10-4	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.19x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.343	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.18x10-5	7.92x10-5	EUSES calculation
Marine water mg/l	1.18x10-6	7.89x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	7.95x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.92x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	2.66x10-13	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	5.36x10-13	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	2.69x10-15	Not evaluated.	EUSES calculation
Annual average mg/m³	2.69x10-15	3.58x10-11	EUSES calculation
Annual deposition mg/m²/d	2.22x10-14	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/	Total release for regional exposure estimation kg/day	Justification
	day		
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp)	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% -Professional

Justification

Process Category: PROC21, PROC24 Sector of end use: SU22

Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 0: Low energy manipulation of substances bound in materials and/or articles Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.0003 estimate workplace exposures unless **Dermal** otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. 0.02 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. Not applicable Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived Short term exposure, Systemic, Not applicable. Since the substance is not classified for Not applicable **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Combined acute effects and therefore, no acute DNEL has been derived. Since the substance is not classified for Short term exposure, Local, Dermal Not applicable. Not applicable. acute effects and therefore, no acute DNEL has been derived. The ECETOC TRA tool has been used to Short term exposure, Local, Not applicable. 0.03 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 1: High (mechanical) energy work-up of substances bound in materials and/or articles Route of exposure **Contributing scenarios Dose/Concentration** Justification Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.0003 estimate workplace exposures unless Dermal otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value 0.02 The ECETOC TRA tool has been used to Not applicable. Long term exposure, Systemic, Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Not applicable. Long term exposure, Systemic, Not applicable Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Since the substance is not classified for Not applicable Not applicable. Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic,

Short term exposure, Systemic,

Inhalable

Combined

Not applicable

Not applicable

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% -Professional

has been derived.

has been derived

Process Category: PROC21, PROC24

Since the substance is not classified for acute effects and therefore, no acute DNEL

Since the substance is not classified for

acute effects and therefore, no acute DNEL

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

35/206

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Local,

Inhalable

Not applicable.

0.03

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

Not applicable.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of

preparations containing EA up to 100% - Industrial

Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09,

PROC15

Substance supplied to that use in form of: As such

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Section 2:: Operational conditions and risk management measures

Section	on 2.1	: 0	Contro	o lo	f env	ironmen	ta	exposure
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Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use.

Product characteristics: Not applicable. Amounts used: 18600 Tonnes/year

Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): 4650 Fraction of Regional tonnage used locally: 100% Annual site tonnage (tonnes/year): 4650 Average Local Daily Tonnage (kg/day): 15500 Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor. industrial setting

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

=>53.1

1.1x10-5

1.0x10-4

1.61x10-8

Not available.

Not available.

Not available.

Not applicable.

Not available.

Organisational measures to prevent/limit release from site:

Prevent discharge of undissolved substance to or recover from onsite

No air emission controls required; required removal efficiency is 0%.

Soil emission controls are not applicable as there is no direct release to soil.

wastewater

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 100%

Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC15

Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Use as an intermediate

Operational conditions: Indoor use.

Frequency and duration of use:

Product characteristics: Not applicable. 18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): 4650 Fraction of Regional tonnage used locally: 100% Annual site tonnage (tonnes/year): 4650 Average Local Daily Tonnage (kg/day): 15500 Maximum daily site tonnage (kg/day): Not available.

Continuous release.

1.61x10-8

Not available

Not available.

=>53 1

Not available

wastewater

300 Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor, industrial setting

exposure:

Release fraction to air from process (initial release prior to 1.1x10-5

RMM):

Release fraction to soil from process (initial release prior to 1.0x10-4

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use: Not available. Not applicable.

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit Soil emission controls are not applicable as there is no direct release to soil.

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

2000 Assumed on-site sewage treatment plant flow (m³/d):

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Formulation of preparations*

Operational conditions: Indoor use.

Product characteristics: Not applicable. 18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): 4650 100% Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 4650 Average Local Daily Tonnage (kg/day): 20667 Maximum daily site tonnage (kg/day): Not available.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 100%

No air emission controls required; required removal efficiency is 0%.

Prevent discharge of undissolved substance to or recover from onsite

Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC15

Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Frequency and duration of use: Continuous release.

225 Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Indoor. industrial setting Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Not available. Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

(%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1.1x10-5

Not available.

Not available.

Not applicable.

Not available.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Use in closed process, no likelihood of exposure

Product characteristics: Liquid. Covers percentage substance in the product up to 100%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Indoor, industrial setting

Other given operational conditions affecting workers

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Use in closed, continuous process with occasional controlled exposure

Product characteristics: Liquid. Covers percentage substance in the product up to 100%

Amounts used: Not applicable.

Frequency and duration of use: Avoid carrying out operation for more than 4 hours.

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 100%

Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC15

Substance supplied to that use in form of: As such

Sector of end use: SU03 Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 2: Use in closed batch process (synthesis or formulation)

Product characteristics: Liquid. Covers percentage substance in the product up to 100%

Amounts used:

Not applicable.

Frequency and duration of use:

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Other given operational conditions affecting workers Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

exposure:

Indoor, industrial setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases, dispersion and exposure:

Personal protection:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls. Wear appropriate respiratory protection. with a minimum efficacy of 90%

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 3: Use in batch and other process (synthesis) where opportunity for exposure arises

Product characteristics:

Liquid. Covers percentage substance in the product up to 100%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Not applicable.

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Use the following local exhaust ventilation types: Treat air emission to provide a typical

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

removal efficiency of (%): 90%

Indoor, industrial setting

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls. Wear appropriate respiratory protection. with a minimum efficacy of 90%

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 4: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact)

Product characteristics:

Liquid. Covers percentage substance in the product up to 100%

Not applicable.

Frequency and duration of use:

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management:

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Amounts used:

Indoor. industrial setting

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases, dispersion and exposure:

Personal protection:

Use the following local exhaust ventilation types: Treat air emission to provide a typical removal efficiency of (%): 90%

Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls. Wear appropriate respiratory protection. with a minimum efficacy of 90%

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 100% -Industrial

Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC15

Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 5: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics:

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers

Amounts used:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Liquid. Covers percentage substance in the product up to 100%

Not applicable.

Do not carry out operation for more than 1 hour

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Indoor, industrial setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls. Wear appropriate respiratory protection. with a minimum efficacy of 95%

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 6: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at dedicated facilities

Product characteristics:

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Amounts used:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Liquid. Covers percentage substance in the product up to 100%

Not applicable.

Avoid carrying out operation for more than 4 hours.

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Indoor. industrial setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 7: Transfer of substance or preparation into small containers (dedicated filling line,

including weighing)

Product characteristics: Amounts used:

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Liquid. Covers percentage substance in the product up to 100%

Not applicable.

Covers daily exposures up to 8 hours (unless stated differently).

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Indoor, industrial setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls. Wear appropriate respiratory protection, with a

minimum efficacy of 90%

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 100% -

Industrial

Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC15

Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 8: Use as laboratory reagent

Product characteristics: Liquid. Covers percentage substance in the product up to 100%

Amounts used:

Not applicable.

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Frequency and duration of use:

Organisational measures to prevent/limit releases, dispersion and exposure:

Personal protection:

Covers daily exposures up to 8 hours (unless stated differently).

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Indoor, industrial setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls. Wear appropriate respiratory protection. with a

minimum efficacy of 90%

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	2.5x10-4	2.0x10-4	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.155	0.127	EUSES calculation
Soil (direct releases only)	0	1.27	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	5.85x10-5	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.168	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	5.76x10-8	6.75x10-5	EUSES calculation
Marine water mg/l	5.76x10-7	7.29x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.32x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-3	1.53x10-2	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-3	1.89x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	7.70x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-5	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-5	3.54x10-5	EUSES calculation
Annual deposition mg/m²/d	2.92x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 100% -Industrial

Process Category: PROC01, PROC02, PROC03, PROC04, PROC05,

PROC08a, PROC08b, PROC09, PROC15

Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Use as an intermediate

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	2.5x10-4	2.0x10-4	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.155	0.127	EUSES calculation
Soil (direct releases only)	0	1.27	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	5.85x10-5	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.168	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	5.76x10-8	6.75x10-5	EUSES calculation
Marine water mg/l	5.76x10-7	7.29x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.32x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-3	1.53x10-2	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-3	1.89x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	7.70x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-5	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-5	3.54x10-5	EUSES calculation
Annual deposition mg/m²/d	2.92x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Formulation of preparations*

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	0	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.207	0.127	EUSES calculation
Soil (direct releases only)	0	0	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-7	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-4	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-3	1.53x10-2	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-3	1.89x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	7.70x10-5	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 100% -

Process Category: PROC01, PROC02, PROC03, PROC04, PROC05,

PROC08a, PROC08b, PROC09, PROC15 Substance supplied to that use in form of: As such

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Local concentration PEC air (local+regional) Justification During emission mg/m³ 5.75x10-5 Not evaluated. **EUSES** calculation Annual average mg/m³ 3.54x10-5 3.54x10-5 **EUSES** calculation Annual deposition mg/m²/d 2.92x10-4 Not evaluated. **EUSES** calculation Local concentration PEC aquatic (local+regional) **Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3:.2 Workers - Exposure estimation

Route of exposure

Contributing scenario controlling worker exposure for 0: Use in closed process, no likelihood of exposure

Contributing scenarios

Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable 0.007 **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

Dose/Concentration

below this value Not applicable. 0.06 The ECETOC TRA tool has been used to Long term exposure, Systemic, Inhalable

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Justification

Long term exposure, Systemic, Not applicable Not applicable. Not applicable. Combined

Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable.

Long term exposure, Local, Not applicable Since the substance is not classified for Not applicable. Inhalable

acute effects and therefore, no acute DNEL has been derived.

Since the substance is not classified for Short term exposure, Systemic, Not applicable Not applicable.

Dermal acute effects and therefore, no acute DNEL has been derived.

Since the substance is not classified for Short term exposure, Systemic, Not applicable Not applicable. Inhalable

acute effects and therefore, no acute DNEL has been derived.

Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for

Combined acute effects and therefore, no acute DNEL

has been derived.

Since the substance is not classified for Short term exposure, Local, Dermal Not applicable. Not applicable. acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, 0.12 Not applicable. The ECETOC TRA tool has been used to

estimate workplace exposures unless Inhalable otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are below this value

Justification

Section 3:.2 Workers - Exposure estimation

Route of exposure

Contributing scenario controlling worker exposure for 1: Use in closed, continuous process with occasional controlled exposure

Contributing scenarios

The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable 0 14

Dermal estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

Dose/Concentration

exposure estimates for other PROC are below this value

Long term exposure, Systemic, 0.548 The ECETOC TRA tool has been used to Not applicable Inhalable

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are below this value

Long term exposure, Systemic, Not applicable. Not applicable. Not applicable.

Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable. Not applicable. Not applicable.

Inhalable

Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Dermal**

Polyethyleneamines, HEPA-S140 Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 100% -

> Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC15

Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

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Industrial

Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, Not applicable. 0.55 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 2: Use in closed batch process (synthesis or formulation) **Contributing scenarios Dose/Concentration Justification** Route of exposure The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.14 **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. 0.30 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Not applicable. Not applicable. Long term exposure, Systemic, Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable Not applicable. **Dermal** Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Not applicable. Short term exposure, Systemic, Not applicable. Not applicable. Combined Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, Not applicable. 0.62 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 3: Use in batch and other process (synthesis) where opportunity for exposure arises **Contributing scenarios Dose/Concentration Justification** Route of exposure Long term exposure, Systemic, Not applicable 0.14 The ECETOC TRA tool has been used to estimate workplace exposures unless **Dermal** otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, 0.30 The ECETOC TRA tool has been used to Not applicable Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Not applicable. Not applicable. Long term exposure, Local, Dermal Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic,

Dermal

Not applicable

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 100% -

Industrial

Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC15

has been derived.

has been derived

Substance supplied to that use in form of: As such

Sector of end use: SU03 Subsequent service life relevant for that use: No.

Since the substance is not classified for

acute effects and therefore, no acute DNEL

Environmental Release Category: ERC01, ERC02, ERC06a

Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL Combined has been derived Since the substance is not classified for

Not applicable.

acute effects and therefore, no acute DNEL has been derived. 0.62 The ECETOC TRA tool has been used to estimate workplace exposures unless

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 3:.2 Workers - Exposure estimation

Not applicable.

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Local,

Inhalable

Contributing scenario controlling worker exposure for 4: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact) **Contributing scenarios** Route of exposure **Dose/Concentration Justification** The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.27 **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.30 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Not applicable. Long term exposure, Systemic, Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Since the substance is not classified for Not applicable Not applicable. Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable. Since the substance is not classified for Not applicable **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived Not applicable Not applicable. Since the substance is not classified for Short term exposure, Systemic, Combined acute effects and therefore, no acute DNEL has been derived.

Since the substance is not classified for Short term exposure, Local, Dermal Not applicable. Not applicable.

acute effects and therefore, no acute DNEL has been derived

Short term exposure, Local, Not applicable. 0.60 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the

highest exposure level is given since the exposure estimates for other PROC are below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 5: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Route of exposure **Contributing scenarios Dose/Concentration Justification**

Long term exposure, Systemic, 0.27 Not applicable.

The ECETOC TRA tool has been used to **Dermal** estimate workplace exposures unless

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Polyethyleneamines, HEPA-S140 Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 100% -

Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC15

Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

46/206

Industrial

Long term exposure, Systemic, Inhalable	Not applicable.	0.37	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic,	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.74	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we containers at dedicated facilities		r of substance or preparation (c	charging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.548	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic,	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL
Dermal			has been derived.

			1100 20011 00111001
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.

Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Combined acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Dermal Not applicable. Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived. The ECETOC TRA tool has been used to Short term exposure, Local, Not applicable. 0.55

estimate workplace exposures unless otherwise indicated. The PROC with the

highest exposure level is given since the exposure estimates for other PROC are below this value

Polyethyleneamines, HEPA-S140

Inhalable

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 100% -Industrial

Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC15

Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Section 3:.2 Workers - Exposure est			
including weighing)	orker exposure for 7: Transfe	r of substance or preparation in	to small containers (dedicated filling line,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.30	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.62	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling wo		laboratory reagent	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.30	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic,	Not applicable.	Not applicable.	Not applicable.

Not applicable.

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Systemic,

Short term exposure, Systemic,

Not applicable.

Not applicable.

Dermal

Inhalable

Combined

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 100% - Industrial

Not applicable.

Not applicable.

Not applicable.

Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC15

PROC08a, PROC08b, PROC09, PROC15 Substance supplied to that use in form of: As such

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Short term exposure, Local, Inhalable

Not applicable.

0.62

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 100% -Industrial

Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC15

Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of

preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09

Substance supplied to that use in form of: As such

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

1.0x10-4

1.61x10-8

Not available.

Not available

Not available.

Not applicable.

Not available

Section 2:: Operational conditions and risk management measures

Section 2.1: (Control of	f environmental	exposure
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Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use.

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): 4650 100% Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 4650 Average Local Daily Tonnage (kg/day): 15500 Maximum daily site tonnage (kg/day): Not available

Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Indoor. industrial setting Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to 1.1x10-5

RMM):

Release fraction to soil from process (initial release prior to RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Polyethyleneamines, HEPA-S140

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53.1

Prevent discharge of undissolved substance to or recover from onsite wastewater

> Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 2% -

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Use as an intermediate

Operational conditions: Indoor use.

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): 4650 Fraction of Regional tonnage used locally: 100% 4650 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 15500 Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use:

Emission Days (days/year): 300

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor, industrial setting

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only): Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%): Organisational measures to prevent/limit release from site:

plant:

Assumed on-site sewage treatment plant flow (m³/d):

25%

Continuous release.

1 1x10-5

1 0x10-4

1.61x10-8

Not available.

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53.1

Prevent discharge of undissolved substance to or recover from onsite wastewater.

Not available

Conditions and measures related to municipal sewage treatment

2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Formulation of preparations*

Operational conditions: Indoor use.

Product characteristics: Not applicable. 18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): 4650 100% Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 4650 20667 Average Local Daily Tonnage (kg/day): Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release

Emission Days (days/year): 225

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 2% -

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

(%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Indoor. industrial setting

1 1x10-5

Not available.

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact)

Product characteristics: Liquid. Covers concentrations up to 2% Not applicable.

Amounts used:

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg Indoor, industrial setting

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity **Personal protection:**

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics: Amounts used:

Not applicable. Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Liquid. Covers concentrations up to 2%

Covers daily exposures up to 8 hours (unless stated differently).

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Indoor, industrial setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 2% -

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: As such

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Not applicable.

Not applicable

Not applicable.

Other given operational conditions affecting workers Indoor, industrial setting

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

Personal protection:

dispersion and exposure:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation into small containers (dedicated filling line,

including weighing)

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

Personal protection:

dispersion and exposure:

Not applicable.

Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Total release for regional

EUSES calculation

PEC sediment (local+regional)

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	oud.incution
Waste water	2.5x10-4	2.0x10-4	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.155	0.127	EUSES calculation
Soil (direct releases only)	0	1.27	EUSES calculation
	Value	Justification	

Concentration in sewage (PECstp)

ma/l

Concentration in sewage sludge

mg/kg dwt

0.168

5.85x10-5

Local concentration

EUSES calculation

Local concentration PEC aquatic (local+regional) Justification Fresh water mg/l 5.76x10-8 6.75x10-5 **EUSES** calculation Marine water mg/l 5.76x10-7 7.29x10-6 **EUSES** calculation Intermittent release. mg/l Not applicable Not applicable Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 2% -

Justification

Justification

Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.32x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-3	1.53x10-2	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-3	1.89x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	7.70x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-5	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-5	3.54x10-5	EUSES calculation
Annual deposition mg/m²/d	2.92x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Use as an intermediate

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	2.5x10-4	2.0x10-4	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.155	0.127	EUSES calculation
Soil (direct releases only)	0	1.27	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	5.85x10-5	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.168	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	5.76x10-8	6.75x10-5	EUSES calculation
Marine water mg/l	5.76x10-7	7.29x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.32x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-3	1.53x10-2	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-3	1.89x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	7.70x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-5	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-5	3.54x10-5	EUSES calculation
Annual deposition mg/m²/d	2.92x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Formulation of preparations*

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	0	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.207	0.127	EUSES calculation
Soil (direct releases only)	0	0	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 2% -

Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09
Substance supplied to that use in form of: As such
Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-7	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-4	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-3	1.53x10-2	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-3	1.89x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	7.70x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	5.75x10-5	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-5	3.54x10-5	EUSES calculation
Annual deposition mg/m²/d	2.92x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.2 Workers - Exposure e Contributing scenario controlling (multistage and/or significant control	worker exposure for 0: Mixing (or blending in batch processes	for formulation of preparations* and articles
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.005	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value Long term exposure, Systemic, Not applicable. 0.61 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Not evaluated. Not applicable. Not applicable.

Long term exposure, Local, Dermal Not evaluated. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for

acute effects and therefore, no acute DNEL Inhalable

has been derived.

Short term exposure, Systemic, Not applicable. Not applicable Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived.

Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL Inhalable has been derived.

Not applicable Not applicable. Since the substance is not classified for Short term exposure, Systemic, acute effects and therefore, no acute DNEL Combined

has been derived.

Not applicable. Short term exposure, Local, Dermal Not applicable Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Not applicable. 1.22 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Polyethyleneamines, HEPA-S140

Long term exposure, Systemic,

Combined

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 2% -

Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

	orker exposure for 1: Transfe	er of substance or preparation (c	harging/discharging) from/to vessels/large
containers at non-dedicated facilities Route of exposure	s Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.005	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.31	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est		or of substance or proparation (c	harging/discharging) from/to vessels/large
containers at dedicated facilities	orker exposure for 2. Transie	or substance or preparation (c	maiging/discharging/ nonlino vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.005	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Local, Dermal Not applicable.

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 2% -

Not applicable.

Process Category: PROC05, PROC08a, PROC08b, PROC09
Substance supplied to that use in form of: As such

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Short term exposure, Local, Inhalable

Not applicable.

1.22

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation into small containers (dedicated filling line,

including weighing)

Route of exposure Long term exposure, Systemic, **Dose/Concentration**

Justification

Contributing scenarios Not applicable. 0.005 **Dermal**

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Long term exposure, Systemic,

Inhalable

0.61

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are below this value

Long term exposure, Systemic,

Combined

Long term exposure, Local, Dermal Long term exposure, Local,

Inhalable

Short term exposure, Systemic, **Dermal**

Short term exposure, Systemic, Inhalable

Short term exposure, Systemic,

Combined Short term exposure, Local, Dermal

Short term exposure, Local, Inhalable

Not applicable. Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable. Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable. Not applicable. 1.22 The ECETOC TRA tool has been used to

> estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 2%

Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a



Professional

Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of

preparations containing EA up to 2% - Professional

Process Category: PROC08a

Substance supplied to that use in form of: As such

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use.

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): 4650 100% Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 4650 Average Local Daily Tonnage (kg/day): 15500 Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Indoor. professional setting

1.1x10-5

1.0x10-4

1.61x10-8

Not available.

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53.1

Not available

Prevent discharge of undissolved substance to or recover from onsite

wastewater

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 2% -

Professional Process Category: PROC08a

Substance supplied to that use in form of: As such

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

58/206

Polyethyleneamines, HEPA-S140

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Use as an intermediate

Operational conditions: Indoor use.

Frequency and duration of use:

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% 4650 Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: 100% 4650 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 15500 Maximum daily site tonnage (kg/day): Not available.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor, professional setting

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to 1.0x10-4

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Assumed on-site sewage treatment plant flow (m³/d):

Continuous release.

1 1x10-5

1.61x10-8

Not available.

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53.1

Not available

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Formulation of preparations*

Operational conditions: Indoor use.

Product characteristics: Not applicable. 18600 Tonnes/year Amounts used:

25% Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): 4650 100% Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 4650 20667 Average Local Daily Tonnage (kg/day): Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release

Emission Days (days/year): 225

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 2% -

Professional

Process Category: PROC08a

Substance supplied to that use in form of: As such

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

(%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Indoor, professional setting

1 1x10-5

Not available.

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics:

Amounts used:

Frequency and duration of use:

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release: Technical conditions and measures to control dispersion

from source towards the worker: Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Liquid. Covers concentrations up to 2%

Not applicable.

Covers daily exposures up to 8 hours (unless stated differently).

Indoor, professional setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Total release for regional

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	oustineation
Waste water	2.5x10-4	2.0x10-4	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.155	0.127	EUSES calculation
Soil (direct releases only)	0	1.27	EUSES calculation
	Value	Justification	

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 2% -

Justification

Professional Process Category: PROC08a

Substance supplied to that use in form of: As such

Sector of end use: SU22 Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Concentration in sewage (PECstp) 5.85x10-5 **EUSES** calculation Concentration in sewage sludge 0.168 **EUSES** calculation mg/kg dwt Local concentration PEC aquatic (local+regional) **Justification** 5.76x10-8 6.75x10-5 **EUSES** calculation Fresh water mg/l Marine water mg/l 7.29x10-6 5.76x10-7 **EUSES** calculation Intermittent release. mg/l Not applicable Not applicable Not applicable. **Local concentration** PEC sediment (local+regional) **Justification** Fresh water sediment mg/kg dwt Not evaluated. 6.77x10-2 **EUSES** calculation Marine water sediment mg/kg dwt Not evaluated. 7.32x10-3 **EUSES** calculation **Local concentration** PEC soil (local+regional) **Justification** Agricultural soil averaged mg/kg 3.51x10-3 1.53x10-2 **EUSES** calculation Grassland averaged mg/kg dwt 7.06x10-3 **EUSES** calculation 1.89x10-2 Groundwater mg/l Not evaluated. 7.70x10-5 **EUSES** calculation PEC air (local+regional) Local concentration **Justification** During emission mg/m³ 4.31x10-5 Not evaluated. **EUSES** calculation 3.54x10-5 3.54x10-5 Annual average mg/m³ **EUSES** calculation Annual deposition mg/m²/d 2.92x10-4 Not evaluated. **EUSES** calculation PEC aquatic (local+regional) **Local concentration** Justification Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Use as an intermediate

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	2.5x10-4	2.0x10-4	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.155	0.127	EUSES calculation
Soil (direct releases only)	0	1.27	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	5.85x10-5	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.168	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	5.76x10-8	6.75x10-5	EUSES calculation
Marine water mg/l	5.76x10-7	7.29x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.32x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-3	1.53x10-2	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-3	1.89x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	7.70x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-5	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-5	3.54x10-5	EUSES calculation
Annual deposition mg/m²/d	2.92x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Formulation of preparations*

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	0	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.207	0.127	EUSES calculation
Soil (direct releases only)	0	0	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-7	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-4	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-3	1.53x10-2	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-3	1.89x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	7.70x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	5.75x10-5	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-5	3.54x10-5	EUSES calculation
Annual deposition mg/m²/d	2.92x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.005	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.31	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 2% -

Professional Process Category: PROC08a

Substance supplied to that use in form of: As such

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Short term exposure, Local, Dermal Not applicable

Short term exposure, Local,

Inhalable

Not applicable.

0.61

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

Not applicable.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of

preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09

Substance supplied to that use in form of: As such

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Section 2:: Operational conditions and risk management measures

Section 2.1: (Control of	f environmental	exposure
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Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use.

Product characteristics:

18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): 4650 100% Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 4650 Average Local Daily Tonnage (kg/day): 15500 Maximum daily site tonnage (kg/day): Frequency and duration of use:

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Conditions and measures related to municipal sewage treatment

Organisational measures to prevent/limit release from site:

Not applicable.

25%

Not available

Continuous release.

300

1000

Indoor. industrial setting

1.1x10-5

1.0x10-4

1.61x10-8

Not available.

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53.1

Not available

Prevent discharge of undissolved substance to or recover from onsite

wastewater

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 0.5% -

Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: As such

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Use as an intermediate

Operational conditions: Indoor use.

Frequency and duration of use:

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): 4650 Fraction of Regional tonnage used locally: 100% 4650 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 15500 Maximum daily site tonnage (kg/day): Not available.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor, industrial setting

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Assumed on-site sewage treatment plant flow (m³/d):

1 1x10-5

Continuous release.

1 0x10-4

1.61x10-8

Not available.

Not available.

Not available.

Not applicable.

Not available

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53.1

Prevent discharge of undissolved substance to or recover from onsite wastewater.

25%

2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Formulation of preparations*

Operational conditions: Indoor use.

Product characteristics: Not applicable. 18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): 4650 100% Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 4650 20667 Average Local Daily Tonnage (kg/day): Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release

Emission Days (days/year): 225

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 0.5% -

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: As such

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Indoor. industrial setting

Release fraction to air from process (initial release prior to RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

1 1x10-5

Not available.

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg Indoor, industrial setting

Not applicable.

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity **Personal protection:** training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently). Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Human factors not influenced by risk management: Other given operational conditions affecting workers Indoor, industrial setting

exposure:

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 0.5% -

Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: As such

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Indoor, industrial setting

Not applicable

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation into small containers (dedicated filling line,

including weighing)

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Indoor. industrial setting

Not applicable.

Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Poloseo from point source

	(local exposure estimation) kg/	exposure estimation kg/day	Justinication
Waste water	2.5x10-4	2.0x10-4	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.155	0.127	EUSES calculation
Soil (direct releases only)	0	1.27	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	5.85x10-5	EUSES calculation	
Concentration in sewage sludge	0.168	EUSES calculation	

Concentration in sewage sludge mg/kg dwt

Fresh water mg/l

Marine water mg/l

Intermittent release. mg/l

Local concentration 5.76x10-8

5.76x10-7 Not applicable **Local concentration** PEC aquatic (local+regional) 6.75x10-5

PEC sediment (local+regional)

7.29x10-6

Not applicable

Total release for regional

Justification **EUSES** calculation **EUSES** calculation Not applicable.

Justification

Justification

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 0.5% -

Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.32x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-3	1.53x10-2	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-3	1.89x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	7.70x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-5	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-5	3.54x10-5	EUSES calculation
Annual deposition mg/m²/d	2.92x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Use as an intermediate

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	2.5x10-4	2.0x10-4	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.155	0.127	EUSES calculation
Soil (direct releases only)	0	1.27	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	5.85x10-5	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.168	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	5.76x10-8	6.75x10-5	EUSES calculation
Marine water mg/l	5.76x10-7	7.29x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.32x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-3	1.53x10-2	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-3	1.89x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	7.70x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-5	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-5	3.54x10-5	EUSES calculation
Annual deposition mg/m²/d	2.92x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Formulation of preparations*

	Release from point source (local exposure estimation) kg/	Total release for regional exposure estimation kg/day	Justification
	day		
Waste water	0	0	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.207	0.127	EUSES calculation
Soil (direct releases only)	0	0	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 0.5% -

Industria

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-7	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-4	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-3	1.53x10-2	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-3	1.89x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	7.70x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	5.75x10-5	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-5	3.54x10-5	EUSES calculation
Annual deposition mg/m²/d	2.92x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

_				
Section	3. 2	Workers	- Fynosure	estimation

Contributing scenario controlling we (multistage and/or significant contact		or blending in batch processes	for formulation of preparations* and articles
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless

Inhalable estimate workplace exposures unless

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Route of exposure Contributing scenarios Dose/Concentration Justification

Long term exposure, Systemic, Not applicable. 0.001 The ECETOC TRA tool has been used to

Dermal

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 0.5% -

Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: As such Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic,	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we containers at dedicated facilities		substance or preparation (chargi	ng/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic,	Not applicable.	Not applicable.	Not applicable.

Not applicable.

Not applicable.

Not applicable.

1.52

Short term exposure, Systemic,

Short term exposure, Systemic,

Short term exposure, Local,

Short term exposure, Local, Dermal Not applicable.

Not applicable.

Not applicable.

Not applicable.

Dermal

Inhalable

Combined

Inhalable

Not applicable.

Not applicable.

Not applicable.

below this value

The ECETOC TRA tool has been used to

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation into small containers (dedicated filling line,

including weighing)

Route of exposure **Contributing scenarios Dose/Concentration Justification**

Long term exposure, Systemic,

Dermal

Not applicable. 0.001

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the

highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic,

Inhalable

Not applicable. 0.76

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are

below this value Not applicable.

Not applicable.

Not applicable.

Long term exposure, Systemic,

Combined

Long term exposure, Local, Dermal Long term exposure, Local,

Inhalable

Short term exposure, Systemic, **Dermal**

Short term exposure, Systemic,

Inhalable Short term exposure, Systemic,

Combined

Short term exposure, Local, Dermal

Short term exposure, Local, Inhalable

Not applicable.

Not applicable. Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

1.52

Not applicable. Not applicable.

Not applicable

Not applicable.

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of

preparations containing EA up to 0.5% - Professional

Process Category: PROC08a

Substance supplied to that use in form of: As such Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use.

Product characteristics: Not applicable. 18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): 4650 100% Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 4650 Average Local Daily Tonnage (kg/day): 15500 Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Polyethyleneamines, HEPA-S140

=>53.1

No air emission controls required; required removal efficiency is 0%.

Not available

Indoor. professional setting

1.1x10-5

1.0x10-4

1.61x10-8

Not available.

Not available

Not available.

Not applicable.

Prevent discharge of undissolved substance to or recover from onsite

Soil emission controls are not applicable as there is no direct release to soil.

wastewater

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 0.5% -Professional

Process Category: PROC08a

Substance supplied to that use in form of: As such

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Use as an intermediate

Operational conditions: Indoor use.

Frequency and duration of use:

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% 4650 Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: 100% 4650 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 15500 Maximum daily site tonnage (kg/day): Not available.

Continuous release.

1.61x10-8

Not available.

Not applicable.

=>53.1

Not available

wastewater.

25%

Emission Days (days/year): 300

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor, professional setting

exposure:

Release fraction to air from process (initial release prior to 1 1x10-5

Release fraction to soil from process (initial release prior to 1.0x10-4

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional Not available.

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use: Not available.

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

Organisational measures to prevent/limit release from site:

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%):

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Formulation of preparations*

Operational conditions: Indoor use.

Product characteristics: Not applicable. 18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): 4650 100% Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 4650 20667 Average Local Daily Tonnage (kg/day): Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release

Emission Days (days/year): 225

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 0.5% -

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

Prevent discharge of undissolved substance to or recover from onsite

Professional

Process Category: PROC08a

Substance supplied to that use in form of: As such Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Indoor, professional setting

Release fraction to air from process (initial release prior to

RMM): Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

1 1x10-5

Not available.

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics:

Amounts used:

Frequency and duration of use:

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release: Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Liquid. Covers concentrations up to 0.5%

Not applicable.

Covers daily exposures up to 8 hours (unless stated differently).

Indoor, professional setting

Not applicable.

Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	2.5x10-4	2.0x10-4	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.155	0.127	EUSES calculation
Soil (direct releases only)	0	1.27	EUSES calculation
	Value	Justification	

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 0.5% -

Professional

Process Category: PROC08a Substance supplied to that use in form of: As such

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Concentration in sewage (PECstp) mg/l	5.85x10-5	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.168	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	5.76x10-8	6.75x10-5	EUSES calculation
Marine water mg/l	5.76x10-7	7.29x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.32x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Local concentration 3.51x10-3	PEC soil (local+regional) 1.53x10-2	Justification EUSES calculation
		` ,	
dwt	3.51x10-3	1.53x10-2	EUSES calculation
dwt Grassland averaged mg/kg dwt	3.51x10-3 7.06x10-3	1.53x10-2 1.89x10-2	EUSES calculation EUSES calculation
dwt Grassland averaged mg/kg dwt	3.51x10-3 7.06x10-3 Not evaluated.	1.53x10-2 1.89x10-2 7.70x10-5	EUSES calculation EUSES calculation EUSES calculation
dwt Grassland averaged mg/kg dwt Groundwater mg/l	3.51x10-3 7.06x10-3 Not evaluated. Local concentration	1.53x10-2 1.89x10-2 7.70x10-5 PEC air (local+regional)	EUSES calculation EUSES calculation EUSES calculation Justification
dwt Grassland averaged mg/kg dwt Groundwater mg/l During emission mg/m³	3.51x10-3 7.06x10-3 Not evaluated. Local concentration 4.31x10-5	1.53x10-2 1.89x10-2 7.70x10-5 PEC air (local+regional) Not evaluated.	EUSES calculation EUSES calculation EUSES calculation Justification EUSES calculation
dwt Grassland averaged mg/kg dwt Groundwater mg/l During emission mg/m³ Annual average mg/m³	3.51x10-3 7.06x10-3 Not evaluated. Local concentration 4.31x10-5 3.54x10-5	1.53x10-2 1.89x10-2 7.70x10-5 PEC air (local+regional) Not evaluated. 3.54x10-5	EUSES calculation EUSES calculation EUSES calculation Justification EUSES calculation EUSES calculation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Use as an intermediate

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	2.5x10-4	2.0x10-4	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.155	0.127	EUSES calculation
Soil (direct releases only)	0	1.27	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	5.85x10-5	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.168	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	5.76x10-8	6.75x10-5	EUSES calculation
Marine water mg/l	5.76x10-7	7.29x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.32x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-3	1.53x10-2	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-3	1.89x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	7.70x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-5	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-5	3.54x10-5	EUSES calculation
Annual deposition mg/m²/d	2.92x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Formulation of preparations*

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	0	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.207	0.127	EUSES calculation
Soil (direct releases only)	0	0	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-7	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-4	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-3	1.53x10-2	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-3	1.89x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	7.70x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	5.75x10-5	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-5	3.54x10-5	EUSES calculation
Annual deposition mg/m²/d	2.92x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 0.5% -

Professional

Process Category: PROC08a

Substance supplied to that use in form of: As such Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a

Short term exposure, Local, Dermal Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL

1.52

has been derived.

Short term exposure, Local, N

Inhalable

Not applicable.

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available.

Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation

as most likely exposure form - Use of preparations containing EA up to 15% - Professional

Process Category: PROC08a, PROC10, PROC11 Substance supplied to that use in form of: In a mixture Sector of end use: SU22 Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550 Maximum daily site tonnage (kg/day): Not available

Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional only): Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

1.0x10-5

Not available.

Not available

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Prevent discharge of undissolved substance to or recover from onsite

wastewater

Not available

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 15% - Professional Process Category: PROC08a, PROC10, PROC11 Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 93 Average Local Daily Tonnage (kg/day): 255

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 365

Environment factors not influenced by risk management:

Local freshwater dilution factor: Local marine water dilution factor: Not available.

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not available.

Indoor/Outdoor use, professional setting

0.01

Not available

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53 1

Not available

Not available.

1160

Section 2.1: Control of environmental exposure

Fraction of Regional tonnage used locally:

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Tonnes/year Amounts used: Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 5272 Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Professional

Process Category: PROC08a, PROC10, PROC11 Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Environment factors not influenced by risk management:

Local freshwater dilution factor: Local marine water dilution factor: Not available

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to RMM):

Release fraction to soil from process (initial release prior to RMM):

Release fraction to wastewater from process (initial release prior to RMM):

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

only): Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Not available

Indoor/Outdoor use. industrial setting

1 0x10-5

Not available.

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Amounts used: 1860 Tonnes/year

25% Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

Not available. Local freshwater dilution factor: Local marine water dilution factor: Not available.

Indoor, industrial setting Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Not applicable.

Not available.

465

Not available.

220

1.0x10-5

Not available.

Not available.

Not available.

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Professional

Process Category: PROC08a, PROC10, PROC11 Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 80/206 Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%): If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment

No air emission controls required; required removal efficiency is 0%.

Soil emission controls are not applicable as there is no direct release to soil.

No wastewater treatment required.

Not available.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large

Not applicable.

Not applicable.

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 15% **Amounts used:** Not applicable.

Frequency and duration of use: Exposure duration per day: 15 min. to < 1 hour

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. professional setting

exposure:

(%):

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Use the following local exhaust ventilation types: Treat air emission to provide a typical removal efficiency of (%): 90%

> Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Roller application or brushing

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used: Not applicable.

Frequency and duration of use: Exposure duration per day: 15 min. to < 1 hour

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Not applicable.

Not applicable.

Other given operational conditions affecting workers Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls. Wear appropriate respiratory protection. with a

minimum efficacy of 95%

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 2: Non industrial spraying

Product characteristics: Liquid. Covers concentrations up to 10%

Amounts used:

Frequency and duration of use: Exposure duration per day: 15 min. to < 1 hour

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. professional setting exposure:

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

dispersion and exposure:

Organisational measures to prevent/limit releases,

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 15% - Professional Process Category: PROC08a, PROC10, PROC11

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0.0155	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	5.1x10-4	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.19x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.343	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.18x10-5	7.92x10-5	EUSES calculation
Marine water mg/l	1.18x10-6	7.89x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Professional

Process Category: PROC08a, PROC10, PROC11 Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

Fresh water sediment mg/kg dwt	Not evaluated.	7.95x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.92x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	2.66x10-13	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	5.36x10-13	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	5.91x10-5	Not evaluated.	EUSES calculation
Annual average mg/m³	2.69x10-15	3.58x10-11	EUSES calculation
Annual deposition mg/m²/d	2.22x10-14	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Professional Process Category: PROC08a, PROC10, PROC11

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

			_	
Section	3· 2 V	Norkers -	. Exposure	estimation

Section 3:.2 Workers - Exposure est Contributing scenario controlling we containers at non-dedicated facilitie	orker exposure for 0: Transfe	r of substance or preparation (c	charging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0411	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.457	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.914	The ECETOC TRA tool has been used to estimate workplace exposures unless

below this value

Process Category: PROC08a, PROC10, PROC11
Substance supplied to that use in form of: In a mixture

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

Section 3:.2 Workers - Exposure est		multipation on bounds!	
Contributing scenario controlling we	•	•	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0822	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.457	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.914	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we		Justrial spraying	
Route of exposure		Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.214	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.121	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic, Combined

Not applicable

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Professional

has been derived.

has been derived.

preparations containing EA up to 15% - Professional Process Category: PROC08a, PROC10, PROC11
Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

Since the substance is not classified for acute effects and therefore, no acute DNEL

ERC08f

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Local,

Inhalable

Not applicable.

0.243

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available.

Health Not available.

Not applicable.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.

Process Category: PROC08a, PROC10, PROC11
Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation

as most likely exposure form - Use of preparations containing EA up to 2% - Professional

Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550 Maximum daily site tonnage (kg/day): Not available

Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

1.0x10-5

Not available.

Not available

Not available.

Not applicable.

Prevent discharge of undissolved substance to or recover from onsite

wastewater

Not available

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Professional Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 93 Average Local Daily Tonnage (kg/day): 255

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 365

Environment factors not influenced by risk management:

Local freshwater dilution factor: Not available. Local marine water dilution factor: Not available.

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Indoor/Outdoor use, professional setting

0.01

Not available

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53 1

Not available

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Tonnes/year Amounts used: Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): Not available. Not available. Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 1160

Average Local Daily Tonnage (kg/day): 5272 Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Professional Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Environment factors not influenced by risk management:

Local freshwater dilution factor: Local marine water dilution factor: Not available

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to RMM):

Release fraction to wastewater from process (initial release prior to RMM):

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional only):

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release: Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%): If discharging to domestic sewage treatment plant, provide

Organisational measures to prevent/limit release from site:

the required onsite wastewater removal efficiency of 3 (%):

Conditions and measures related to municipal sewage treatment

Not available

Indoor/Outdoor use. industrial setting

1 0x10-5

Not available.

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Not applicable. Amounts used: 1860 Tonnes/year

25% Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

465 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environment factors not influenced by risk management:

Local freshwater dilution factor: Local marine water dilution factor: Not available.

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release prior to RMM):

Release fraction to air from wide dispersive use (regional only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Not available.

Indoor, industrial setting

1.0x10-5

Not available.

Not available.

Not available.

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Professional

Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment

No air emission controls required; required removal efficiency is 0%.

Soil emission controls are not applicable as there is no direct release to soil.

No wastewater treatment required.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Not available.

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. professional setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure: **Personal protection:**

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Non industrial spraying

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Avoid carrying out activities involving exposure for more than 4 hours.

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls. Wear appropriate respiratory protection. with a

minimum efficacy of 90%

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0.0155	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	lustification	

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Professional Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Local concentration 3.51x10-4	PEC soil (local+regional) 0.0122	Justification EUSES calculation
dwt	3.51x10-4	0.0122	EUSES calculation
dwt Grassland averaged mg/kg dwt	3.51x10-4 7.06x10-4	0.0122 0.0122	EUSES calculation EUSES calculation
dwt Grassland averaged mg/kg dwt	3.51x10-4 7.06x10-4 Not evaluated.	0.0122 0.0122 6.09x10-5	EUSES calculation EUSES calculation EUSES calculation
dwt Grassland averaged mg/kg dwt Groundwater mg/l	3.51x10-4 7.06x10-4 Not evaluated. Local concentration	0.0122 0.0122 6.09x10-5 PEC air (local+regional)	EUSES calculation EUSES calculation EUSES calculation Justification
dwt Grassland averaged mg/kg dwt Groundwater mg/l During emission mg/m³	3.51x10-4 7.06x10-4 Not evaluated. Local concentration 4.31x10-6	0.0122 0.0122 6.09x10-5 PEC air (local+regional) Not evaluated.	EUSES calculation EUSES calculation EUSES calculation Justification EUSES calculation
dwt Grassland averaged mg/kg dwt Groundwater mg/l During emission mg/m³ Annual average mg/m³	3.51x10-4 7.06x10-4 Not evaluated. Local concentration 4.31x10-6 3.54x10-6	0.0122 0.0122 6.09x10-5 PEC air (local+regional) Not evaluated. 3.54x10-9	EUSES calculation EUSES calculation EUSES calculation Justification EUSES calculation EUSES calculation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	5.1x10-4	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.19x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.343	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.18x10-5	7.92x10-5	EUSES calculation
Marine water mg/l	1.18x10-6	7.89x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	7.95x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.92x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	2.66x10-13	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	5.36x10-13	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	2.69x10-15	Not evaluated.	EUSES calculation
Annual average mg/m³	2.69x10-15	3.58x10-11	EUSES calculation
Annual deposition mg/m²/d	2.22x10-14	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Process Category: PROC08a, PROC11
Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Professional

parations containing EA up to 2% - Professional Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

Local concentration PEC air (local+regional) **Justification** EUSES calculation During emission mg/m³ Not evaluated. Annual average mg/m³ 3 57x10-11 **EUSES** calculation Annual deposition mg/m²/d O Not evaluated. **EUSES** calculation PEC aquatic (local+regional) **Local concentration Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Route of exposure Long term exposure, Systemic,

Dermal

Contributing scenarios Not applicable.

Dose/Concentration 0.09

Justification

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic,

Inhalable

Not applicable

0.61

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the

highest exposure level is given since the exposure estimates for other PROC are below this value

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal

Long term exposure, Local, Inhalable

Not evaluated. Not applicable

Not applicable.

Not applicable. Not applicable.

Not applicable.

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, **Dermal**

Short term exposure, Local,

Not applicable Not applicable Not applicable.

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, Inhalable

Inhalable

Not applicable

Not applicable.

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic,

Combined

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Dermal Not applicable

Not applicable.

1 22

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

The ECETOC TRA tool has been used to estimate workplace exposures unless

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Non industrial spraying

Route of exposure Long term exposure, Systemic, **Contributing scenarios** Not applicable.

Dose/Concentration

Justification The ECETOC TRA tool has been used to estimate workplace exposures unless

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic, Inhalable

Inhalable

Dermal

Not applicable.

0.15

0.21

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value Not applicable.

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal

Not evaluated. Long term exposure, Local, Not applicable

Not applicable. Not applicable

Not applicable. Not applicable.

Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Professional Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Since the substance is not classified for Not applicable Not applicable. Combined acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, Dermal Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, 0.30 The ECETOC TRA tool has been used to Not applicable. Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available.

Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.

below this value

preparations containing EA up to 2% - Professional Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation

as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550

Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only): Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%): If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Not available.

Not applicable.

Not available.

Not available

1.0x10-5

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Not available

Prevent discharge of undissolved substance to or recover from onsite

wastewater

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 0.5% - Professional Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 93 Average Local Daily Tonnage (kg/day): 255

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 365

Environment factors not influenced by risk management:

Local freshwater dilution factor: Local marine water dilution factor: Not available.

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not available.

Indoor/Outdoor use, professional setting

0.01

Not available

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53 1

Not available

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Tonnes/year Amounts used: Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): Not available. Not available. Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 1160

Average Local Daily Tonnage (kg/day): 5272 Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Process Category: PROC08a, PROC11 Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Environment factors not influenced by risk management:

Local freshwater dilution factor: Local marine water dilution factor: Not available

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Not available

Indoor/Outdoor use. industrial setting

1 0x10-5

Not available.

Not available.

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Not applicable.

Amounts used: 1860 Tonnes/year

25% Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

465 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environment factors not influenced by risk management:

Not available. Local freshwater dilution factor: Local marine water dilution factor: Not available.

Indoor, industrial setting Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

1.0x10-5

Not available.

Not available.

Not available. Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Process Category: PROC08a, PROC11 Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 97/206 Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment

No air emission controls required; required removal efficiency is 0%.

Soil emission controls are not applicable as there is no direct release to soil.

No wastewater treatment required.

Liquid. Covers concentrations up to 0.5%

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large

Not available.

containers at non-dedicated facilities

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently). Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Human factors not influenced by risk management: Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Product characteristics:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure: **Personal protection:**

Not applicable.

Indoor. professional setting

Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Non industrial spraying

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Not applicable.

Other given operational conditions affecting workers Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

dispersion and exposure:

Organisational measures to prevent/limit releases, Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

Use the following local exhaust ventilation types: Treat air emission to provide a typical

management supervision controls.

removal efficiency of (%): 90%

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Total release for regional Release from point source (local exposure estimation) kg/ exposure estimation kg/day day 0 **FUSES** calculation Waste water 2 34 **Surface water** O 0.586 **EUSES** calculation **EUSES** calculation air (direct + STP) 0.0155 2.38 **EUSES** calculation Soil (direct releases only) **Justification Value**

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

Justification

preparations containing EA up to 0.5% - Professional

Process Category: PROC08a, PROC11 Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 98/206

Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Local concentration 3.51x10-4	PEC soil (local+regional) 0.0122	Justification EUSES calculation
dwt	3.51x10-4	0.0122	EUSES calculation
dwt Grassland averaged mg/kg dwt	3.51x10-4 7.06x10-4	0.0122 0.0122	EUSES calculation EUSES calculation
dwt Grassland averaged mg/kg dwt	3.51x10-4 7.06x10-4 Not evaluated.	0.0122 0.0122 6.09x10-5	EUSES calculation EUSES calculation EUSES calculation
dwt Grassland averaged mg/kg dwt Groundwater mg/l	3.51x10-4 7.06x10-4 Not evaluated. Local concentration	0.0122 0.0122 6.09x10-5 PEC air (local+regional)	EUSES calculation EUSES calculation EUSES calculation Justification
dwt Grassland averaged mg/kg dwt Groundwater mg/l During emission mg/m³	3.51x10-4 7.06x10-4 Not evaluated. Local concentration 4.31x10-6	0.0122 0.0122 6.09x10-5 PEC air (local+regional) Not evaluated.	EUSES calculation EUSES calculation EUSES calculation Justification EUSES calculation
dwt Grassland averaged mg/kg dwt Groundwater mg/l During emission mg/m³ Annual average mg/m³	3.51x10-4 7.06x10-4 Not evaluated. Local concentration 4.31x10-6 3.54x10-6	0.0122 0.0122 6.09x10-5 PEC air (local+regional) Not evaluated. 3.54x10-9	EUSES calculation EUSES calculation EUSES calculation Justification EUSES calculation EUSES calculation

Total release for regional

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	5.1x10-4	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.19x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.343	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.18x10-5	7.92x10-5	EUSES calculation
Marine water mg/l	1.18x10-6	7.89x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	7.95x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.92x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	2.66x10-13	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	5.36x10-13	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Justification

Process Category: PROC08a, PROC11 Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing FA up to 0.5% - Professional

preparations containing EA up to 0.5% - Professional
Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f **100/206**

Local concentration PEC air (local+regional) **Justification** EUSES calculation During emission mg/m³ Not evaluated. Annual average mg/m³ 3 57x10-11 **EUSES** calculation Annual deposition mg/m²/d O Not evaluated. **EUSES** calculation PEC aquatic (local+regional) **Local concentration Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Long term exposure, Systemic,

Route of exposure

Dermal

Contributing scenarios Not applicable.

Dose/Concentration 0 14

Justification

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Long term exposure, Systemic,

Inhalable

Not applicable.

0.76

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the

highest exposure level is given since the exposure estimates for other PROC are below this value

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal

Long term exposure, Local,

Inhalable

Short term exposure, Systemic,

Dermal

Short term exposure, Systemic,

Inhalable

Short term exposure, Systemic,

Combined

Short term exposure, Local, Dermal Short term exposure, Local,

Inhalable

Not applicable.

Not applicable. Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable. Not applicable.

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Non industrial spraying

Route of exposure Long term exposure, Systemic,

Dermal

Contributing scenarios Not applicable.

Dose/Concentration 0.11

1.52

Justification

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic, Inhalable

Not applicable.

0.30

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value Not applicable.

Long term exposure, Systemic,

Combined

Long term exposure, Local, Dermal Long term exposure, Local,

Inhalable

Not applicable

Not evaluated.

Not applicable Not applicable.

Not applicable. Not applicable.

> Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, Not applicable

Dermal

Inhalable

Short term exposure, Systemic, Not applicable

Not applicable.

Not applicable.

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Process Category: PROC08a, PROC11 Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Short term exposure, Systemic, Combined

Not applicable

Not applicable.

Since the substance is not classified for

acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Dermal Not applicable

Not applicable.

has been derived. Since the substance is not classified for

Short term exposure, Local, Inhalable

Not applicable.

1.22

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

acute effects and therefore, no acute DNEL

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 0.5% - Professional Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation

as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1550 Maximum daily site tonnage (kg/day):

Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Not applicable.

465

Not available

300

Indoor/Outdoor use. industrial setting

1.0x10-5

Not available.

Not available

Not available.

Not applicable.

Not available

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Prevent discharge of undissolved substance to or recover from onsite

wastewater

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1300 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 326 Average Local Daily Tonnage (kg/day): 1087

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only): Release fraction to soil from wide dispersive use (regional

only): Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Indoor/Outdoor use. industrial setting

3.0x10-5

1.0x10-3

1.0x10-3

Not available

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53 1

Not available

Not available.

Section 2.1: Control of environmental exposure

Fraction of Regional tonnage used locally:

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 4650 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): Not available.

Annual site tonnage (tonnes/year): 1160 Average Local Daily Tonnage (kg/day): 5272 Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release prior to RMM):

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Indoor/Outdoor use. industrial setting

1 0x10-5

Not available.

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

465 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: 1000 Local marine water dilution factor:

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Not applicable.

25%

220

Indoor/Outdoor use. industrial setting

1.0x10-5

Not available.

Not available.

Not available.

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 105/206 Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Liquid. Covers percentage substance in the product up to 25%.

Not available.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact) **Product characteristics:**

Amounts used: Not applicable.

Frequency and duration of use: Exposure duration per day: 15 min. to < 1 hour

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. industrial setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics: Liquid. Covers percentage substance in the product up to 25%.

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting

exposure:

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Product characteristics: Liquid. Covers percentage substance in the product up to 25%.

Amounts used: Not applicable

Frequency and duration of use: Do not carry out operation for more than 1 hour

Human factors not influenced by risk management: Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Indoor, industrial setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 25% - Industrial Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation into small containers (dedicated filling line,

including weighing)

Product characteristics: Liquid. Covers percentage substance in the product up to 25%.

Amounts used:

Not applicable.

Frequency and duration of use:

Human factors not influenced by risk management: Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Covers daily exposures up to 8 hours (unless stated differently).

Indoor, industrial setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

Justification

management supervision controls.

Total release for regional

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	day	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0.0155	2.38	EUSES calculation
,		4.2	EUSES calculation
Soil (direct releases only)	0		EUSES Calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 107/206

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	7.78x10-4	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	2.33x10-5	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.82x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.523	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.80x10-5	8.54x10-5	EUSES calculation
Marine water mg/l	1.80x10-6	8.51x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	8.57x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	8.54x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	5.29x10-7	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	1.06x10-6	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.49x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	5.33x10-9	5.37x10-9	EUSES calculation
Annual deposition mg/m²/d	4.408	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09
Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0685714	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.3656	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 109/206

Short term exposure, Systemic, Not applicable. Not applicable Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived

Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Combined acute effects and therefore, no acute DNEL has been derived.

Short term exposure, Local, Dermal Not applicable. Not applicable. Since the substance is not classified for

acute effects and therefore, no acute DNEL

has been derived.

below this value

Short term exposure, Local, 0.73115 The ECETOC TRA tool has been used to Not applicable. Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Contributing scenarios Route of exposure **Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.0685714 estimate workplace exposures unless Dermal otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

Long term exposure, Systemic, Not applicable. 0.365575 The ECETOC TRA tool has been used to Inhalable

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Long term exposure, Systemic, Not evaluated. Not applicable. Not applicable. Combined

Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable.

Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for

acute effects and therefore, no acute DNEL Inhalable has been derived.

Short term exposure, Systemic, Not applicable. Not applicable Since the substance is not classified for

Dermal acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for

Inhalable acute effects and therefore, no acute DNEL has been derived.

Since the substance is not classified for Short term exposure, Systemic, Not applicable. Not applicable

Combined acute effects and therefore, no acute DNEL

has been derived

Short term exposure, Local, Dermal Not applicable. Since the substance is not classified for Not applicable.

acute effects and therefore, no acute DNEL has been derived.

The ECETOC TRA tool has been used to 0.73115 Short term exposure, Local, Not applicable.

Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the

> highest exposure level is given since the exposure estimates for other PROC are below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Route of exposure **Contributing scenarios Dose/Concentration Justification**

The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.034286 estimate workplace exposures unless **Dermal**

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 110/206

Long term exposure, Systemic, Inhalable	Not applicable.	0.548325	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.096725	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we including weighing)		r of substance or preparation in	nto small containers (dedicated filling line,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0685714	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.365575	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.

			otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL

Not applicable.

0.73115

Polyethyleneamines, HEPA-S140

Short term exposure, Local,

Inhalable

Short term exposure, Local, Dermal Not applicable.

Not applicable.

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture

has been derived.

has been derived.

below this value

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 111/206

Since the substance is not classified for acute effects and therefore, no acute DNEL

The ECETOC TRA tool has been used to

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Section 2:: Operational conditions and risk management measures

Section 2.1:	Control of	f environmental	exposure
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Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1550

Maximum daily site tonnage (kg/day): Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional only):

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

as most likely exposure form - Use of preparations containing EA up to 15% - Industrial

Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b, PROC09, PROC13, PROC14

Not applicable.

1860 Tonnes/year

Not available.

465

Not available

1000

Indoor/Outdoor use. industrial setting

1.0x10-5

Not available.

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available

Prevent discharge of undissolved substance to or recover from onsite

wastewater

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 15% - Industrial Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, FRC08f

113/206

Polyethyleneamines, HEPA-S140

Conditions and measures related to municipal sewage treatment plant:

2000 Assumed on-site sewage treatment plant flow (m³/d):

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: 1300 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1087

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional only):

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment

plant:

Not applicable.

326

Indoor/Outdoor use. industrial setting

3.0x10-5

1.0x10-3

1.0x10-3

Not available

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=53.1

Not available

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 4650 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Not available. Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 1160 Average Local Daily Tonnage (kg/day): 5272

Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 15% - Industrial Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Emission Days (days/year): Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use: Not available. Technical conditions and measures at process level (source) to Not applicable

prevent release: Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment plant:

1.0x10-5

220

Not available

Not available

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Not available

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

465 Annual site tonnage (tonnes/year): 2114 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to 1 0x10-5

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional Not available.

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Not available. Not available.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Industrial

Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b, PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment plant:

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Not applicable.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact)

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Not applicable.

Other given operational conditions affecting workers Indoor, industrial setting

exposure: Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Calendering operations

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg Indoor, industrial setting

Other given operational conditions affecting workers exposure:

Technical conditions and measures at process level Not applicable.

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 2: Industrial spraying

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 15% - Industrial Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Organisational measures to prevent/limit releases, dispersion and exposure:

Personal protection:

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls. Wear appropriate respiratory protection. with a minimum efficacy of 90%

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used: Not applicable.

Frequency and duration of use: Exposure duration per day: 1-4 hours per day

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg Human factors not influenced by risk management:

Other given operational conditions affecting workers Indoor. industrial setting

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 4: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Product characteristics:

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers exposure:

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Liquid. Covers concentrations up to 15%

Indoor. industrial setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 5: Transfer of substance or preparation into small containers (dedicated filling line,

including weighing)

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure: Personal protection:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Industrial

Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 6: Treatment of articles by dipping and pouring

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used:

Not applicable.

Frequency and duration of use:

Exposure duration per day: 1-4 hours per day

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure: Personal protection:

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Indoor, industrial setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 7: Production of preparations* or articles by tabletting, compression, extrusion,

Not applicable.

pelletisation

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used:

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

Justification

management supervision controls.

Total release for regional

exposure estimation kg/day

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

day

Release from point source

(local exposure estimation) kg/

Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0.0155	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Industrial

Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

[Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Total release for regional

Justification

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

Release from point source

	(local exposure estimation) kg/ day	exposure estimation kg/day	Justification
Waste water	7.78x10-4	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	2.33x10-5	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.82x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.523	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.80x10-5	8.54x10-5	EUSES calculation
Marine water mg/l	1.80x10-6	8.51x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	8.57x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	8.54x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	5.29x10-7	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	1.06x10-6	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.49x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	5.33x10-9	5.37x10-9	EUSES calculation
Annual deposition mg/m²/d	4.408	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Industrial

Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b, PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Industrial **Process Category:** PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 120/206

Section 3:.2 Workers - Exposure est Contributing scenario controlling w (multistage and/or significant contact	orker exposure for 0: Mixing	or blending in batch processes	for formulation of preparations* and articles
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0822	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.457	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not evaluated.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.914	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we		ering operations	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0822	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.457	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not evaluated.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 15% - Industrial **Process Category:** PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f **121/206**

Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL Combined has been derived. Short term exposure, Local, Dermal Not applicable. Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived 0.914 The ECETOC TRA tool has been used to Short term exposure, Local, Not applicable. Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 2: Industrial spraying Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.1286 estimate workplace exposures unless **Dermal** otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. 0.457 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Not applicable. Long term exposure, Systemic, Not evaluated. Not evaluated. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL Inhalable has been derived. Short term exposure, Systemic, Not applicable. Not applicable Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Since the substance is not classified for Short term exposure, Systemic, Not applicable Not applicable. Inhalable acute effects and therefore, no acute DNEL has been derived. Not applicable Not applicable. Since the substance is not classified for Short term exposure, Systemic, acute effects and therefore, no acute DNEL Combined has been derived. Short term exposure, Local, Dermal Not applicable. Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. The ECETOC TRA tool has been used to 0.914 Short term exposure, Local, Not applicable. Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Route of exposure **Contributing scenarios Dose/Concentration** Justification The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.0411 **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value 0.548 The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Not evaluated Not evaluated Not applicable. Long term exposure, Systemic, Combined

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Industrial

Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, lnhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.097	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure esti Contributing scenario controlling wo		er of substance or preparation (c	harging/discharging) from/to vessels/large
containers at dedicated facilities			
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0822	The ECETOC TRA tool has been used to estimate workplace exposures unless

containers at dedicated facilities			
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0822	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.457	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not evaluated.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.914	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Industrial **Process Category:** PROC05, PROC06, PROC07, PROC08a, PROC08b,

below this value

PROC09, PROC13, PROC14

highest exposure level is given since the exposure estimates for other PROC are

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 123/206

Section 3:.2 Workers - Exposure est Contributing scenario controlling wincluding weighing)		er of substance or preparation in	nto small containers (dedicated filling line,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0822	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.457	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not evaluated.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.914	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling w		ent of articles by dipping and po	ourina
Route of exposure	•	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Contributing scenarios Not applicable.	0.0411	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.548	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the bighest exposure level is given since the

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0411	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.548	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not evaluated.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Industrial

preparations containing EA up to 15% - Industrial **Process Category:** PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f **124/206** Short term exposure, Systemic, Not applicable Combined

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

has been derived

Short term exposure, Local, Dermal Not applicable.

Not applicable.

Since the substance is not classified for

acute effects and therefore, no acute DNEL

Short term exposure, Local,

Inhalable

Not applicable.

1.097

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 7: Production of preparations* or articles by tabletting, compression, extrusion, pelletisation

Route of exposure

Long term exposure, Systemic, Dermal

Contributing scenarios Not applicable.

Dose/Concentration 0.0822

Justification

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic,

Inhalable

Not applicable.

0.457

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are below this value

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal

Long term exposure, Local, Inhalable

Not applicable. Not applicable

Not applicable.

Not applicable. Not applicable. Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived

Short term exposure, Systemic, **Dermal**

Not applicable

Not evaluated

Not applicable.

Not evaluated.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived

Short term exposure, Systemic, Inhalable

Not applicable

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic,

Short term exposure, Local,

Combined

Inhalable

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Dermal Not applicable.

Not applicable.

0.914

Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Industrial

Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation

as most likely exposure form - Use of preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14,

PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Section 2:: Operational conditions and risk management measures

Section 2.1:	Control of	environmental	exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

300 **Emission Days (days/year):**

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

(%): Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Not available. Not available.

1 0x10-5

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Organisational measures to prevent/limit release from site: Prevent discharge of undissolved substance to or recover from onsite

wastewater

Conditions and measures related to municipal sewage treatment

plant:

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1300 Tonnes/year

Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 326 1087 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage (kg/day): Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not available.

300

3.0x10-5

1.0x10-3

1.0x10-3

Not available

Not available

Not available

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=53.1

5272

Not available

Section 2.1: Control of environmental exposure

Average Local Daily Tonnage (kg/day):

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 4650 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Not available. Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available. 1160 Annual site tonnage (tonnes/year):

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release

Emission Days (days/year): 220

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Not available Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally:

465 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor:

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional only):

1.0x10-5

Not available

Not available.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Technical conditions and measures at process level (source) to

Release fraction to wastewater from wide dispersive use:

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment plant:

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact)

Liquid. Covers concentrations up to 2% **Product characteristics:**

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg Human factors not influenced by risk management:

Not applicable.

Other given operational conditions affecting workers Indoor, industrial setting exposure:

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable. Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Industrial spraying

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting

exposure:

Technical conditions and measures at process level Not applicable.

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

Use the following local exhaust ventilation types: Treat air emission to provide a typical removal efficiency of (%): 90%

Not applicable.

dispersion and exposure:

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently). Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high

exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Technical conditions and measures to control dispersion from source towards the worker:

Organisational measures to prevent/limit releases,

Personal protection:

Not applicable.

dispersion and exposure:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

Use the following local exhaust ventilation types: Treat air emission to provide a typical

management supervision controls.

removal efficiency of (%): 90%

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg Human factors not influenced by risk management:

Other given operational conditions affecting workers Indoor, industrial setting exposure:

Technical conditions and measures at process level

(source) to prevent release: Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable. Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 4: Transfer of substance or preparation into small containers (dedicated filling line,

Not applicable.

including weighing)

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases, dispersion and exposure:

Personal protection:

Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 5: Roller application or brushing

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Covers daily exposures up to 8 hours (unless stated differently). Frequency and duration of use:

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. industrial setting exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 6: Treatment of articles by dipping and pouring

Product characteristics:

Amounts used:

Liquid. Covers concentrations up to 2%

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure: **Personal protection:**

Not applicable.

Indoor, industrial setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 7: Production of preparations* or articles by tabletting, compression, extrusion,

pelletisation

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used:

Not applicable. Covers daily exposures up to 8 hours (unless stated differently). Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Indoor, industrial setting

Not applicable.

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 8: Hand-mixing with intimate contact and only PPE available

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Indoor, industrial setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

FRC08f

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0.0155	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	7.78x10-4	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	2.33x10-5	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.82x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.523	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.80x10-5	8.54x10-5	EUSES calculation
Marine water mg/l	1.80x10-6	8.51x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	8.57x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	8.54x10-3	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: $\ensuremath{\mathsf{No}}$.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 132/206

Local concentration PEC soil (local+regional) Justification Agricultural soil averaged mg/kg 5.29x10-7 1.18x10-2 **EUSES** calculation Grassland averaged mg/kg dwt 1.06x10-6 1.18x10-2 **EUSES** calculation Groundwater mg/l Not evaluated. 5.91x10-5 **EUSES** calculation PEC air (local+regional) **Local concentration Justification** 6.49x10-9 Not evaluated. **EUSES** calculation During emission mg/m³ 5.37x10-9 Annual average mg/m³ 5.33x10-9 **EUSES** calculation Annual deposition mg/m²/d 4.40_{8} Not evaluated. **EUSES** calculation **Local concentration** PEC aquatic (local+regional) Justification Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

(multistage and/or significant contact Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.05	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial **Process Category:** PROC05, PROC07, PROC08a, PROC08b, PROC09,

below this value

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

exposure estimates for other PROC are

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Section 3:.2 Workers - Exposure est	imation		
Contributing scenario controlling we		al spraying	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.09	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we containers at non-dedicated facilities	orker exposure for 2: Transfe	r of substance or preparation (c	charging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.09	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic,	Not applicable.	Not applicable.	Not applicable.

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.09	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

has been derived.

preparations containing EA up to 2% - Industrial **Process Category:** PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure esti	imation		
-		substance or preparation (chargi	ng/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.05	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure esti	imation		
Contributing scenario controlling we including weighing)		substance or preparation into sm	all containers (dedicated filling line,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.05	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Industrial **Process Category:** PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f **136/206**

Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling w		cation or brushing	
			luctification
Route of exposure Long term exposure, Systemic, Dermal	Contributing scenarios Not applicable.	Dose/Concentration 0.09	Justification The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the
			highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial **Process Category:** PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Section 3: 2 Workers Exposure set	imation		
Section 3:.2 Workers - Exposure est Contributing scenario controlling wo		ent of articles by dipping and po	puring
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.09	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal Short term exposure, Local, Inhalable	Not applicable. Not applicable.	Not applicable. 1.22	Not applicable. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling wo pelletisation		tion of preparations* or articles	by tabletting, compression, extrusion,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.05	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.

Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, The ECETOC TRA tool has been used to Not applicable. 1.22 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic,

Inhalable

Not applicable.

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

below this value

Not applicable.

preparations containing EA up to 2% - Industrial **Process Category:** PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 138/206

Section 3:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 8: Hand-mixing with intimate contact and only PPE available **Route of exposure Contributing scenarios Dose/Concentration** Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.09 estimate workplace exposures unless **Dermal** otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value 0.61 The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Not applicable. Long term exposure, Systemic, Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Dermal** Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, Not applicable. The ECETOC TRA tool has been used to 1.22 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available.

Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.

below this value

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation

as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14,

PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available. 465

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1550

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

300 **Emission Days (days/year):**

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Not available. Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%): If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%):

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

1 0x10-5

Not available.

Not available.

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Organisational measures to prevent/limit release from site: Prevent discharge of undissolved substance to or recover from onsite

wastewater

Not available

=53.1

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1300 Tonnes/year

Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 326 1087 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to 3.0x10-5

RMM):

Release fraction to soil from process (initial release prior to 1.0x10-3

RMM):

Release fraction to wastewater from process (initial release 1.0x10-3

prior to RMM):

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional Not available

only):

Not available Release fraction to wastewater from wide dispersive use: Not applicable.

Technical conditions and measures at process level (source) to

prevent release: Technical on-site conditions and measures to reduce or limit Soil emission controls are not applicable as there is no direct release to soil.

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not available

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Not applicable. Product characteristics: 4650 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Not available. Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available. 1160 Annual site tonnage (tonnes/year):

Average Local Daily Tonnage (kg/day): 5272

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

No air emission controls required; required removal efficiency is 0%.

preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release

Emission Days (days/year): 220

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use: Not applicable.

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1.0x10-5

Not available

Not available.

Not available.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Not available Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally:

465 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor:

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

Not available

1.0x10-5

Release fraction to soil from wide dispersive use (regional Not available.

only):

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Technical conditions and measures at process level (source) to

Release fraction to wastewater from wide dispersive use:

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment

plant:

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact)

Liquid. Covers concentrations up to 0.5% **Product characteristics:**

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg Human factors not influenced by risk management:

Other given operational conditions affecting workers Indoor, industrial setting exposure:

Indoor, industrial setting and professional setting

Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

Not applicable. Not applicable.

Not applicable.

dispersion and exposure: **Personal protection:** Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Industrial spraying

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Indoor, industrial setting Indoor, industrial setting and professional setting

Indoor. professional setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting

Indoor, industrial setting and professional setting exposure:

Indoor, professional setting

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

FRC08f

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg Indoor, industrial setting

Other given operational conditions affecting workers

exposure:

Indoor, industrial setting and professional setting Indoor. professional setting

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion from source towards the worker:

Not applicable. Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 4: Transfer of substance or preparation into small containers (dedicated filling line,

including weighing)

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Indoor, industrial setting Indoor, industrial setting and professional setting

Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 5: Roller application or brushing

Product characteristics: Liquid. Covers concentrations up to 0.5%

Not applicable. **Amounts used:**

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting

Indoor, industrial setting and professional setting exposure:

Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

FRC08f 144/206

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 6: Treatment of articles by dipping and pouring

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting

exposure: Indoor, industrial setting and professional setting

Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 7: Production of preparations* or articles by tabletting, compression, extrusion,

pelletisation

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. industrial setting

exposure: Indoor. industrial setting and professional setting

Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 8: Hand-mixing with intimate contact and only PPE available

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. industrial setting

exposure: Indoor. industrial setting and professional setting

Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10. PROC13. PROC14. PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0.0155	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	7.78x10-4	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	2.33x10-5	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.82x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.523	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.80x10-5	8.54x10-5	EUSES calculation
Marine water mg/l	1.80x10-6	8.51x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	8.57x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	8.54x10-3	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Sector of end use: SU03, SU22 Subsequent service life relevant for that use: No.

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	5.29x10-7	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	1.06x10-6	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.49x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	5.33x10-9	5.37x10-9	EUSES calculation
Annual deposition mg/m²/d	4.408	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19 Substance supplied to that use in form of: In a mixture

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f **147/206**

	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3: 1	Workers -	Fynosura	actimation

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)

Route of exposure **Contributing scenarios Dose/Concentration Justification**

Long term exposure, Systemic,

Dermal

Not applicable.

0.14

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic, Inhalable

Not applicable.

0.76

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value Not applicable.

Not applicable.

Not applicable.

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal

Long term exposure, Local,

Inhalable

Short term exposure, Systemic, Not applicable.

Dermal

Short term exposure, Systemic,

Inhalable

Short term exposure, Systemic,

Combined

Short term exposure, Local, Dermal

Short term exposure, Local,

Inhalable

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable. Not applicable. Not applicable. Not applicable.

0.11

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable. Not applicable.

Not applicable. Not applicable. The ECETOC TRA tool has been used to 1.52

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Industrial spraying

Contributing scenarios Route of exposure Dose/Concentration

Long term exposure, Systemic,

Dermal

Not applicable.

Justification

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Long term exposure, Systemic, Inhalable	Not applicable.	0.30	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

below this value

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Section 3:.2 Workers - Exposure est			
Contributing scenario controlling was containers at dedicated facilities	orker exposure for 3: Transfe	er of substance or preparation (c	charging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal Short term exposure, Local, Inhalable	Not applicable. Not applicable.	Not applicable. 1.52	Not applicable. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling wincluding weighing)		er of substance or preparation in	nto small containers (dedicated filling line,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
1.			

Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Dermal** Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined

Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable.

1.52

Not applicable.

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Polyethyleneamines, HEPA-S140

Short term exposure, Local,

Inhalable

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

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Section 3:.2 Workers - Exposure est			
Contributing scenario controlling wo Route of exposure	orker exposure for 5: Roller a Contributing scenarios	pplication or brushing Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal Short term exposure, Local, Inhalable	Not applicable. Not applicable.	Not applicable. 1.52	Not applicable. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we		ent of articles by dipping and po	puring
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial **Process Category:** PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22 Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 151/206

Section 2: 2 Workers Expenses	imation		
Section 3:.2 Workers - Exposure est Contributing scenario controlling we pelletisation		tion of preparations* or articles	by tabletting, compression, extrusion,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal Short term exposure, Local, Inhalable	Not applicable. Not applicable.	Not applicable. 1.52	Not applicable. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we		ixing with intimate contact and	only PPE available
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic,	Not applicable	Not applicable.	Since the substance is not classified for

Not applicable.

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Local, Dermal Not applicable

Short term exposure, Systemic,

Short term exposure, Systemic,

Not applicable

Not applicable

Dermal

Inhalable

Combined

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial **Process Category:** PROC05, PROC07, PROC08a, PROC08b, PROC09,

has been derived.

has been derived.

has been derived.

has been derived.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

PROC10, PROC13, PROC14, PROC19

acute effects and therefore, no acute DNEL

Since the substance is not classified for acute effects and therefore, no acute DNEL

Since the substance is not classified for

Since the substance is not classified for acute effects and therefore, no acute DNEL

acute effects and therefore, no acute DNEL

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

ERC08f 152/206 Short term exposure, Local, Inhalable

Not applicable.

1.52

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 4:: Guidance to check compliance with the exposure scenario

EnvironmentNot available.HealthNot available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22 Subsequent service life relevant for that use: No.

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation

as most likely exposure form - Use of preparations containing EA up to 25% - Professional

Process Category: PROC05, PROC08a

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1550 Maximum daily site tonnage (kg/day):

Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%): If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Not applicable.

465

Not available

300

Indoor/Outdoor use. industrial setting

1.0x10-5

Not available.

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available

Prevent discharge of undissolved substance to or recover from onsite

wastewater

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Professional

Process Category: PROC05, PROC08a Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 93 Average Local Daily Tonnage (kg/day): 255

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 365

Environment factors not influenced by risk management:

Local freshwater dilution factor: Not available. Local marine water dilution factor: Not available.

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use: Not available.

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Indoor/Outdoor use, professional setting

0.01

Not available

Not available

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53 1

Not available

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Tonnes/year Amounts used: Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): Not available. Not available. Fraction of Regional tonnage used locally: Annual site tonnage (tonnes/year): 1160

Average Local Daily Tonnage (kg/day): 5272 Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Professional

Process Category: PROC05, PROC08a

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 155/206 Environment factors not influenced by risk management:

Local freshwater dilution factor: Local marine water dilution factor: Not available

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Not available

Indoor/Outdoor use. industrial setting

1 0x10-5

Not available.

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Not applicable. Amounts used: 1860 Tonnes/year

25% Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

465 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environment factors not influenced by risk management:

Not available. Local freshwater dilution factor: Local marine water dilution factor: Not available.

Indoor, industrial setting Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release prior to RMM):

Release fraction to air from wide dispersive use (regional only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Not available. Not available.

1.0x10-5

Not available. Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Professional

Process Category: PROC05, PROC08a

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact)

Product characteristics: Liquid. Covers percentage substance in the product up to 25%.

Amounts used: Not applicable.

Frequency and duration of use: Exposure duration per day: 15 min. to < 1 hour

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. professional setting

exposure:

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls. Wear appropriate respiratory protection. with a

minimum efficacy of 95%

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics: Liquid. Covers percentage substance in the product up to 25%.

Amounts used: Not applicable.

Frequency and duration of use:

Avoid carrying out activities involving exposure for more than 15 minutes. Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, professional setting

exposure:

Waste water

Surface water

air (direct + STP)

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable. from source towards the worker:

Not applicable.

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls. Wear appropriate respiratory protection. with a

minimum efficacy of 95%

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

0.0155

Release from point source Total release for regional Justification (local exposure estimation) kg/ exposure estimation kg/day day 0 2 34 **FUSES** calculation 0 0.586 **EUSES** calculation

2.38

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 25% - Professional Process Category: PROC05, PROC08a

Substance supplied to that use in form of: In a mixture

FUSES calculation

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Soil (direct releases only)	0	4.2	EUSES calculation
7,	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Total release for regional

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	day 0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	5.1x10-4	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.19x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.343	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.18x10-5	7.92x10-5	EUSES calculation
Marine water mg/l	1.18x10-6	7.89x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	7.95x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.92x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	2.66x10-13	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	5.36x10-13	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	2.69x10-15	Not evaluated.	EUSES calculation
Annual average mg/m³	2.69x10-15	3.58x10-11	EUSES calculation
Annual deposition mg/m²/d	2.22x10-14	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Professional

Justification

preparations containing EA up to 25% - Professional Process Category: PROC05, PROC08a Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 25% - Professional Process Category: PROC05, PROC08a

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Local concentration PEC air (local+regional) **Justification** EUSES calculation During emission mg/m³ Not evaluated. Annual average mg/m³ 3 57x10-11 **EUSES** calculation Annual deposition mg/m²/d O Not evaluated. **EUSES** calculation PEC aquatic (local+regional) **Local concentration Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact) Route of exposure

Long term exposure, Systemic,

Dermal

Contributing scenarios

Not applicable.

Dose/Concentration

Justification

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic,

Inhalable

Not applicable

0.365575

0.0685714

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the

highest exposure level is given since the exposure estimates for other PROC are below this value

Not applicable.

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal

Long term exposure, Local, Inhalable

Not applicable. Not applicable

Not evaluated.

Not applicable. Not applicable.

Not applicable.

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, **Dermal**

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, Inhalable

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, Combined

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Dermal Not applicable.

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local,

Inhalable

Not applicable.

Not applicable.

0.73115

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Route of exposure Long term exposure, Systemic, Dermal

Contributing scenarios

Dose/Concentration

0.0685714

Justification

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are

below this value

Long term exposure, Systemic, Not applicable. 0.45697 Inhalable

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic,

Combined

Inhalable

Not evaluated.

Not applicable.

Not applicable.

Long term exposure, Local, Dermal Not applicable. Long term exposure, Local,

Not applicable

Not applicable. Not applicable.

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Professional

Process Category: PROC05, PROC08a Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Since the substance is not classified for Not applicable Not applicable. Combined acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, Dermal Not applicable. Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, 0.91393 The ECETOC TRA tool has been used to Not applicable. Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

Section 4:: Guidance to check compliance with the exposure scenario

 Environment
 Not available.

 Health
 Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.

parations containing EA up to 25% - Professional **Process Category:** PROC05, PROC08a

exposure estimates for other PROC are

below this value

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% -

Professional

Process Category: PROC08a

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC04, ERC10b

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1274

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 365

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release: Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of

(%):

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Conditions and measures related to municipal sewage treatment plant:

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

1.1x10-5

Not available.

Not available.

Not available.

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Process Category: PROC08a

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1860 Tonnes/vear Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%):

Conditions and measures related to municipal sewage treatment plant:

Indoor/Outdoor use. industrial setting

1 1 10-5

Not available.

Not available

Not available.

Not applicable

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently). Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. professional setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Process Category: PROC08a

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Fuel additive.

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	6.37x10-6	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	1.76x10-7	0.0118	EUSES calculation
Grassland averaged mg/kg dwt	3.53x10-7	0.0118	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	1.77x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	1.77x10-9	1.8x10-9	EUSES calculation
Annual deposition mg/m²/d	1.46x10-8	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	1.25x10-3	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification

Total release for regional

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Justification

Process Category: PROC08a

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Agricultural soil averaged mg/kg 2.07x10-5 1.19x10-2 **EUSES** calculation dwt Grassland averaged mg/kg dwt **EUSES** calculation 4.17x10-5 1.19x10-2 Groundwater mg/l **EUSES** calculation Not evaluated. 5.92x10-5 **Local concentration** PEC air (local+regional) **Justification** During emission mg/m³ 3.47x10-7 Not evaluated. **EUSES** calculation Annual average mg/m³ 2.09x10-7 2.09x10-7 EUSES calculation Annual deposition mg/m²/d Not evaluated. **EUSES** calculation 1.72x10-6 **Local concentration** PEC aquatic (local+regional) Justification Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Contributing scenarios Dose/Concentration Justification

Long term exposure, Systemic, Dermal

Not applicable. 0.027

The ECETOC TRA tool has been used to

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are

below this value

Long term exposure, Systemic,

Inhalable

0.76

The ECETOC TRA tool has been used to

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic,

Combined

Not evaluated.

Not applicable

Not applicable.

Not applicable.

Long term exposure, Local, Dermal

Long term exposure, Local, Inhalable

Not evaluated. Not applicable Not applicable. Not applicable. Not applicable. Since the substance is not classified for

acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic,

Dermal

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic,

Inhalable

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic,

Combined

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Dermal Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local,

Inhalable

Not applicable.

1.52

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Process Category: PROC08a

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% -

Professional

Process Category: PROC08a, PROC10

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC04, ERC10b

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1274

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 365

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional Not available.

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%): If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

1.1x10-5

Not available.

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Professional

Process Category: PROC08a, PROC10

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use.

Product characteristics: 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Conditions and measures related to municipal sewage treatment

Not applicable.

465

Not available.

220

Indoor/Outdoor use. industrial setting

1.1.10-5

Not available.

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Organisational measures to prevent/limit release from site:

plant:

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics:

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Liquid. Covers concentrations up to 2%

Indoor. professional setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Professional

Process Category: PROC08a, PROC10

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Roller application or brushing

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Not applicable.

Other given operational conditions affecting workers Indoor. professional setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Personal protection:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Total release for regional

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Justification

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Fuel additive.

Release from point source

day 0	2.34	
		EUSES calculation
0	0.586	EUSES calculation
6.37x10-6	2.38	EUSES calculation
0	2.38	EUSES calculation
Value	Justification	
0	EUSES calculation	
0	EUSES calculation	
Local concentration	PEC aquatic (local+regional)	Justification
0	6.74x10-5	EUSES calculation
0	6.71x10-6	EUSES calculation
Not applicable	Not applicable	Not applicable.
Local concentration	PEC sediment (local+regional)	Justification
Not evaluated.	6.77x10-2	EUSES calculation
Not evaluated.	6.74x10-3	EUSES calculation
Local concentration	PEC soil (local+regional)	Justification
1.76x10-7	0.0118	EUSES calculation
3.53x10-7	0.0118	EUSES calculation
Not evaluated.	5.91x10-5	EUSES calculation
Local concentration	PEC air (local+regional)	Justification
1.77x10-9	Not evaluated.	EUSES calculation
1.77x10-9	1.8x10-9	EUSES calculation
1.46x10-8	Not evaluated.	EUSES calculation
Local concentration	PEC aquatic (local+regional)	Justification
Not applicable.	Not applicable.	Not applicable.
	Value 0 Local concentration 0 Not applicable Local concentration Not evaluated. Not evaluated. Local concentration 1.76x10-7 3.53x10-7 Not evaluated. Local concentration 1.77x10-9 1.77x10-9 1.46x10-8 Local concentration	Value Justification 0 EUSES calculation 0 EUSES calculation 0 EUSES calculation Local concentration PEC aquatic (local+regional) 0 6.74x10-5 0 6.71x10-6 Not applicable Not applicable Local concentration PEC sediment (local+regional) Not evaluated. 6.74x10-2 Not evaluated. 6.74x10-3 Local concentration PEC soil (local+regional) 1.76x10-7 0.0118 3.53x10-7 0.0118 Not evaluated. 5.91x10-5 Local concentration PEC air (local+regional) 1.77x10-9 1.8x10-9 1.46x10-8 Not evaluated. Local concentration PEC aquatic (local+regional)

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Professional

Process Category: PROC08a, PROC10

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Wood preservative.

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	1.25x10-3	2.38	EUSES calculation
Soil (direct releases only)	0	2.38	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	2.07x10-5	1.19x10-2	EUSES calculation
Grassland averaged mg/kg dwt	4.17x10-5	1.19x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.92x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.47x10-7	Not evaluated.	EUSES calculation
Annual average mg/m³	2.09x10-7	2.09x10-7	EUSES calculation
Annual deposition mg/m²/d	1.72x10-6	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

containers at non-dedicated facilitie	s		
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.110	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.305	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Professional

Process Category: PROC08a, PROC10

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Short term exposure, Local, Dermal Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Not applicable. 0.61 The ECETOC TRA tool has been used to estimate workplace exposures unless

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Roller application or brushing

Route of exposure Contributing scenarios Dose/Concentration Justification

Long term exposure, Systemic,

Dermal

Not applicable.

Not applicable.

0 110

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic,

Inhalable

0.305

1.305

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the

highest exposure level is given since the exposure estimates for other PROC are below this value

Long term exposure, Systemic,

Combined

Long term exposure, Local, Dermal Long term exposure, Local,

Inhalable

Not evaluated. Not applicable

Not evaluated.

Not applicable.

Not applicable.

Not applicable.

Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Not applicable.

Short term exposure, Systemic, Dermal

Delillai

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, Inhalable

IIIIaiabie

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic,

Combined

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Dermal Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Not applicable. 0.61 The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available.
Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Professional

Process Category: PROC08a, PROC10
Substance supplied to that use in form of: In a mixture
Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% -

Industrial

Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC16

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC04, ERC10b

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable.

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year):

Fraction of Regional tonnage used locally:

Not available.

Not available.

Annual site tonnage (tonnes/year): 465
Average Local Daily Tonnage (kg/day): 1274

Maximum daily site tonnage (kg/day):

Frequency and duration of use:

Not available.

Continuous release.

Emission Days (days/year): 365

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000
Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only).

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of ³ (%): If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%): Organisational measures to prevent/limit release from site: Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

to all officeron controls required, required removal emolector

No wastewater treatment required.

Not available.

1.1x10-5

Not available.

Not available.

Not available.

Not applicable.

Prevent discharge of undissolved substance to or recover from onsite wastewater.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

220 Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Indoor/Outdoor use. industrial setting

1.1x10-5

Not available.

Not available.

Not available.

Not available.

Not applicable.

No wastewater treatment required.

Other given operational conditions affecting workers Indoor, industrial setting Indoor. professional setting exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09,

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

PROC13, PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Calendering operations

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. industrial setting exposure: Indoor. professional setting

Technical conditions and measures at process level Not applicable.

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable. Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Indoor. professional setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting exposure: Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable. Not applicable.

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 4: Transfer of substance or preparation into small containers (dedicated filling line,

Not applicable.

Not applicable.

Not applicable.

Indoor, industrial setting Indoor. professional setting

including weighing)

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used:

Frequency and duration of use:

Covers daily exposures up to 8 hours (unless stated differently). Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg Human factors not influenced by risk management:

Other given operational conditions affecting workers

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

dispersion and exposure:

Personal protection:

Organisational measures to prevent/limit releases, Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 5: Treatment of articles by dipping and pouring

Product characteristics: Liquid. Covers concentrations up to 2%

Not applicable. Amounts used:

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting

exposure: Indoor. professional setting Not applicable.

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 6: Using material as fuel sources, limited exposure to unburned product to be

expected

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting

exposure: Indoor, professional setting Not applicable.

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09,

> Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC04, ERC10b

174/206

PROC13, PROC16

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Fuel additive.

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	6.37x10-6	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	1.76x10-7	0.0118	EUSES calculation
Grassland averaged mg/kg dwt	3.53x10-7	0.0118	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	1.77x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	1.77x10-9	1.8x10-9	EUSES calculation
Annual deposition mg/m²/d	1.46x10-8	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	1.25x10-3	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification

Total release for regional

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC16

Justification

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Agricultural soil averaged mg/kg dwt	2.07x10-5	1.19x10-2	EUSES calculation
Grassland averaged mg/kg dwt	4.17x10-5	1.19x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.92x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.47x10-7	Not evaluated.	EUSES calculation
Annual average mg/m³	2.09x10-7	2.09x10-7	EUSES calculation
Annual deposition mg/m²/d	1.72x10-6	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section	3. 1	Workers	- Fynosura	estimation

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact)

Route of exposure **Contributing scenarios Dose/Concentration** Justification The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.055 Dermal estimate workplace exposures unless

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic, Not applicable. 0.61 Inhalable

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Not applicable. Long term exposure, Systemic, Not evaluated. Not applicable. Combined

Not evaluated. Long term exposure, Local, Dermal Not applicable. Not applicable. Long term exposure, Local, Not applicable

Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for **Dermal**

acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for

Inhalable acute effects and therefore, no acute DNEL

has been derived.

Since the substance is not classified for

Combined acute effects and therefore, no acute DNEL

Not applicable.

has been derived.

Since the substance is not classified for Short term exposure, Local, Dermal Not applicable Not applicable. acute effects and therefore, no acute DNEL

has been derived.

The ECETOC TRA tool has been used to Short term exposure, Local, Not applicable. 1.22 Inhalable

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Calendering operations

Not applicable

Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, 0.055 Not applicable.

Dermal

Short term exposure, Systemic,

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the

highest exposure level is given since the exposure estimates for other PROC are

below this value

The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.61

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic, Not applicable. Not applicable. Not evaluated.

Combined

Inhalable

Inhalable

Not applicable. Long term exposure, Local, Dermal Not evaluated. Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC16

> Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 3:.2	Markers	Evene	a a time a time
Laection 5:.2	vvorkers -	Exposure	esumation

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

containers at non-dedicated facilitie	S		
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.110	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.305	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 3:.2 Workers - Exposure est		r of substance or preparation (c	harging/discharging) from/to vessels/large
containers at dedicated facilities	orker exposure for 5. Transfe	i of substance of preparation (c	inarging/discriarging/ noni/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.055	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling wincluding weighing)		r of substance or preparation in	to small containers (dedicated filling line,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.055	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
		N. 4 P. 11	0: " ' ' ' ' ' ' ' ' '

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic,

Short term exposure, Systemic,

Dermal

Inhalable

Not applicable

Not applicable

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC16

has been derived.

has been derived.

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Since the substance is not classified for

Since the substance is not classified for acute effects and therefore, no acute DNEL

acute effects and therefore, no acute DNEL

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL Combined has been derived. Short term exposure, Local, Dermal Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. 1.22 The ECETOC TRA tool has been used to Short term exposure, Local, Not applicable. estimate workplace exposures unless Inhalable otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 5: Treatment of articles by dipping and pouring **Route of exposure Contributing scenarios Justification Dose/Concentration** Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0 110 **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. 0.305 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not evaluated. Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not evaluated. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL Inhalable has been derived. Short term exposure, Systemic, Not applicable. Not applicable Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived Not applicable Since the substance is not classified for Not applicable. Short term exposure, Systemic, acute effects and therefore, no acute DNEL Combined has been derived. Short term exposure, Local, Dermal Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. The ECETOC TRA tool has been used to Short term exposure, Local, Not applicable. 0.61 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 6: Using material as fuel sources, limited exposure to unburned product to be expected Route of exposure **Contributing scenarios Dose/Concentration** Justification The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.055 **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. 0.61 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Not applicable Long term exposure, Local, Dermal Not applicable Not applicable Polyethyleneamines, HEPA-S140 Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC16 Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

> Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Long term exposure, Local, Not applicable. Inhalable

Not applicable.

Not applicable. Not applicable. Not applicable.

Short term exposure, Systemic, **Dermal**

Not applicable.

Not applicable.

Inhalable

Short term exposure, Systemic, Not applicable.

Not applicable.

Short term exposure, Systemic, Not applicable. Combined

Not applicable. Not applicable.

1.22

Not applicable.

Short term exposure, Local, Dermal Short term exposure, Local,

Not applicable. Not applicable. Not applicable. The ECETOC TRA tool has been used to

Inhalable

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5%

Industrial

Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC04, ERC10b

1.1x10-5

Not available.

Not available.

Not available.

Not applicable.

Not available.

Section 2:: Operational conditions and risk management measures

Section 2.1:	Control of	environmental	exposure

Contributing scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1274

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 365

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%): If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%): Organisational measures to prevent/limit release from site:

Polyethyleneamines, HEPA-S140

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Prevent discharge of undissolved substance to or recover from onsite

wastewater

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Amounts used:

Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Frequency and duration of use: Continuous release.

220 Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

plant:

1860 Tonnes/year

25%

Not available.

465

Not available.

Indoor/Outdoor use. industrial setting

1.1.10-5

Not available.

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Conditions and measures related to municipal sewage treatment

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact)

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Not applicable.

Indoor. industrial setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Calendering operations

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Indoor, industrial setting

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at dedicated facilities

Liquid. Covers concentrations up to 0.5% **Product characteristics:**

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Indoor, industrial setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 4: Transfer of substance or preparation into small containers (dedicated filling line,

including weighing)

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg Human factors not influenced by risk management:

Not applicable.

Not applicable.

Not applicable.

Indoor, industrial setting

Other given operational conditions affecting workers

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 5: Roller application or brushing

Product characteristics: Liquid. Covers concentrations up to 0.5%

Not applicable. Amounts used:

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 6: Treatment of articles by dipping and pouring

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Indoor, industrial setting

Technical conditions and measures at process level (source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 7: Using material as fuel sources, limited exposure to unburned product to be

expected

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Indoor, industrial setting

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC16

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion from source towards the worker:

Organisational measures to prevent/limit releases, dispersion and exposure:

Personal protection:

Not applicable.

Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Fuel additive.

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	6.37x10-6	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	1.76x10-7	0.0118	EUSES calculation
Grassland averaged mg/kg dwt	3.53x10-7	0.0118	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	1.77x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	1.77x10-9	1.8x10-9	EUSES calculation
Annual deposition mg/m²/d	1.46x10-8	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Wood preservative.

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	1.25x10-3	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	2.07x10-5	1.19x10-2	EUSES calculation
Grassland averaged mg/kg dwt	4.17x10-5	1.19x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.92x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.47x10-7	Not evaluated.	EUSES calculation
Annual average mg/m³	2.09x10-7	2.09x10-7	EUSES calculation
Annual deposition mg/m²/d	1.72x10-6	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:	.2 Wor	kers - Ex	posure e	stimation
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Dermal

Inhalable

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)

Route of exposure **Contributing scenarios Dose/Concentration Justification** The ECETOC TRA tool has been used to

Long term exposure, Systemic, Not applicable. 0.027

highest exposure level is given since the

otherwise indicated. The PROC with the exposure estimates for other PROC are

estimate workplace exposures unless

below this value Long term exposure, Systemic, Not applicable. 0.76 The ECETOC TRA tool has been used to

Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are below this value

Long term exposure, Systemic, Not applicable. Not applicable. Not applicable.

Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable.

Long term exposure, Local, Not applicable. Not applicable. Not applicable.

Short term exposure, Systemic, Not applicable. Not applicable. Not applicable.

Dermal Short term exposure, Systemic, Not applicable. Not applicable. Not applicable.

Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable.

Combined Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable.

Short term exposure, Local, Not applicable. 1.52 The ECETOC TRA tool has been used to Inhalable

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Calendering operations

Contributing scenarios Dose/Concentration Route of exposure Justification

Long term exposure, Systemic, 0.027 The ECETOC TRA tool has been used to Not applicable. **Dermal**

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16

> Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal Short term exposure, Local, Inhalable	Not applicable. Not applicable.	Not applicable. 1.52	Not applicable. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

containers at non-dedicated facilitie	s		
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.027	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Section 3:.2 Workers - Exposure est Contributing scenario controlling we containers at dedicated facilities		r of substance or preparation (c	charging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.027	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est			
Contributing scenario controlling we including weighing)	orker exposure for 4: Transfe	r of substance or preparation in	to small containers (dedicated filling line,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.027	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Dermal			estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16

below this value

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

exposure estimates for other PROC are

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Section 3:.2 Workers - Exposure est Contributing scenario controlling we		pplication or brushing	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.027	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we		ent of articles by dipping and po	purina
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.027	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic,	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.027	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
ı			

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Short term exposure, Local, Inhalable

Not applicable.

1.52

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 7: Using material as fuel sources, limited exposure to unburned product to be

expected

Route of exposure

Long term exposure, Systemic,

Dermal

Contributing scenarios Not applicable.

Dose/Concentration 0.027

Justification

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Long term exposure, Systemic,

Inhalable

Not applicable.

0.76

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are below this value

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal

Long term exposure, Local, Inhalable

Short term exposure, Systemic,

Dermal

Short term exposure, Systemic, Inhalable

Short term exposure, Systemic,

Combined Short term exposure, Local, Dermal

Short term exposure, Local,

Inhalable

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable. Not applicable. Not applicable.

Not applicable. Not applicable.

Not applicable.

Not applicable.

Not applicable.

1.52

Not applicable.

Not applicable.

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16

> Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of

preparations containing EA up to 0.5% - Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22 Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1550

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Assumed on-site sewage treatment plant flow (m³/d):

Not applicable.

Not available.

465

1000

Indoor/Outdoor use. industrial setting

1.0x10-5

Not available.

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 93 225 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

365 Emission Days (days/year):

Environment factors not influenced by risk management:

Not available. Local freshwater dilution factor: Local marine water dilution factor: Not available.

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

Not available

Not available.

Not applicable.

=>53.1

Not available.

exposure:

Release fraction to air from process (initial release prior to 0.01

RMM):

Release fraction to soil from process (initial release prior to 0.01

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

only):

Release fraction to soil from wide dispersive use (regional Not available.

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

(%):

plant:

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable.

Amounts used: 4650 Tonnes/year

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available 1160 Annual site tonnage (tonnes/year):

Average Local Daily Tonnage (kg/day): 5272

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: Not available. Local marine water dilution factor: Not available.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

Not available. Local freshwater dilution factor: Local marine water dilution factor: Not available

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to RMM):

Release fraction to wastewater from process (initial release

prior to RMM): Release fraction to air from wide dispersive use (regional

only): Release fraction to soil from wide dispersive use (regional

only): Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

Not applicable.

Not available.

Not available.

220

Indoor. industrial setting

1 0x10-5

Not available.

Not available

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Low energy manipulation of substances bound in materials and/or articles

Product characteristics:

Solid. Covers concentrations up to 0.5%

Amounts used:

Not applicable.

Frequency and duration of use:

Not applicable.

Human factors not influenced by risk management:

Other given operational conditions affecting workers

Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Indoor. professional setting

Not available

Technical conditions and measures at process level (source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases, dispersion and exposure:

Not applicable.

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: High (mechanical) energy work-up of substances bound in materials and/or articles

Product characteristics:

Solid. Covers concentrations up to 0.5%

Not applicable.

Frequency and duration of use:

Not applicable.

Human factors not influenced by risk management:

Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

Indoor, professional setting

exposure:

Amounts used:

Technical conditions and measures at process level

Not applicable.

(source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion from source towards the worker:

Organisational measures to prevent/limit releases,

Not applicable.

dispersion and exposure: Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

(local exposure estimation) kg/ exposure estimation kg/day dav Waste water 0 **EUSES** calculation 2 34 **Surface water** n 0.586 air (direct + STP) 0.0155 2.38 **EUSES** calculation Soil (direct releases only) 4.2 **EUSES** calculation 0

EUSES calculation

Justification

Concentration in sewage (PECstp)

Value

Not applicable

n

Release from point source

Justification EUSES calculation

mg/l Concentration in sewage sludge mg/kg dwt

Fresh water mg/l Marine water mg/l

Intermittent release. mg/l

EUSES calculation

Total release for regional

Local concentration PEC aquatic (local+regional) Justification 0 6.74x10-5 **EUSES** calculation 6 71x10-6 **EUSES** calculation

Not applicable

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -

Not applicable.

Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Fresh water sediment mg/kg dwt Marine water sediment mg/kg dwt	Local concentration Not evaluated. Not evaluated.	PEC sediment (local+regional) 6.77x10-2 6.74x10-3	Justification EUSES calculation EUSES calculation
3 3	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	7.78x10 ⁻⁴	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	2.33x10 ⁻⁵	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.82x10 ⁻⁴	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.523	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.80x10 ⁻⁵	8.54x10 ⁻⁵	EUSES calculation
Marine water mg/l	1.80x10 ⁻⁶	8.51x10 ⁻⁶	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	8.57x10 ⁻²	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	8.54x10 ⁻³	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	5.29x10 ⁻⁷	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	1.06x10 ⁻⁶	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.49x10 ⁻⁹	Not evaluated.	EUSES calculation
Annual average mg/m³	5.33x10 ⁻⁹	5.37x10 ⁻⁹	EUSES calculation
Annual deposition mg/m²/d	4.40x10 ⁻⁸	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/	Total release for regional exposure estimation kg/day	Justification
	day		
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp)	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	1.18x10-2	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

			s bound in materials and/or articles
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.06	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.12	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we		echanical) energy work-up of su	ubstances bound in materials and/or articles
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.06	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure Systemic	Not applicable	Not applicable	Not applicable

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic, Combined

Short term exposure, Local, Dermal Not applicable.

Not applicable.

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -

Not applicable.

Not applicable.

Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Short term exposure, Local, Inhalable

Not applicable.

0.12

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Not available. Health

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -Industrial

Process Category: PROC21, PROC24 Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of

preparations containing EA up to 2% - Industrial

Process Category: PROC21, PROC24 Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1550 Maximum daily site tonnage (kg/day): Not available.

Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%): Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Assumed on-site sewage treatment plant flow (m³/d):

465

1.0x10-5

Not available.

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 93 225 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

365 Emission Days (days/year):

Environment factors not influenced by risk management:

Not available. Local freshwater dilution factor: Local marine water dilution factor: Not available.

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to 0.01

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use: Not available.

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

(%):

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

0.01

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53.1

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable.

Amounts used: 4650 Tonnes/year

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available 1160 Annual site tonnage (tonnes/year):

Average Local Daily Tonnage (kg/day): 5272

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: Not available. Local marine water dilution factor: Not available.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release: Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%): Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Indoor/Outdoor use. industrial setting

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally:

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environment factors not influenced by risk management:

Not available. Local freshwater dilution factor: Local marine water dilution factor: Not available

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

Not available.

Not available

Not available.

Indoor. industrial setting

1 0x10-5

Not available.

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% -. Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Low energy manipulation of substances bound in materials and/or articles

Product characteristics:

Solid. Covers concentrations up to 2%

Amounts used:

Not applicable.

Frequency and duration of use:

Not applicable.

Human factors not influenced by risk management:

Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

Indoor. professional setting

Not available

Technical conditions and measures at process level

Not applicable.

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases, dispersion and exposure:

Not applicable.

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: High (mechanical) energy work-up of substances bound in materials and/or articles

Product characteristics:

Solid. Covers concentrations up to 2%

Not applicable.

Frequency and duration of use:

Not applicable.

Human factors not influenced by risk management:

Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

Indoor, professional setting

exposure:

Amounts used:

Not applicable.

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

Not applicable.

from source towards the worker: Organisational measures to prevent/limit releases,

Not applicable.

dispersion and exposure: Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Total release for regional

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

(local exposure estimation) kg/ exposure estimation kg/day dav Waste water 0 **EUSES** calculation 2 34 **Surface water** n 0.586 **EUSES** calculation air (direct + STP) 0.0155 2.38 **EUSES** calculation Soil (direct releases only) 4.2 **EUSES** calculation 0 **Value Justification**

Concentration in sewage (PECstp) **EUSES** calculation

mg/l

Concentration in sewage sludge n **EUSES** calculation

Release from point source

mg/kg dwt

Local concentration PEC aquatic (local+regional) Justification 0 6.74x10-5 **EUSES** calculation Fresh water mg/l Marine water mg/l 6 71x10-6 **EUSES** calculation Intermittent release. mg/l Not applicable Not applicable Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% -

Justification

. Industrial

Process Category: PROC21, PROC24 Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Fresh water sediment mg/kg dwt Marine water sediment mg/kg dwt	Local concentration Not evaluated. Not evaluated.	PEC sediment (local+regional) 6.77x10-2 6.74x10-3	Justification EUSES calculation EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	7.78x10 ⁻⁴	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	2.33x10 ⁻⁵	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.82x10 ⁻⁴	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.523	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.80x10 ⁻⁵	8.54x10 ⁻⁵	EUSES calculation
Marine water mg/l	1.80x10 ⁻⁶	8.51x10 ⁻⁶	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	8.57x10 ⁻²	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	8.54x10 ⁻³	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	5.29x10 ⁻⁷	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	1.06x10 ⁻⁶	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.49x10 ⁻⁹	Not evaluated.	EUSES calculation
Annual average mg/m³	5.33x10 ⁻⁹	5.37x10 ⁻⁹	EUSES calculation
Annual deposition mg/m²/d	4.40x10 ⁻⁸	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
waste water	U	2.34	EUSES Calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp)	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% -. Industrial

Process Category: PROC21, PROC24 Sector of end use: SU22

Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/	Total release for regional exposure estimation kg/day	Justification
	day	exposure estimation kg/day	
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m ³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

		9,	s bound in materials and/or articles
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0003	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.02	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.03	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est	imation		
Contributing scenario controlling we	•	echanical) energy work-up of su	ubstances bound in materials and/or articles
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0003	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.02	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic,	Not applicable	Not applicable.	Since the substance is not classified for
Dermal			acute effects and therefore, no acute DNE has been derived.

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic, Inhalable

Short term exposure, Systemic, Combined

Not applicable

Not applicable

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% -. Industrial

has been derived.

has been derived.

Process Category: PROC21, PROC24

Since the substance is not classified for acute effects and therefore, no acute DNEL

Since the substance is not classified for acute effects and therefore, no acute DNEL

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Local,

Inhalable

Not applicable.

0.03

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived. The ECETOC TRA tool has been used to

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Not applicable.

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.