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: 612-121-00-1EC number: 268-626-9CAS number: 68131-73-7Product 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

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 - 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

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

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 The Netherlands Tel::31-334676897

e-mail address of person responsible for this SDS

: SDS.Delamine@delamine.com

1.4 Emergency telephone number

Supplier

Telephone number : AkzoNobel Chemicals-Deventer-NLT +31 570 679211 (24hours/7days)

F +31 570 679801

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : UVCB

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

Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1A, 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







Signal word Danger

Hazard statements Harmful if swallowed.

Harmful 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.

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SECTION 2: Hazards identification

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 : Not applicable.

Supplemental label

elements

: 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

Substance/mixture : UVCB

			<u>Classification</u>		
Product/ingredient name	Identifiers	%	67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	Туре
Amines, polyethylenepoly-	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. 1A, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[*]
3,6,9,12-tetra- azatetradecamethylenediamine	EC: 223-775-9 CAS: 4067-16-7 Index: 612-064-00-2	10 - 40	Xn; R21/22 C; R34 R43 N; R50/53	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1A, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[A]
polyethlyenepolyamines	EC: 292-588-2 CAS: 90640-67-8 Index: 612-065-00-8	<2	Xn; R21/22 C; R34 R43 R52/53	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1A, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412	[A]
			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.	

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SECTION 3: Composition/information on ingredients

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.

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.

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SECTION 4: First aid measures

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:

> pain watering redness

: No specific data. Inhalation

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

: In case of inhalation of decomposition products in a fire, symptoms may be delayed. Notes to physician

The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing

media

: Use 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 combustion products

: Decomposition products may include the following materials:

carbon dioxide carbon monoxide nitrogen oxides

5.3 Advice for firefighters

Special precautions 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

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".

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SECTION 6: Accidental release measures

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 (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

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.

7.3 Specific end use(s)

Recommendations Industrial sector specific solutions

: No specific data.

: No specific data.

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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.

procedures

Recommended monitoring: 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 European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

Derived effect levels

Product/ingredient name	Type	Exposure	Value	Population	Effects
Amines, polyethylenepoly-	DNEL	Short term Inhalation	8550 mg/m³	Workers	Systemic
	DNEL	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/m ³	Consumers	Systemic
	DNEL	Long term Oral	0.65 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Dermal	0.68 mg/cm²	Consumers	Local

Predicted effect concentrations

Product/ingredient name	Type	Compartment Detail	Value	Method Detail
Amines, polyethylenepoly-	PNEC	Secondary Poisoning	0.29 mg/kg	Assessment Factors
	PNEC	Fresh water	1.6 µg/l	Assessment Factors
	PNEC	Marine	1.6 µg/l	Assessment Factors
	PNEC	Fresh water sediment	0.14 mg/kg dwt	-
	PNEC	Marine water sediment	0.14 mg/kg dwt	-
	PNEC	Soil	10 mg/kg dwt	-
	PNEC	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.

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. >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

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

Burning rate : Not applicable. Upper/lower flammability or : Not available.

explosive limits

: 0.00000077 kPa [20°C] Vapour pressure

Vapour density : Not available.

Relative density 1.014

Solubility(ies)

>50 g/l

Partition coefficient: n-

octanol/water

: -3.67

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SECTION 9: Physical and chemical properties

Auto-ignition temperature : 370°C

Decomposition temperature : Not available. **Viscosity** : Not available.

Explosive properties : Not applicable.

Oxidising properties : None.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

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

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions

: Under normal conditions of storage and use, hazardous reactions will not occur.

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

acias.

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

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.

Sensitiser

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

Conclusion/Summary

Skin: May cause skin sensitisation.

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SECTION 11: Toxicological information

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

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

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.

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

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

reaction.

Eye contact : Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation : No specific data.

Ingestion : Adverse symptoms may include the following:

stomach pains

Skin contact Adverse symptoms may include the following:

pain or irritation

redness

blistering may occur

Eye contact Adverse symptoms may include the following:

> pain watering redness

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

: No specific data.

effects

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SECTION 11: Toxicological information

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.

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-	EC50 319.3 mg/l Acute EC50 0.23 mg/l Acute EC50 2.2 mg/l Acute LC50 100 mg/l		2 days 72 hours 48 hours 96 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

12.3 Bioaccumulative potential

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

12.4 Mobility in soil

Soil/water partition

: >3000

coefficient (Koc)

Mobility : No specific data.

12.5 Results of PBT and vPvB assessment

PBT : No.

vPvB : No.

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

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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

: The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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.

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

Hazardous waste Packaging

Methods of disposal

: 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/ADNR	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.	POLYAMINES, LIQUID, CORROSIVE, N.O.S Marine pollutant (3,6,9,12- tetra- azatetradecamethylenediamine)	Polyamines, liquid, corrosive, n.o.s.
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.	Yes.
14.6 Special precautions for user	Not available.	Not available.	Not available.	Not available.
Additional information	Hazard identification number 80 Limited quantity 5 L Special provisions 274 Tunnel code (E)		Emergency schedules (EmS) F-A, S-B	Passenger and Cargo Aircraft Quantity limitation: 5 Packaging instructions: 852 Cargo Aircraft Only Quantity limitation: 60 L Packaging instructions: 856 Limited Quantities - Passenger Aircraft Quantity limitation: 1

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Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II - United Kingdom (UK) Polyethyleneamines, HEPA-S140

SECTION 14: Transport information Packaging instructions: Y841

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 : Not applicable. on the manufacture, placing on the market and use of certain dangerous

substances, mixtures and

articles

Other EU regulations

Europe inventory : All components are listed or exempted.

Black List Chemicals : Not listed **Priority List Chemicals** : Not listed Integrated pollution : Not listed

prevention and control list (IPPC) - Air

Integrated pollution prevention and control list (IPPC) - Water

: Not listed

International regulations

Chemical Weapons Convention List Schedule I

Chemicals

: Not listed

Chemical Weapons Convention List Schedule II

Chemicals

: Not listed

Chemical Weapons Convention List Schedule III

Chemicals

: Not listed

15.2 Chemical Safety

Assessment

: Complete.

15.3 Registration status : Applicable.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Polyethyleneamines, HEPA-S140

SECTION 16: Other information

Abbreviations and acronyms

: ATE = Acute Toxicity Estimate

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

1272/2008]

DNEL = Derived No Effect Level

EUH statement = CLP-specific Hazard statement PNEC = Predicted No Effect Concentration RRN = REACH Registration Number

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

Classification	Justification
Acute Tox. 4, H302	Expert judgment
Acute Tox. 4, H312	Expert judgment
Skin Corr. 1A, 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.
H412 Harmful 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: SKIN - Category 4
Aquatic Acute 1, H400 AQUATIC TOXICITY (ACUTE) - Category 1
Aquatic Chronic 3, H412 AQUATIC TOXICITY (CHRONIC) - Category 3

Eye Dam. 1, H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1

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

Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1

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.

R52/53- Harmful 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

Date of issue/ Date of

revision

: 28 February 2011

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Version : 4

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.

Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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.

List of use descriptors 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.

Processes and activities covered

by the exposure scenario

Not applicable.

Assessment Method See Section 3

Section 2: Operational conditions and risk management measures

Section 2.1: Control of consumer exposure

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 Categories 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 Categories 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 Categories 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 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 Categories 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%

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.

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Section 2.2: Control of environmental exposure

Operational conditions: Not determined

Product Characteristics: Indoor/Outdoor use.

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

Frequency and duration of use: Continuous release.

Section 3: Exposure estimation and reference to its source

Section 3.1: Exposure estimation - Consumers

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

Scenario: substance in the article::

Exposure estimation and

reference to its source -

Adhesives, sealants -3; 3; 2; 2

25%; 5%; 25%; 5%

60 kg

ConsExpo 4.1

Consumers: 0:

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

clay - Application(s)

Inhalation:

evaporation Mode of release:

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

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

Scenario Molecular (Update model):

weight (g/mole):

32.9 20: 500: 100: 50 20 3 09F+03 550 1

Dermal:

Application methods: instant

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

area) cm2:

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

Inhalation mg/m³

(Concentration on day of

exposure): 0.039; 0.188; 0.040; 0.191

6.25; 0.12; 2.5; 0.46

bw):

Dermal External dose (mg/kg Dermal (Internal dose) mg/kg bw/day:

Dermal (External dose) mg/kg bw/day:

Inhalation event/Exposure

mg/m³ (Short term exposure):

Dermal load (mg/cm2):

Dermal systemic exposure

0.208; 0.08; 0.08; 1.67

Not applicable.

Not applicable.

(external dose) with gloves

(90% efficiency) mg/kg bw/day (Long term exposure):

term exposure:

Not applicable.

Not applicable.

0.002; 0.001; 5E-4; 0.001

Inhalation (mg/kg/day) Long

0.002; 0.001; 5E-4; 0.001 11.2; 3.0; 11.5; 3.1 0.0002; 0.0001; 5E-5; 0.0001 0.039; 0.188; 0.040; 0.191

Section 3.2 Exposure estimation-Consumers

Contributing exposure scenario controlling worker exposure for 0:

Route of exposure **Contributing scenarios Dose/Concentration** Justification Not applicable. Long term exposure, Systemic, Not applicable. Not applicable.

Long term exposure, Systemic,

Not applicable.

Inhalable

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

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

Dermal

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.

Short term exposure, Systemic, Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Not applicable. Not applicable. Short term exposure, Local, Dermal Not applicable. Not applicable. Short term exposure, Local, Not applicable. Not applicable. Inhalable Not applicable. Short term exposure, Systemic, Not applicable. Not applicable. **Oral**

Section 3.3 Environment Exposure estimation Contributing exposure scenario controlling environmental exposure for 1: Justification Release from point source Total release for regional (local exposure estimation) exposure estimation kg/day kg/day 5.10x10-4 1.02 **EUSES** calculation Waste water **EUSES** calculation O **Surface water** air (direct + STP) 0 1.02; Regional PEC: 3.57x10-8 **EUSES** calculation Soil (direct releases only) 0 1.02; Regional PEC natural soil: **EUSES** calculation 1.18x10-2 **Justification** Value Concentration in sewage (PECstp) 1.19x10-4 **EUSES** calculation Concentration in sewage sludge 0.343 **EUSES** calculation mg/kg dwt Local concentration PEC aquatic (local+regional) Justification Fresh water mg/l 1.18x10-5 7.92x10-5; Regional PEC: **EUSES** calculation 6 84x10-5 Marine water mg/l 7.89x10-6; Regional PEC: 1.18x10-6 **EUSES** calculation 6.75x10-6 Not applicable Not applicable Intermittent release. mg/l Not applicable. Local concentration PEC sediment (local+regional) **Justification** 7.95x10-2; Regional PEC: 0.127 Fresh water sediment mg/kg dwt Not evaluated. **EUSES** calculation Marine water sediment mg/kg dwt Not evaluated. **EUSES** calculation 7.92x10-3; Regional PEC: 1.16x10-2 Local concentration PEC soil (local+regional) Justification Agricultural soil averaged mg/kg Not applicable. Regional PEC: 1.15x10-2 dwt Grassland averaged mg/kg dwt Not applicable. Not applicable. Not applicable. Groundwater mg/l Not applicable. Not applicable. Not applicable. PEC air (local+regional) Local concentration **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. PEC aquatic (local+regional) **Justification Local concentration** Not applicable. Micro-organism mg/l Not applicable. Not applicable.

Section 4: Guidance to Downstream User to evaluate if 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)

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of List of use descriptors

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 worker exposure

Contributing exposure 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 operational conditions affecting worker 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.

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 2.1 Control of worker exposure

Contributing exposure 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%

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 operational conditions affecting worker exposure: Indoor, professional setting

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

Not applicable.

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

dispersion and exposure:

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.

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

Professional

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

Contributing exposure scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550

Frequency and duration of use: Continuous release.

300 Emission Days (days/year):

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Indoor/Outdoor use. industrial setting Other operational conditions of use 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):

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) No wastewater treatment required.

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

Organisational measures to prevent/limit release from site: Prevent discharge of undissolved substance to or recover from onsite

wastewater

1.0x10-5

Conditions and measures related to municipal sewage treatment

Assumed domestic sewage treatment plant flow (m3/d): 2000

Contributing exposure scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 93 Average Local Daily Tonnage (kg/day): 225

Frequency and duration of use: Continuous release.

365 Emission Days (days/year):

Environmental factors not influenced by risk management:

Other operational conditions of use affecting environmental

Indoor/Outdoor use. industrial setting

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

RMM):

0.01

Release fraction to soil from process (initial release prior to

RMM):

0.01

Release fraction to wastewater from process (initial release

prior to RMM):

Polyethyleneamines, HEPA-S140

Not applicable.

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

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

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

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

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

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

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) =>53.1

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

Organisational measures to prevent/limit release from site:

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

Conditions and measures related to municipal sewage treatment plant:

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

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

4650 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 1160 Average Local Daily Tonnage (kg/day): 5272

Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environmental factors not influenced by risk management:

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

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

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

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) No wastewater treatment required.

to provide the required 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%.

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environmental factors not influenced by risk management:

Other operational conditions of use affecting environmental Indoor, 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):

Technical conditions and measures at process level (source) to Not applicable.

prevent release:

1 0x10-5

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Polyethyleneamines, HEPA-S140

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

Treat air emission to provide a typical removal efficiency of

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

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required.

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

Organisational measures to prevent/limit release from site:

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

Conditions and measures related to municipal sewage treatment plant:

Section 3: Exposure estimation

Section 3.1Workers Exposure estimate	ation		
Contributing exposure scenario con articles	trolling worker exposure for	0: Low energy manipulation of	substances bound in materials and/or
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 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.	0.03	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 3.1Workers Exposure estimated Contributing exposure scenario con and/or articles		1: High (mechanical) energy wo	ork-up of substances bound in materials
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.
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.	Not applicable.	Not applicable.

Section 3.2 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure 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

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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Annual deposition mg/m2/d 2.22x10-14 Not evaluated. **EUSES** calculation PEC aquatic (local+regional) Justification Local concentration Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.2 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure 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

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

Groundwater mg/l Not evaluated. 1.18x10-2 **EUSES** calculation PEC air (local+regional) **Local concentration Justification** During emission mg/m³ 0 Not evaluated. **EUSES** calculation Annual average mg/m³ **EUSES** calculation 0 3.57x10-11 Annual deposition mg/m2/d 0 Not evaluated. **EUSES** calculation PEC aquatic (local+regional) **Justification Local concentration** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

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)

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of List of use descriptors

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 worker exposure

Contributing exposure 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

Not applicable.

Other operational conditions affecting worker 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:

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 2.1 Control of worker exposure

Contributing exposure 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%

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 operational conditions affecting worker exposure: Indoor, professional setting

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

Not applicable.

Organisational measures to prevent/limit releases,

from source towards the worker:

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.

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

Professional

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

Contributing exposure scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550

Frequency and duration of use: Continuous release.

300 Emission Days (days/year):

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

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

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):

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) No wastewater treatment required.

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

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

Assumed domestic sewage treatment plant flow (m3/d): 2000

Contributing exposure scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 93 Average Local Daily Tonnage (kg/day): 225

Frequency and duration of use: Continuous release.

365 Emission Days (days/year):

Environmental factors not influenced by risk management:

Other operational conditions of use affecting environmental

Indoor/Outdoor use. industrial setting

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

RMM):

0.01

Release fraction to soil from process (initial release prior to

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

0.01

prior to RMM):

Technical conditions and measures at process level (source) to

Polyethyleneamines, HEPA-S140

Not applicable.

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.

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

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

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

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

Treat on-site wastewater (prior to receiving water discharge) =>53.1

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

Organisational measures to prevent/limit release from site:

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

Conditions and measures related to municipal sewage treatment plant:

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

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

4650 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 1160 Average Local Daily Tonnage (kg/day): 5272

Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environmental factors not influenced by risk management:

Other operational conditions of use affecting environmental

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

Release fraction to wastewater from process (initial release

prior to RMM):

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) No wastewater treatment required.

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

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%.

Indoor/Outdoor use. industrial setting

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environmental factors not influenced by risk management:

Other operational conditions of use 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):

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) No wastewater treatment required. to provide the required removal efficiency of 3 (%):

Not applicable.

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%.

Organisational measures to prevent/limit release from site:

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

Conditions and measures related to municipal sewage treatment plant:

Section 3: Exposure estimation

Section 3.1Workers Exposure estimation Contributing exposure scenario con articles		0: Low energy manipulation of	substances bound in materials and/or
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.	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 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 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 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 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 3.1Workers Exposure estimation. Contributing exposure scenario con and/or articles		1: High (mechanical) energy wo	rk-up of substances bound in materials
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.	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 DNE has been derived.
	Not applicable	Not applicable.	Since the substance is not classified for

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

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

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

has been derived.

acute effects and therefore, no acute DNEL

has been derived. Short term exposure, Local, Not applicable.

Inhalable

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 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure 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: 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

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 3.2 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure 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

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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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 1.18x10-2 **EUSES** calculation 0 1.18x10-2 **EUSES** calculation Grassland averaged mg/kg dwt 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 PEC aquatic (local+regional) **Local concentration Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

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.

Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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

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 2.1 Control of worker exposure

Contributing exposure 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:

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 operational conditions affecting worker 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.

Section 2.1 Control of worker exposure

Contributing exposure 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:

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 operational conditions affecting worker 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:

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

removal efficiency of (%): 90%

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 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

Industrial

Section 2.1 Control of worker exposure

Contributing exposure 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:

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 operational conditions affecting worker 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:

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. Wear appropriate respiratory protection. with a

minimum efficacy of 90%

Section 2.1 Control of worker exposure

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

Not applicable.

exposure arises

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

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 operational conditions affecting worker 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:

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

removal efficiency of (%): 90%

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 90%

Section 2.1 Control of worker exposure

Contributing exposure 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%

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 operational conditions affecting worker 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 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 Personal protection:

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 2.1 Control of worker exposure

Contributing exposure scenario controlling worker exposure for 5: 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: Do not carry out operation for more than 1 hour

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

Other operational conditions affecting worker 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:

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

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% - 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

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%

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

Section 2.1 Control of worker exposure

Contributing exposure scenario controlling worker exposure for 6: 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 100%

Not applicable. Amounts used:

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 operational conditions affecting worker exposure: Indoor, industrial setting Not applicable.

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:

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.

removal efficiency of (%): 90%

removal efficiency of (%): 90%

Section 2.1 Control of worker exposure

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

Not applicable.

filling line, including weighing)

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

Not applicable.

Not applicable.

Other operational conditions affecting worker 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:

dispersion and exposure:

Organisational measures to prevent/limit releases,

Personal protection:

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

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

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 2.1 Control of worker exposure

Contributing exposure 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.

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 operational conditions affecting worker 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:

Polyethyleneamines, HEPA-S140

dispersion and exposure:

Personal protection:

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.

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 environmental exposure

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

Contributing exposure scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

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

Frequency and duration of use: Continuous release.

300 Emission Days (days/year):

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use 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):

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 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Assumed domestic sewage treatment plant flow (m3/d):

2000

=>53.1

wastewater.

1.61x10-8

Not applicable.

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

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):

Frequency and duration of use: Continuous release

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000 Indoor. industrial setting

Other operational conditions of use 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):

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:

Not applicable.

1 1x10-5

1 0x10-4

1.61x10-8

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

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

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

Treat air emission to provide a typical removal efficiency of No air emission controls required; required removal efficiency is 0%. (%):

Treat on-site wastewater (prior to receiving water discharge) =>53.1

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

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 domestic sewage treatment plant flow (m3/d): 2000

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

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): 20667

Frequency and duration of use: Continuous release.

Emission Days (days/year): 225

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use affecting environmental Indoor, industrial setting

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):

Not applicable.

1.1x10-5

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

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

(%):

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required.

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

Conditions and measures related to municipal sewage treatment

Section 3: Exposure estimation

Section 3.1Workers Exposure estimation

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

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

Long term exposure, Systemic,

Dermal

Not applicable.

0.007

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

Long term exposure, Systemic,

Inhalable

Not applicable.

0.06

exposure estimates for other PROC are 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

below this value

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

Combined

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

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	0.12	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 3.1Workers Exposure estimate Contributing exposure scenario con		r 1: Use in closed, continuous pr	ocess with occasional controlled exposure
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic,	Not applicable.	Not applicable.	Not applicable.

Route of exposure	· · · · · · · · · · · · · · · · · · ·	Continuuting Scenarios	DOSE/CONCENTRATION	Justification
Long term exposure, Sys Dermal	temic,	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Sys Inhalable	temic, I	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Sys Combined	temic, I	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Loc	al, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Loc Inhalable	al, I	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Sys Dermal	stemic,	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Sys Inhalable	stemic, I	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Sys Combined	stemic, I	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Loc	cal, Dermal I	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Loc Inhalable	cal, I	Not applicable.	Not applicable.	Not applicable.

Section 3.1Workers Exposure estimation

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

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.
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,	Not applicable.	Not applicable.	Not applicable.

	Contributing scenarios	Dose/Concentration	Justification
Route of exposure 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 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.	0.62	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 3.1Workers Exposure estimate Contributing exposure scenario con and articles (multistage and/or signi	trolling worker exposure for	4: Mixing or blending in batch p	rocesses for formulation of preparations*
Route of exposure	Contributing scenarios	Dose/Concentration	luctification
			Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.27	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.	0.27	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
Dermal Long 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 estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are
Dermal Long term exposure, Systemic, Inhalable Long term exposure, Systemic, Combined Long term exposure, Local, Dermal Long term exposure, Local,	Not applicable. 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 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. Since the substance is not classified for acute effects and therefore, no acute DNE
Dermal Long term exposure, Systemic, Inhalable Long term exposure, Systemic, Combined Long term exposure, Local, Dermal Long term exposure, Local, Inhalable	Not applicable. Not applicable. Not applicable.	0.30 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 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. Since the substance is not classified for acute effects and therefore, no acute DNE has been derived. Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Dermal Long term exposure, Systemic, Inhalable Long term exposure, Systemic, Combined Long term exposure, Local, Dermal Long term exposure, Local, Inhalable Short term exposure, Systemic,	Not applicable. Not applicable. Not applicable. Not applicable	0.30 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 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. Since the substance is not classified for acute effects and therefore, no acute DNE has been derived. Since the substance is not classified for
Dermal Long term exposure, Systemic, Inhalable Long term exposure, Systemic, Combined Long term exposure, Local, Dermal Long term exposure, Local, Inhalable Short term exposure, Systemic, Dermal Short term exposure, Systemic,	Not applicable. Not applicable. Not applicable. Not applicable Not applicable	O.30 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 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. Since the substance is not classified for acute effects and therefore, no acute DNE has been derived. Since the substance is not classified for acute effects and therefore, no acute DNE has been derived. Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.

Polyethyleneamines, HEPA-S140

Section 3.1Workers Exposure estimation

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

Short term exposure, Local, 0.60 The ECETOC TRA tool has been used to 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 **Section 3.1Workers Exposure estimation** Contributing exposure 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, Not applicable. 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, Not applicable. 0.37 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 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 acute effects and therefore, no acute DNEL Inhalable has been derived. Not applicable. Since the substance is not classified for Short term exposure, Systemic, Not applicable 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. Short term exposure, Local, Not applicable. 0.74 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 **Section 3.1Workers Exposure estimation** Contributing exposure scenario controlling worker exposure for 6: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to 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. 0.548 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 Not applicable. Long term exposure, Local, Dermal 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 Not applicable. Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic,

Inhalable

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.

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

Since the substance is not classified for

acute effects and therefore, no acute DNEL

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

30/166

Short term exposure, Systemic, Not applicable. Since the substance is not classified for 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, 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 3.1Workers Exposure estimation Contributing exposure scenario controlling worker exposure for 7: 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, The ECETOC TRA tool has been used to Not applicable. 0 14 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. 0.30 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 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. Since the substance is not classified for acute effects and therefore, no acute DNEL Inhalable has been derived. Short term exposure, Systemic, Not applicable. Since the substance is not classified for Not applicable acute effects and therefore, no acute DNEL Dermal has been derived. Since the substance is not classified for Short term exposure, Systemic, Not applicable Not applicable. 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 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 Short term exposure, Local, Not applicable. 0.62 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 **Section 3.1Workers Exposure estimation** Contributing exposure scenario controlling worker exposure for 8: Use as laboratory reagent **Contributing scenarios Dose/Concentration Justification** Route of exposure Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Dermal** Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable 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** 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. Not applicable. Not applicable. Inhalable

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

Section 3.2 Environment Exposure estimation

Contributing exposure 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.

Section 3.2 Environment Exposure estimation

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

Release from point source

Total release for regional

	(local exposure estimation) kg/day	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	
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

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

Justification

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

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 PEC aquatic (local+regional) Local concentration **Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.2 Environment Exposure estimation

Contributing exposure 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 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)

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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

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

Section 2: Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Contributing exposure 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).

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.

Other operational conditions affecting worker 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.

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 2.1 Control of worker exposure

Contributing exposure 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 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 operational conditions affecting worker 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:

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

removal efficiency of (%): 90%

Organisational measures to prevent/limit releases,

dispersion and exposure:

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.

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

Industrial

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

Sector of end use: SU03

Section 2.1 Control of worker exposure

Contributing exposure 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

Other operational conditions affecting worker exposure: Indoor, industrial 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:

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 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker 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.

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 environmental exposure

Contributing exposure scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

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 15500 Average Local Daily Tonnage (kg/day):

Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use affecting environmental

exposure:

Indoor, industrial setting

Release fraction to air from process (initial release prior to

RMM):

1.1x10-5

Release fraction to soil from process (initial release prior to

RMM):

1.0x10-4

Release fraction to wastewater from process (initial release

prior to RMM):

1.61x10-8

Technical conditions and measures at process level (source) to

prevent release:

Not applicable.

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

(%):

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

Treat on-site wastewater (prior to receiving water discharge) =>53.1 to provide the required removal efficiency of 3 (%):

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

Prevent discharge of undissolved substance to or recover from onsite Organisational measures to prevent/limit release from site:

2000

Conditions and measures related to municipal sewage treatment plant:

Assumed domestic sewage treatment plant flow (m3/d):

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

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

Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor:

Other operational conditions of use affecting environmental Indoor, industrial setting

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):

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 (%):

Organisational measures to prevent/limit release from site: Prevent discharge of undissolved substance to or recover from onsite

wastewater.

1.1x10-5

=>53.1

1.1x10-5

1.0x10-4

1.61x10-8

Not applicable.

Conditions and measures related to municipal sewage treatment

plant:

exposure:

Assumed domestic sewage treatment plant flow (m3/d): 2000

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

18600 Tonnes/year Amounts used:

25% Fraction of EU tonnage used in region: 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): 20667

Frequency and duration of use: Continuous release.

Emission Days (days/year): 225

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use affecting environmental Indoor. industrial setting

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

Polyethyleneamines, HEPA-S140

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

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

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

2% - Industrial

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

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

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

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

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

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

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required. to provide the required removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Section 3: Exposure estimation

Section 3.1Workers Exposure estimation

Contributing exposure 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**

Long term exposure, Systemic, **Dermal**

Not applicable.

0.005

Dose/Concentration

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

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 Not applicable.

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal Not evaluated. 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,

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

Short term exposure, Local,

Inhalable

Not applicable.

1.22

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 3.1Workers Exposure estimation

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

Contributing scenarios

Dose/Concentration

Justification

Route of exposure Long term exposure, Systemic, 0.005 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 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.

Long term exposure, Systemic, 0.31 The ECETOC TRA tool has been used to 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 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 acute effects and therefore, no acute DNEL **Dermal** 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 Short term exposure, Systemic, Not applicable 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. Short term exposure, Local, 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 **Section 3.1Workers Exposure estimation** Contributing exposure scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities luctification

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.
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,	Not applicable.	Not applicable.	Not applicable.

Section 3.1Workers Exposure estimation

Inhalable

Contributing exposure 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.	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.
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.

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.

Short term exposure, Local, Not applicable. Not applicable. Not applicable. Inhalable

Section 3.2 Environment Exposure estimation

Contributing exposure 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.

Section 3.2 Environment Exposure estimation

Contributing exposure 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

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.

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 PEC aquatic (local+regional) Local concentration **Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.2 Environment Exposure estimation

Contributing exposure 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 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 UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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

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 worker exposure

Contributing exposure 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 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:

Not applicable.

Other operational conditions affecting worker 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:

removal efficiency of (%): 90%

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

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

management supervision controls.

Section 2.2: Control of environmental exposure

Contributing exposure scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

18600 Tonnes/year Amounts used:

25% Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): 4650 Fraction of Regional tonnage used locally: 100% Annual site tonnage (tonnes/year): 4650 15500 Average Local Daily Tonnage (kg/day):

Frequency and duration of use: Continuous release

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use affecting environmental Indoor, professional setting

exposure:

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

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 1.61x10-8 prior to RMM):

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 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Assumed domestic sewage treatment plant flow (m3/d): 2000

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

Operational conditions: Indoor use.

Product Characteristics:

Concentration of substance in mixture or article:

Amounts used: 18600 Tonnes/year

Fraction of EU tonnage used in region: 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

Frequency and duration of use: Continuous release

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use affecting environmental Indoor, professional setting

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):

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 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Assumed domestic sewage treatment plant flow (m3/d):

Prevent discharge of undissolved substance to or recover from onsite

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

wastewater.

=>53.1

1.1x10-5

1 0x10-4

Not applicable.

Not applicable.

25%

1.1x10-5

1.0x10-4

1.61x10-8

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.

2000

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

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

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): 20667

Continuous release Frequency and duration of use:

Emission Days (days/year): 225

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use affecting environmental Indoor, professional 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

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

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

(%):

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

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required. to provide the required removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Section 3: Exposure estimation

Section 3.1Workers Exposure estimation

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

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

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

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

below this value

Long term exposure, Systemic,

Long term exposure, Local,

Combined

Inhalable

Not evaluated.

Not applicable.

Not applicable.

Long term exposure, Local, Dermal Not evaluated.

Not applicable

Not applicable. Not applicable. Not applicable. Since the substance is not classified for

exposure estimates for other PROC are

acute effects and therefore, no acute DNEL

Short term exposure, Systemic,

Short term exposure, Systemic,

Dermal

Inhalable

Not applicable

Not applicable

Not applicable.

Not applicable.

has been derived

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 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

Short term exposure, Systemic, 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 Environment Exposure estimation

Contributing exposure 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.

Section 3.2 Environment Exposure estimation

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

	(local exposure estimation) kg/day	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.

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

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 1.89x10-2 **EUSES** calculation Groundwater mg/l 7.70x10-5 **EUSES** calculation Not evaluated. **Justification Local concentration** PEC air (local+regional) 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 3.2 Environment Exposure estimation

Contributing exposure 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 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)

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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

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 worker exposure

Contributing exposure 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).

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

Not applicable.

Other operational conditions affecting worker 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.

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 2.1 Control of worker exposure

Contributing exposure 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).

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

Other operational conditions affecting worker 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,

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.

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

Industrial

Section 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker 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 2.1 Control of worker exposure

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

Other operational conditions affecting worker 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.

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 environmental exposure

Contributing exposure scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

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 15500 Average Local Daily Tonnage (kg/day):

Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Indoor, industrial setting Other operational conditions of use affecting environmental

exposure:

1.1x10-5

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

1.0x10-4

Release fraction to wastewater from process (initial release

prior to RMM):

1.61x10-8

Technical conditions and measures at process level (source) to

prevent release:

Not applicable.

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

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

(%):

Treat on-site wastewater (prior to receiving water discharge) =>53.1

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

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.

Prevent discharge of undissolved substance to or recover from onsite Organisational measures to prevent/limit release from site:

2000

Conditions and measures related to municipal sewage treatment plant:

Assumed domestic sewage treatment plant flow (m3/d):

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

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

Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor:

Other operational conditions of use affecting environmental Indoor, industrial setting

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

Release fraction to wastewater from process (initial release 1.61x10-8

prior to RMM):

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 (%):

Organisational measures to prevent/limit release from site: Prevent discharge of undissolved substance to or recover from onsite

wastewater.

1.1x10-5

=>53.1

Not applicable.

Conditions and measures related to municipal sewage treatment

plant:

Assumed domestic sewage treatment plant flow (m3/d): 2000

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

18600 Tonnes/year Amounts used:

25% Fraction of EU tonnage used in region: 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): 20667

Frequency and duration of use: Continuous release.

Emission Days (days/year): 225

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use affecting environmental Indoor. industrial setting

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

Polyethyleneamines, HEPA-S140

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

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

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

0.5% - Industrial

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

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

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

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

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required. to provide the required removal efficiency of 3 (%):

Not applicable.

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Section 3: Exposure estimation

Section 3.1Workers Exposure estimate	ation		
•	trolling worker exposure for	0։ Mixing or blending in batch բ	processes for formulation of preparations
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.
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. Not applicable.	Not applicable. Not applicable.

Section 3.1Workers Exposure estimation

Contributing exposure 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		Dose/Concentration	Justification
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.

Not applicable. Not applicable.

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

Not applicable.

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

Short term exposure, Systemic,

Not applicable. Not applicable

has been derived.

Dermal

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

Short term exposure, Systemic, Inhalable

Not applicable. Not applicable

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

Short term exposure, Systemic, Combined

Not applicable

Not applicable.

has been derived. Since the substance is not classified for

acute effects and therefore, no acute DNEL

has been derived.

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% - Industrial

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

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. 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

Not applicable.

Not applicable.

Not applicable.

Justification

Section 3.1Workers Exposure estimation

Contributing exposure 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 Justification Dose/Concentration** Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Dermal Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

Long term exposure, Local, Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable.

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

Short term exposure, Systemic,

Dermal

Inhalable

Inhalable

Combined

Not applicable. Not applicable. Short term exposure, Local, Dermal Not applicable. Short term exposure, Local, Not applicable. Not applicable. Not applicable. Inhalable

Section 3.1Workers Exposure estimation

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

Not applicable.

Not applicable.

Total release for regional

Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Dermal** Not applicable. Not applicable. Long term exposure, Systemic, Not applicable. Inhalable

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

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

Not applicable.

Not applicable.

Long term exposure, Local, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic,

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. Not applicable. Not applicable.

Section 3.2 Environment Exposure estimation

Contributing exposure scenario controlling environmental exposure for 0: Manufacture of substances

(local exposure estimation) exposure estimation kg/day kg/day 2.5x10-4 2.0x10-4 **EUSES** calculation Waste water Surface water **EUSES** calculation 0 0 air (direct + STP) 0.155 0.127 **EUSES** calculation

Release from point source

Soil (direct releases only) 1.27 **EUSES** calculation 0 **Value Justification**

Concentration in sewage (PECstp) 5.85x10-5 **EUSES** calculation

Concentration in sewage sludge 0.168 **EUSES** calculation mg/kg dwt

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

	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 3.2 Environment Exposure estimation

Contributing exposure 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.
i			

Section 3.2 Environment Exposure estimation

Contributing exposure 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

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

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Soil (direct releases only) 0 **EUSES** calculation Value **Justification** Concentration in sewage (PECstp) **EUSES** calculation 0 **EUSES** calculation Concentration in sewage sludge mg/kg dwt **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 3.51x10-3 1.53x10-2 **EUSES** calculation dwt Grassland averaged mg/kg dwt 7.06x10-3 1.89x10-2 **EUSES** calculation Groundwater mg/l Not evaluated. 7.70x10-5 **EUSES** calculation PEC air (local+regional) Local concentration **Justification** During emission mg/m³ 5.75x10-5 Not evaluated. **EUSES** calculation Annual average mg/m³ 3 54x10-5 **EUSES** calculation 3 54x10-5 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 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 UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

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

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

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 worker exposure

Contributing exposure 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).

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.

Other operational conditions affecting worker 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.

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 environmental exposure

Contributing exposure scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

18600 Tonnes/year Amounts used:

25% Fraction of EU tonnage used in region: Regional use tonnage (tonnes/year): 4650 Fraction of Regional tonnage used locally: 100% Annual site tonnage (tonnes/year): 4650 15500 Average Local Daily Tonnage (kg/day):

Frequency and duration of use: Continuous release

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use affecting environmental Indoor, professional setting

exposure:

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.

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 1.61x10-8 prior to RMM):

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

Not applicable.

1.1x10-5

1 0x10-4

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

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

Treat air emission to provide a typical removal efficiency of

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

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

Organisational measures to prevent/limit release from site:

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

=>53.1

Conditions and measures related to municipal sewage treatment plant:

Assumed domestic sewage treatment plant flow (m3/d):

2000

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

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

Frequency and duration of use: Continuous release

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use affecting environmental Indoor, professional setting

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

1.61x10-8 Release fraction to wastewater from process (initial release

prior to RMM):

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 (%):

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

Assumed domestic sewage treatment plant flow (m3/d):

2000

=>53.1

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

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

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

Process Category: PROC08a Substance supplied to that use in form of: As such

Sector of end use: SU22

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

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): 20667

Continuous release Frequency and duration of use:

Emission Days (days/year): 225

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use 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):

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) No wastewater treatment required.

to provide the required 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 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%.

Section 3: Exposure estimation

Section 3.1Workers Exposure estimation

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

vessels/large containers at non-dedicated facilities

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

Long term exposure, Systemic,

Dermal

Not applicable.

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

Long term exposure, Systemic,

Inhalable

Not applicable.

0.76

exposure estimates for other PROC are 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

below this value

Long term exposure, Systemic,

Combined

Not applicable.

Not applicable.

Not applicable.

Long term exposure, Local, Dermal Not evaluated. 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,

Short term exposure, Systemic,

Dermal

Inhalable

Inhalable

Not applicable

Not applicable

Not evaluated.

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 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

Short term exposure, Systemic, 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 Environment Exposure estimation

Contributing exposure 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.

Section 3.2 Environment Exposure estimation

Contributing exposure 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.

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

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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 1.89x10-2 **EUSES** calculation Groundwater mg/l 7.70x10-5 **EUSES** calculation Not evaluated. **Justification Local concentration** PEC air (local+regional) 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 3.2 Environment Exposure estimation

Contributing exposure 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 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 UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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

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 worker exposure

Contributing exposure 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 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 operational conditions affecting worker 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:

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 2.1 Control of worker exposure

Contributing exposure 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

Other operational conditions affecting worker 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:

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. Wear appropriate respiratory protection, with a

minimum efficacy of 95%

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 67/166 Section 2.1 Control of worker exposure

Contributing exposure scenario controlling worker exposure for 2: Non industrial spraying

Product Characteristics: Liquid. Covers concentrations up to 10%

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.

Other operational conditions affecting worker 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:

Personal protection:

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 environmental exposure

Contributing exposure scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550

Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use affecting environmental

exposure:

1.0x10-5

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

Not applicable.

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

(%):

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

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required.

Indoor/Outdoor use. industrial setting

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

Organisational measures to prevent/limit release from site:

Prevent discharge of undissolved substance to or recover from onsite

Conditions and measures related to municipal sewage treatment

Assumed domestic sewage treatment plant flow (m3/d): 2000

wastewater.

Contributing exposure scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 93 Average Local Daily Tonnage (kg/day): 255

Frequency and duration of use: Continuous release.

Emission Days (days/year): 365

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

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Environmental factors not influenced by risk management: Indoor/Outdoor use. professional setting Other operational conditions of use affecting environmental 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 0.01 prior to RMM): Technical conditions and measures at process level (source) to Not applicable. 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 No air emission controls required; required removal efficiency is 0%. Treat on-site wastewater (prior to receiving water discharge) =>53.1 to provide the required removal efficiency of 3 (%):

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

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment

Amounts used: Tonnes/year

25% Fraction of EU tonnage used in region: 1160 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 5272

Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environmental factors not influenced by risk management:

Other operational conditions of use 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

Release fraction to wastewater from process (initial release

prior to RMM):

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:

Conditions and measures related to municipal sewage treatment

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required.

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

Organisational measures to prevent/limit release from site:

plant:

Not applicable.

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

Treat air emission to provide a typical removal efficiency of No air emission controls required; required removal efficiency is 0%.

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Amounts used: 1860 Tonnes/year

25% Fraction of EU tonnage used in region: Annual site tonnage (tonnes/year): 465 2114 Average Local Daily Tonnage (kg/day):

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% - 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 69/166

220 Emission Days (days/year): **Environmental factors not influenced by risk management:** Other operational conditions of use affecting environmental Indoor. 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 Release fraction to wastewater from process (initial release prior to RMM): Technical conditions and measures at process level (source) to Not applicable. 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 No air emission controls required; required removal efficiency is 0%. Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required. to provide the required removal efficiency of 3 (%):

Section 3: Exposure estimation

plant:

Organisational measures to prevent/limit release from site:
Conditions and measures related to municipal sewage treatment

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 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

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

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Section 3.1Workers Exposure estimation				
Contributing exposure scenario con		: Roller application or brushing		
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 3.1Workers Exposure estimate Contributing exposure scenario con		: Non industrial spraying		
Route of exposure	Contributing scenarios	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 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.	
			nas been denved.	

Short term exposure, Local, Not applicable. 0.243 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 3.2 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure scenario controlling environmental exposure for 1: Lube oil use

Release from point source

	(local exposure estimation) kg/day	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

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

Justification

Total release for regional

Agricultural soil averaged mg/kg 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 Not evaluated. **EUSES** calculation 5.91x10-5 **EUSES** calculation Annual average mg/m³ 2.69x10-15 3 58x10-11 Annual deposition mg/m2/d 2.22x10-14 Not evaluated. **EUSES** calculation Justification Local concentration PEC aquatic (local+regional) Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.2 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure 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

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

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 **EUSES** calculation 1.18x10-2 dwt 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 **EUSES** calculation Not evaluated. 3.57x10-11 **EUSES** calculation Annual average mg/m³ 0 Annual deposition mg/m2/d 0 Not evaluated. **EUSES** calculation PEC aquatic (local+regional) **Local concentration Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

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 UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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

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 worker exposure

Contributing exposure 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 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:

Not applicable.

Other operational conditions affecting worker 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:

removal efficiency of (%): 90% Not applicable.

dispersion and exposure:

Organisational measures to prevent/limit releases,

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 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker 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:

Personal protection:

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

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 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 75/166 Contributing exposure scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550

Frequency and duration of use: Continuous release.

300 Emission Days (days/year):

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

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

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):

Technical conditions and measures at process level (source) to Not applicable.

prevent release:

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

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) No wastewater treatment required.

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

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

Assumed domestic sewage treatment plant flow (m3/d): 2000

Contributing exposure scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 93 Average Local Daily Tonnage (kg/day): 255

Continuous release. Frequency and duration of use:

365 Emission Days (days/year):

Environmental factors not influenced by risk management:

Other operational conditions of use affecting environmental

0.01

Release fraction to air from process (initial release prior to

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):

Polyethyleneamines, HEPA-S140

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

Not applicable.

0.01

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

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 air emission controls required; required removal efficiency is 0%.

Treat on-site wastewater (prior to receiving water discharge) =>53.1

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

Indoor/Outdoor use, professional setting

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

Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment plant:

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

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 1160 Average Local Daily Tonnage (kg/day): 5272

Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environmental factors not influenced by risk management:

Other operational conditions of use affecting environmental

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):

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) No wastewater treatment required.

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Tonnes/year

Indoor/Outdoor use. industrial setting

1.0x10-5

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%.

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% 465 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environmental factors not influenced by risk management:

Other operational conditions of use affecting environmental exposure:

Indoor, industrial setting

Release fraction to air from process (initial release prior to

RMM):

1.0x10-5

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

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:

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

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

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

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 77/166

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required to provide the required removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Section 3: Exposure estimation

vessels/large containers at non-ded		u: Transfer of substance or pre	paration (charging/discharging) from/to
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 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 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 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 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 3.1Workers Exposure estim Contributing exposure scenario con		1: Non industrial spraying	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	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
Long term exposure, Systemic, Inhalable	Not applicable.	0.15	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

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 78/166 Short term exposure, Systemic, 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 Inhalable 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. 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 0.30 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 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure 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)	1.19x10-4	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 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 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 3.2 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure 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 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 UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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

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 worker exposure

Contributing exposure 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

Not applicable.

Other operational conditions affecting worker 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.

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 2.1 Control of worker exposure

Contributing exposure 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

Other operational conditions affecting worker 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:

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

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.

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 82/166 Contributing exposure scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550

Frequency and duration of use: Continuous release.

300 Emission Days (days/year):

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

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

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):

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) No wastewater treatment required.

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

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

Assumed domestic sewage treatment plant flow (m3/d): 2000

Contributing exposure scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 93 Average Local Daily Tonnage (kg/day): 255

Continuous release. Frequency and duration of use:

365 Emission Days (days/year):

Environmental factors not influenced by risk management:

Other operational conditions of use 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):

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) =>53.1

Not applicable.

0.01

0.01

0.01

Indoor/Outdoor use, professional setting

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

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 air emission controls required; required removal efficiency is 0%.

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

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.

ERC08f 83/166

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment plant:

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

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 1160 Average Local Daily Tonnage (kg/day): 5272

Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environmental factors not influenced by risk management:

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

Release fraction to air from process (initial release prior to 1.0x10-5

RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Technical conditions and measures at process level (source) to Not applicable.

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) No wastewater treatment required.

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% 465 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environmental factors not influenced by risk management:

Other operational conditions of use affecting environmental Indoor, 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):

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

(%):

Not applicable.

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

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 air emission controls required; required removal efficiency is 0%.

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 84/166

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required. to provide the required removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Section 3: Exposure estimation

Section 3.1Workers Exposure estimation

Section 5. I Workers Exposure estim			
Contributing exposure scenario con vessels/large containers at non-ded		D: Transfer of substance or prep	paration (charging/discharging) from/to
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.
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.
Short term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Section 3.1Workers Exposure estim Contributing exposure scenario con		1: Non industrial spraying	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic,	Not applicable.	0.11	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
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 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
Polyethyleneamines, HEPA-S140		Identified use name: Use of	fethylenamines in open processes with high

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 3.2 Environment Exposure estimation Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure scenario controlling environmental exposure for 1: Lube oil use

Release from point source

	(local exposure estimation) kg/day	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

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

Justification

Total release for regional

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

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

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 PEC aquatic (local+regional) Local concentration Justification Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.2 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure 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

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.

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 87/166 Agricultural soil averaged mg/kg 1.18x10-2 **EUSES** calculation

Grassland averaged mg/kg dwt 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 Not evaluated. EUSES calculation 0 Annual average mg/m³ 3.57x10-11 **EUSES** calculation Annual deposition mg/m2/d 0 Not evaluated. **EUSES** calculation PEC aquatic (local+regional) **Justification Local concentration**

Section 4: Guidance to check compliance with the exposure scenario

Micro-organism mg/l

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.

Not applicable.

Substance supplied to that use in form of: In a mixture

Not applicable.

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 88/166

Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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

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 worker exposure

Contributing exposure 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

Not applicable.

Not applicable.

Other operational conditions affecting worker 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:

dispersion and exposure:

Personal protection:

Organisational measures to prevent/limit releases,

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

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

management supervision controls.

removal efficiency of (%): 90%

Section 2.1 Control of worker exposure

Contributing exposure 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

Not applicable.

Not applicable.

Other operational conditions affecting worker 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:

on the state of the worker.

dispersion and exposure:

Organisational measures to prevent/limit releases,

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.

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 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

Industrial

Section 2.1 Control of worker exposure

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

Not applicable.

Other operational conditions affecting worker 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:

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 2.1 Control of worker exposure

Contributing exposure 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: 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 operational conditions affecting worker 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:

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 environmental exposure

Contributing exposure scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Amounts used:

Fraction of EU tonnage used in region: Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550

Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor:

Other operational conditions of use 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):

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) No wastewater treatment required. to provide the required removal efficiency of 3 (%):

1860 Tonnes/year

25%

Indoor/Outdoor use. industrial setting

1.0x10-5

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%.

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

Prevent discharge of undissolved substance to or recover from onsite Organisational measures to prevent/limit release from site:

wastewater.

2000

3.0x10-5

1.0x10-3

1.0x10-3

Not applicable.

Conditions and measures related to municipal sewage treatment plant:

Assumed domestic sewage treatment plant flow (m3/d):

Contributing exposure scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1300 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 326 Average Local Daily Tonnage (kg/day): 1087

Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Indoor/Outdoor use. industrial setting Other operational conditions of use 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):

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) =>53.1

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

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

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Amounts used: 4650 Tonnes/year

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 1160 5272 Average Local Daily Tonnage (kg/day):

Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use 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 0

prior to RMM):

Technical conditions and measures at process level (source) to

prevent release:

Not applicable.

1.0x10-5

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

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

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

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:

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

Treat air emission to provide a typical removal efficiency of No air emission controls required; required removal efficiency is 0%.

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required. to provide the required removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Indoor/Outdoor use. industrial setting Other operational conditions of use 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):

Technical conditions and measures at process level (source) to Not applicable.

prevent release:

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

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

(%):

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

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required.

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Section 3: Exposure estimation

Section 3.1Workers Exposure estimation

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

1 0x10-5

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

Long term exposure, Systemic,

Inhalable

Not applicable.

0.3656

exposure estimates for other PROC are 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

below this value

Long term exposure, Systemic, Combined

Not evaluated

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Long term exposure, Local, Dermal 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 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, 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 acute effects and therefore, no acute DNEL Dermal 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. 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 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 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 3.1Workers Exposure estimation

Contributing exposure 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 The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.0685714 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. 0.365575 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 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. 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 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, 0.73115 The ECETOC TRA tool has been used to 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

Section 3.1Workers Exposure estimation

Contributing exposure 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**

Long term exposure, Systemic, Not applicable.

Dermal

Inhalable

Dermal

0.034286

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 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

Long term exposure, Systemic, 0.548325 The ECETOC TRA tool has been used to 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 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, Since the substance is not classified for Not applicable Not applicable. 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 acute effects and therefore, no acute DNEL **Dermal** has been derived Not applicable. Since the substance is not classified for Short term exposure, Systemic, Not applicable 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 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, Not applicable. 1.096725 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 **Section 3.1Workers Exposure estimation** Contributing exposure 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** The ECETOC TRA tool has been used to Long term exposure, Systemic, 0.0685714 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 The ECETOC TRA tool has been used to Long term exposure, Systemic, 0.365575 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 evaluated. 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 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 Since the substance is not classified for Short term exposure, Systemic, Not applicable Not applicable. 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. 0.73115 estimate workplace exposures unless Inhalable otherwise indicated. The PROC with the highest exposure level is given since the

below this value

exposure estimates for other PROC are

Section 3.2 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure 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

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

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 PEC aquatic (local+regional) Local concentration Justification Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.2 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure 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

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

Agricultural soil averaged mg/kg 1.18x10-2 **EUSES** calculation

Grassland averaged mg/kg dwt 1.18x10-2 **EUSES** calculation **EUSES** calculation

Groundwater mg/l Not evaluated. 5.91x10-5

PEC air (local+regional) **Local concentration Justification**

Not applicable.

Not applicable.

During emission mg/m³ **EUSES** calculation Not evaluated. 3.57x10-11 **EUSES** calculation Annual average mg/m³ 0 Annual deposition mg/m2/d 0 Not evaluated. **EUSES** calculation **Justification** Local concentration PEC aquatic (local+regional)

Section 4: Guidance to check compliance with the exposure scenario

Micro-organism mg/l

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.

Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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

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% - 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: Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Contributing exposure 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).

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.

Other operational conditions affecting worker 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:

dispersion and exposure:

Personal protection:

Organisational measures to prevent/limit releases,

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 2.1 Control of worker exposure

Contributing exposure scenario controlling worker exposure for 1: Calendering operations

Liquid. Covers concentrations up to 15% **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

Not applicable.

Other operational conditions affecting worker 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:

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

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Industrial

Section 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker 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%

Indoor, industrial setting

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 90%

Section 2.1 Control of worker exposure

Contributing exposure 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

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

Other operational conditions affecting worker 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:

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.

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 2.1 Control of worker exposure

Contributing exposure scenario controlling worker exposure for 4: Transfer of substance or preparation (charging/discharging) from/to

vessels/large containers at dedicated facilities

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 operational conditions affecting worker 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:

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.

Section 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker 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

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% - 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

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 2.1 Control of worker exposure

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

Not applicable.

Other operational conditions affecting worker 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:

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 2.1 Control of worker exposure

Contributing exposure scenario controlling worker exposure for 7: Production of preparations* or articles by tabletting, compression,

extrusion, pelletisation

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: Other operational conditions affecting worker exposure: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Indoor, industrial setting

Technical conditions and measures to control dispersion

from source towards the worker:

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

removal efficiency of (%): 90%

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 environmental exposure

Contributing exposure scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550

Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use affecting environmental

exposure:

Indoor/Outdoor use. industrial setting

Release fraction to air from process (initial release prior to

RMM):

1 0x10-5

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release 0

prior to RMM):

Technical conditions and measures at process level (source) to

prevent release:

Not applicable.

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

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

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

Treat air emission to provide a typical removal efficiency of No air emission controls required; required removal efficiency is 0%. (%):

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required.

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

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

1 0x10-3

Not applicable.

Conditions and measures related to municipal sewage treatment

plant:

2000 Assumed domestic sewage treatment plant flow (m3/d):

Contributing exposure scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Amounts used: 1300 Tonnes/year

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 326 Average Local Daily Tonnage (kg/day): 1087

Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

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

exposure:

Release fraction to air from process (initial release prior to 3.0x10-5

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

1.0x10-3

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) =53.1

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

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

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

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

4650 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 1160 Average Local Daily Tonnage (kg/day): 5272

Frequency and duration of use: Continuous release.

220 **Emission Days (days/year):**

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

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

exposure:

Release fraction to air from process (initial release prior to 1 0x10-5

Release fraction to soil from process (initial release prior to 0

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

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

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:

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

Treat air emission to provide a typical removal efficiency of

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

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required. to provide the required removal efficiency of 3 (%):

Indoor/Outdoor use. industrial setting

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use 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):

Technical conditions and measures at process level (source) to

prevent release:

Not applicable.

1 0x10-5

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) No wastewater treatment required.

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

Conditions and measures related to municipal sewage treatment plant:

Organisational measures to prevent/limit release from site:

Section 3: Exposure estimation

Section 3.1Workers Exposure estimation

Contributing exposure 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**

Long term exposure, Systemic,

Dermal

Not applicable.

0.0822

Justification

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

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

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 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, 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 3.1Workers Exposure estimated Contributing exposure scenario con		L. Calendaring 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.
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

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below this value

Section 3.1Workers Exposure estima	ation		
Contributing exposure scenario con		Industrial spraying	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.1286	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.
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 3.1Workers Exposure estimate Contributing exposure scenario con		Transfer of substance or preparat	tion (charging/discharging) from/to
vessels/large containers at non-dedi	icated facilities	• •	(0 0 0 0,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification The ECCTOR TRA tool has been used to
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.
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 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

has been derived.

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, 1.097 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 3.1Workers Exposure estimation** Contributing exposure scenario controlling worker exposure for 4: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to 0.0822 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 Long term exposure, Systemic, Not applicable. 0.457 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 Not evaluated. Not evaluated Not applicable. Long term exposure, Systemic, 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. Not applicable Since the substance is not classified for acute effects and therefore, no acute DNEL Dermal 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 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. Short term exposure, Local, 0.914 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 3.1Workers Exposure estimation Contributing exposure scenario controlling worker exposure for 5: 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, Not applicable. 0.0822 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, 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 Long term exposure, Systemic, Not evaluated. Not evaluated. 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.

Not applicable.

Since the substance is not classified for

Polyethyleneamines, HEPA-S140

Short term exposure, Local, Dermal 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% - 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

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 has been derived.

acute effects and therefore, no acute DNEL

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 3.1Workers Exposure estimation

Short term exposure, Local, Dermal Not applicable.

Contributing exposure scenario controlling worker exposure for 6: Treatment of articles by dipping and pouring

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

Not applicable.

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal Not applicable.

Long term exposure, Local,

Inhalable

Not applicable

Not evaluated.

Not evaluated. 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. Since the substance is not classified for

Short term exposure, Systemic, Inhalable

Not applicable

Not applicable.

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

Dermal

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 3.1Workers Exposure estimation

Contributing exposure scenario controlling worker exposure for 7: Production of preparations* or articles by tabletting, compression,

extrusion, pelletisation

Route of exposure Long term exposure, Systemic, **Contributing scenarios**

Not applicable.

Dose/Concentration 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

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 106/166

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 Environment Exposure estimation

Contributing exposure 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/m ³	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 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 3.2 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

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

Total release for regional

Release from point source

	(local exposure estimation) kg/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

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

Justification

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 Not evaluated. **EUSES** calculation **Local concentration** PEC aquatic (local+regional) **Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.2 Environment Exposure estimation

Contributing exposure 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 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 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)

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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

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 worker exposure

Contributing exposure 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).

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.

Indoor. industrial setting Other operational conditions affecting worker 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:

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 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker exposure: Indoor, industrial 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:

Personal protection:

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 110/166

Industrial

Section 2.1 Control of worker exposure

Contributing exposure 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

Not applicable.

Other operational conditions affecting worker 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:

dispersion and exposure:

Organisational measures to prevent/limit releases,

Personal protection:

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 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker 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.

Section 2.1 Control of worker exposure

Contributing exposure 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 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 operational conditions affecting worker 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 2.1 Control of worker exposure

Contributing exposure scenario controlling worker exposure for 5: 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).

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

Other operational conditions affecting worker 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:

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

removal efficiency of (%): 90%

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 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 111/166

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 2.1 Control of worker exposure

Contributing exposure scenario controlling worker exposure for 6: Treatment of articles by dipping and pouring

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.

Other operational conditions affecting worker 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: 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 2.1 Control of worker exposure

Contributing exposure 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.

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 operational conditions affecting worker 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 2.1 Control of worker exposure

Contributing exposure 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

Not applicable.

Other operational conditions affecting worker 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:

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 environmental exposure

Contributing exposure scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550

Frequency and duration of use: Continuous release

Emission Days (days/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

Environmental factors not influenced by risk management:

Local marine water dilution factor:

Other operational conditions of use 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): 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) No wastewater treatment required.

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Assumed domestic sewage treatment plant flow (m3/d):

Not applicable.

1000

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%.

Indoor/Outdoor use. industrial setting

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

Contributing exposure scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1300 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: Annual site tonnage (tonnes/year): 326 Average Local Daily Tonnage (kg/day): 1087

Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor:

Other operational conditions of use 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):

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) =53.1 to provide the required removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

25%

Indoor/Outdoor use. industrial setting

3 0x10-5

1.0x10-3

1 0x10-3

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%.

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

Contributing exposure scenario controlling environmental exposure for 2: Use as an epoxy curing agent Operational conditions: Indoor/Outdoor use. Product Characteristics: Not applicable. Concentration of substance in mixture or article: 4650 Tonnes/year Amounts used: Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 1160 Average Local Daily Tonnage (kg/day): 5272 Frequency and duration of use: Continuous release. Emission Days (days/year): Environmental factors not influenced by risk management: Local marine water dilution factor: 1000 Indoor/Outdoor use. industrial setting Other operational conditions of use affecting environmental 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): Technical conditions and measures at process level (source) to Not applicable. 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 No air emission controls required; required removal efficiency is 0%. (%): Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required. to provide the required removal efficiency of 3 (%): Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment plant: Contributing exposure scenario controlling environmental exposure for 3: Epoxy curing agent in paint Operational conditions: Indoor use. **Product Characteristics:** Not applicable. Concentration of substance in mixture or article: 1860 Tonnes/year Amounts used: Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114 Frequency and duration of use: Continuous release Emission Days (days/year): 220 Environmental factors not influenced by risk management: Local marine water dilution factor: 1000 Other operational conditions of use affecting environmental Indoor/Outdoor use. industrial setting 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): Technical conditions and measures at process level (source) to Not applicable. 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) No wastewater treatment required. to provide the required removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Polyethyleneamines, HEPA-S140

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

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

Conditions and measures related to municipal sewage treatment plant:

Section 3: Exposure estimation

Section 3.1Workers Exposure estim Contributing exposure scenario cor and articles (multistage and/or sign	ntrolling worker exposure for	0: Mixing or blending in batch p	processes for formulation of preparations*
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 exposure estimates for other PROC are below this value
Section 3.1Workers Exposure estim Contributing exposure scenario cor		1: Industrial 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 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 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.

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

Short term exposure, Systemic, Not applicable. Since the substance is not classified for 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 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. 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 3.1Workers Exposure estimation** Contributing exposure scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **Contributing scenarios** Route of exposure **Dose/Concentration Justification** The ECETOC TRA tool has been used to Long term exposure, Systemic, 0.09

Dermal

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

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 Not applicable.

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal Not evaluated. 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 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

Short term exposure, Systemic, Inhalable

Short term exposure, Systemic,

Not applicable

Not applicable

Not applicable.

acute effects and therefore, no acute DNEL has been derived

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.

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 3.1Workers Exposure estimation

Contributing exposure scenario controlling worker exposure for 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Route of exposure **Contributing scenarios Dose/Concentration Justification** 0.05

Long term exposure, Systemic, **Dermal**

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

Long term exposure, Systemic,

Inhalable

Not applicable.

0.61

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 below this value

Long term exposure, Systemic,

Combined

Not applicable.

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Long term exposure, Local, Dermal Not evaluated

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 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

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

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 3.1Workers Exposure estimation

Contributing exposure scenario controlling worker exposure for 4: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Route of exposure

Short term exposure, Local,

Inhalable

Long term exposure, Systemic, **Dermal**

Contributing scenarios Not applicable.

Not applicable.

Dose/Concentration 0.05

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

Not applicable.

Justification

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. Combined 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

Since the substance is not classified for

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

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

Not applicable.

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

has been derived.

Short term exposure, Systemic, Combined

Inhalable

Inhalable

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, Dermal Not applicable

Not applicable.

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

Short term exposure, Local,

Not applicable.

1.22

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 3.1Workers Exposure estimation

Contributing exposure scenario controlling worker exposure for 5: Roller application or brushing

Route of exposure Long term exposure, Systemic,

Contributing scenarios Not applicable.

0.09

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

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 117/166

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
Section 3.1Workers Exposure estimates Contributing exposure scenario con		6: Treatment of articles by dipp	ing and pouring
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
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.	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.
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.	Not applicable.	Not applicable.

Section 3.1Workers Exposure estimation

Contributing exposure scenario controlling worker exposure for 7: Production of preparations* or articles by tabletting, compression, extrusion, pelletisation

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.
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.

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

Inhalable	то с арриодолог		. Tot approacto.
Section 3.1Workers Exposure estimates Contributing exposure scenario con		8: Hand-mixing with intimate co	ontact and only PPE available
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.
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. Not applicable.	Not applicable. Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Section 3.2 Environment Exposure estimation

Short term exposure, Local, Dermal Not applicable.

Not applicable.

Short term exposure, Local,

Contributing exposure 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.

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 3.2 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure 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

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

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 PEC aquatic (local+regional) **Local concentration Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.2 Environment Exposure estimation

Contributing exposure 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 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 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.

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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

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 worker exposure

Contributing exposure 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%

Not applicable. 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:

Indoor. industrial setting Other operational conditions affecting worker 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 2.1 Control of worker exposure

Contributing exposure 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

Indoor. industrial setting Other operational conditions affecting worker 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:

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

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, ERC08f

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Industrial

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 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker 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 2.1 Control of worker exposure

Contributing exposure 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

Other operational conditions affecting worker 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 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker 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.

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 2.1 Control of worker exposure

Contributing exposure scenario controlling worker exposure for 5: Roller application or brushing

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 operational conditions affecting worker 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 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker 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 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker 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 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker 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.

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, PROC04, P

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 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 environmental exposure

Contributing exposure scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550

Frequency and duration of use: Continuous release

300 Emission Days (days/year):

Environmental factors not influenced by risk management:

1000

Other operational conditions of use affecting environmental

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):

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Assumed domestic sewage treatment plant flow (m3/d): 2000

Local marine water dilution factor:

Indoor/Outdoor use. industrial setting

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%.

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required.

Prevent discharge of undissolved substance to or recover from onsite

wastewater

Contributing exposure scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1300 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 326 1087 Average Local Daily Tonnage (kg/day):

Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environmental factors not influenced by risk management:

Local marine water dilution factor:

Other operational conditions of use affecting environmental

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

3.0x10-5

Indoor/Outdoor use. industrial setting

1.0x10-3

1 0x10-3

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

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

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

Not applicable.

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:

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

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) =53.1

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

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

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

4650 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 1160 Average Local Daily Tonnage (kg/day): 5272

Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environmental factors not influenced by risk management:

Local marine water dilution factor:

Other operational conditions of use affecting environmental

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):

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) No wastewater treatment required. to provide the required 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

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year Amounts used:

25% Fraction of EU tonnage used in region: Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environmental factors not influenced by risk management:

Local marine water dilution factor:

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

exposure:

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,

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

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

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 126/166

Release fraction to soil from process (initial release prior to

Release fraction to air from process (initial release prior to

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

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) No wastewater treatment required. to provide the required removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not applicable.

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%.

Section 3: Exposure estimation

Section 3.1Workers Exposure estimation						
Contributing exposure 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.	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.			
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.	Not applicable.	Not applicable.			
Section 3.1Workers Exposure estimation						
_		. Industrial approxima				
Contributing exposure scenario con	trolling worker exposure for 1		Lucatification.			
Contributing exposure scenario con Route of exposure	trolling worker exposure for 1 Contributing scenarios	Dose/Concentration	Justification			
Contributing exposure scenario con Route of exposure Long term exposure, Systemic, Dermal	trolling worker exposure for 1 Contributing scenarios Not applicable.	Dose/Concentration Not applicable.	Not applicable.			
Contributing exposure scenario con Route of exposure Long term exposure, Systemic,	trolling worker exposure for 1 Contributing scenarios	Dose/Concentration				
Contributing exposure scenario con Route of exposure Long term exposure, Systemic, Dermal Long term exposure, Systemic,	trolling worker exposure for 1 Contributing scenarios Not applicable.	Dose/Concentration Not applicable.	Not applicable.			
Contributing exposure scenario con Route of exposure Long term exposure, Systemic, Dermal Long term exposure, Systemic, Inhalable Long term exposure, Systemic,	trolling worker exposure for 1 Contributing scenarios Not applicable. Not applicable. Not applicable.	Dose/Concentration Not applicable. Not applicable.	Not applicable.			
Contributing exposure scenario con Route of exposure Long term exposure, Systemic, Dermal Long term exposure, Systemic, Inhalable Long term exposure, Systemic, Combined	trolling worker exposure for 1 Contributing scenarios Not applicable. Not applicable. Not applicable.	Dose/Concentration Not applicable. Not applicable. Not applicable.	Not applicable. Not applicable. Not applicable.			
Contributing exposure scenario con Route of exposure Long term exposure, Systemic, Dermal Long term exposure, Systemic, Inhalable Long term exposure, Systemic, Combined Long term exposure, Local, Dermal Long term exposure, Local,	trolling worker exposure for 1 Contributing scenarios Not applicable. Not applicable. Not applicable. Not applicable.	Dose/Concentration Not applicable. Not applicable. Not applicable. Not applicable.	Not applicable. Not applicable. Not applicable. Not applicable.			
Contributing exposure scenario con Route of exposure Long term exposure, Systemic, Dermal Long term exposure, Systemic, Inhalable Long term exposure, Systemic, Combined Long term exposure, Local, Dermal Long term exposure, Local, Inhalable Short term exposure, Systemic,	Atrolling worker exposure for 1 Contributing scenarios Not applicable.	Dose/Concentration Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.			
Contributing exposure scenario con Route of exposure Long term exposure, Systemic, Dermal Long term exposure, Systemic, Inhalable Long term exposure, Systemic, Combined Long term exposure, Local, Dermal Long term exposure, Local, Inhalable Short term exposure, Systemic, Dermal Short term exposure, Systemic,	Atrolling worker exposure for 1 Contributing scenarios Not applicable.	Dose/Concentration Not applicable.	Not applicable. Not applicable. Not applicable. 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 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 127/166

Section 3.1 Workers Exposure estimate			
Contributing exposure scenario con vessels/large containers at non-ded		ransfer of substance or preparati	on (charging/discharging) from/to
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.
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.
Short term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Section 3.1Workers Exposure estimated Contributing exposure scenario convessels/large containers at dedicate	trolling worker exposure for 3: T	ransfer of substance or preparati	on (charging/discharging) from/to
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.
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,	• •	Not applicable.	Not applicable.
Inhalable	Not applicable.	Not applicable.	Not applicable.
Section 3.1Workers Exposure estimates Contributing exposure scenario confilling line, including weighing)		ransfer of substance or preparati	on into small containers (dedicated
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.
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. Not applicable.	Not applicable. Not applicable.

Inhalable

Section 3.1Workers Exposure estimation

Section 3.1Workers Exposure estimation						
Contributing exposure scenario controlling worker exposure for 5: Roller application or brushing						
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.			
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.			
Short term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.			
Section 3.1Workers Exposure estimates Contributing exposure scenario con		reatment of articles by dipping an	nd pouring			
Route of exposure	Contributing scenarios	Dose/Concentration	Justification			
Long term exposure, Systemic,	Not applicable.	Not applicable.	Not applicable.			
Dermal Long term exposure, Systemic,	Not applicable.	Not applicable.	Not applicable.			
Inhalable	•	•				
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.			
	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.			
Short term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.			
Section 3.1Workers Exposure estimated Contributing exposure scenario con extrusion, pelletisation		roduction of preparations* or arti	cles by tabletting, compression,			
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.			
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. Not applicable.	Not applicable. Not applicable.			

Inhalable

Section 3.1Workers Exposure estimates Contributing exposure scenario con		8: Hand-mixing with intimate co	ontact 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 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 Environment Exposure estimation

Contributing exposure 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

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

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 3.2 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

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

Total release for regional

Release from point source

	(local exposure estimation) kg/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

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

Justification

Sector of end use: SU03, SU22 Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Agricultural soil averaged mg/kg 1.18x10-2 **EUSES** calculation Grassland averaged mg/kg dwt 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 Not evaluated. **EUSES** calculation Annual average mg/m³ 0 3.57x10-11 **EUSES** calculation Annual deposition mg/m2/d 0 Not evaluated. **EUSES** calculation PEC aquatic (local+regional) **Justification Local concentration** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.2 Environment Exposure estimation

Contributing exposure 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 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% - 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

Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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

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 worker exposure

Contributing exposure 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

Not applicable.

Other operational conditions affecting worker 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.

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 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker exposure: Indoor, professional setting Not applicable.

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:

Organisational measures to prevent/limit releases,

dispersion and exposure:

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. Wear appropriate respiratory protection. with a

minimum efficacy of 95%

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

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Professional

Contributing exposure scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550

Frequency and duration of use: Continuous release.

300 Emission Days (days/year):

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

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

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):

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

(%):

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required.

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

Indoor/Outdoor use, professional setting

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

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

Assumed domestic sewage treatment plant flow (m3/d): 2000

Contributing exposure scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 93 Average Local Daily Tonnage (kg/day): 255

Continuous release. Frequency and duration of use:

365 Emission Days (days/year):

Environmental factors not influenced by risk management:

Other operational conditions of use affecting environmental

Release fraction to air from process (initial release prior to

RMM):

0.01

0.01

0.01

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

Release fraction to wastewater from process (initial release

prior to RMM):

Not applicable.

Technical conditions and measures at process level (source) to

prevent release:

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

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

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

Treat on-site wastewater (prior to receiving water discharge) =>53.1

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

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

Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment plant:

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

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 1160 Average Local Daily Tonnage (kg/day): 5272

Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environmental factors not influenced by risk management:

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

Release fraction to air from process (initial release prior to 1.0x10-5

RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Technical conditions and measures at process level (source) to Not applicable.

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) No wastewater treatment required.

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

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

Operational conditions: Indoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% 465 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environmental factors not influenced by risk management:

Other operational conditions of use affecting environmental Indoor, industrial setting

exposure:

Release fraction to air from process (initial release prior to

RMM):

1.0x10-5

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Not applicable.

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

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

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

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

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

(%):

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 135/166

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required to provide the required removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Section 3: Exposure estimation

	trolling worker exposure for	0։ Mixing or blending in batch բ	processes for formulation of preparations*
and articles (multistage and/or signi Route of exposure	ficant contact) 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 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 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 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 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 DNEL has been derived.
Short term exposure, Local, Inhalable	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 3.1Workers Exposure estima	ation		
Contributing exposure scenario con vessels/large containers at non-dedi		1: Transfer of substance or pre	paration (charging/discharging) from/to
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.	0.45697	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.

Polyethyleneamines, HEPA-S140

Long term exposure, Systemic,

Long term exposure, Local,

Inhalable

Long term exposure, Local, Dermal Not applicable.

Not evaluated.

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% - Professional Process Category: PROC05, PROC08a Substance supplied to that use in form of: In a mixture

Not applicable.

Not applicable.

has been derived.

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

Since the substance is not classified for

acute effects and therefore, no acute DNEL

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 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. Short term exposure, Systemic, Not applicable Since the substance is not classified for 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. 0.91393 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 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure 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	

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

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 3.2 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure 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 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 UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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% -

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

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 worker exposure

Contributing exposure 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%

Not applicable. Amounts used:

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

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

Not applicable.

Other operational conditions affecting worker exposure: Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

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 environmental exposure

Contributing exposure scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1274

Frequency and duration of use: Continuous release.

365 Emission Days (days/year):

Environmental factors not influenced by risk management:

Local marine water dilution factor:

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

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

RMM):

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

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

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:

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

Treat air emission to provide a typical removal efficiency of

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

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required.

Conditions and measures related to municipal sewage treatment

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

plant:

Assumed domestic sewage treatment plant flow (m3/d): 2000

Contributing exposure scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Amounts used:

Fraction of EU tonnage used in region: Annual site tonnage (tonnes/year): 465 2114 Average Local Daily Tonnage (kg/day):

Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environmental factors not influenced by risk management:

Local marine water dilution factor:

Other operational conditions of use 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

Release fraction to wastewater from process (initial release

prior to RMM):

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) No wastewater treatment required.

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

Conditions and measures related to municipal sewage treatment plant:

Not applicable.

1860 Tonnes/year

25%

1.1.10-5

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%.

Section 3: Exposure estimation

Section 3.1Workers Exposure estimation

Contributing exposure 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, Not applicable.

Contributing scenarios

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

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

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 Environment Exposure estimation

Contributing exposure 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.

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 3.2 Environment Exposure estimation

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

E	nvironment	Not available.
H	lealth	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 UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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% -

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

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure List of use descriptors

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 worker exposure

Contributing exposure 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 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

Not applicable.

Indoor. professional setting Other operational conditions affecting worker 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,

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 2.1 Control of worker exposure

Contributing exposure 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

Other operational conditions affecting worker 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:

Personal protection:

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 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

Contributing exposure scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1274

Frequency and duration of use: Continuous release.

365 Emission Days (days/year):

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use 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):

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:

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

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

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required.

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

Organisational measures to prevent/limit release from site: Prevent discharge of undissolved substance to or recover from onsite

wastewater

1.1x10-5

Conditions and measures related to municipal sewage treatment

Assumed domestic sewage treatment plant flow (m3/d): 2000

Contributing exposure scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Continuous release. Frequency and duration of use:

220 Emission Days (days/year):

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

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

exposure:

Release fraction to air from process (initial release prior to 1 1 10-5

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

Release fraction to wastewater from process (initial release

prior to RMM):

Technical conditions and measures at process level (source) to

prevent release:

Not applicable.

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

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

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

Treat air emission to provide a typical removal efficiency of No air emission controls required; required removal efficiency is 0%.

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

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required to provide the required removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Section 3: Exposure estimation

vessels/large containers at non-ded		u: Transfer of substance or pre	paration (charging/discharging) from/to
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 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.	0.61	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 3.1Workers Exposure estimates Contributing exposure scenario con		1: Roller application or brushin	n
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 DNEI

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, Systemic, 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 Inhalable 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. 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 0.61 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 Environment Exposure estimation

Contributing exposure 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	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	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 3.2 Environment Exposure estimation

Contributing exposure 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	

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

Concentration in sewage sludge **EUSES** calculation mg/kg dwt **Local concentration** PEC aquatic (local+regional) Justification Fresh water mg/l 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 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 **EUSES** calculation 1 72x10-6 Not evaluated **Local concentration** PEC aquatic (local+regional) **Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

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

Environment Not applicable.

Health Not applicable.

Additional good practices Not applicable.

Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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% -

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

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 worker exposure

Contributing exposure 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).

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

Indoor, industrial setting Other operational conditions affecting worker 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.

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 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker exposure: Indoor, industrial 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,

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.

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

Industrial

Section 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker exposure: Indoor, industrial setting

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:

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

removal efficiency of (%): 90%

Organisational measures to prevent/limit releases,

dispersion and exposure:

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 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker exposure: Indoor, industrial 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 2.1 Control of worker exposure

Contributing exposure 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 2%

Amounts used: Not applicable.

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

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

Other operational conditions affecting worker exposure:

Indoor, industrial 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,

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 2.1 Control of worker exposure

Contributing exposure scenario controlling worker exposure for 5: Treatment of articles by dipping and pouring

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, industrial setting Other operational conditions affecting worker 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:

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 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

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.

Section 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker exposure:

Indoor, industrial 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 environmental exposure

Contributing exposure scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1274

Frequency and duration of use: Continuous release.

365 Emission Days (days/year):

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use affecting environmental Indoor/Outdoor use. industrial 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

Release fraction to wastewater from process (initial release

prior to RMM): 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:

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

Treat air emission to provide a typical removal efficiency of

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

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

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required.

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

2000 Assumed domestic sewage treatment plant flow (m3/d):

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

Contributing exposure scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use 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):

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) No wastewater treatment required.

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Section 3: Exposure estimation

Section 3.1Workers Exposure estimation

Contributing exposure 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
			TI FOETO O TD 4

Long term exposure, Systemic,

Dermal

Not applicable.

0.055

Indoor/Outdoor use. industrial setting

1 1x10-5

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

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

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

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 evaluated Not applicable. Not applicable. Combined

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

Long term exposure, Local,

Inhalable

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, Systemic, Not applicable **Dermal**

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 Inhalable

Since the substance is not classified for Not applicable.

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

Short term exposure, Systemic,

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

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3.1Workers Exposure estimation Contributing exposure scenario controlling worker exposure for 1: Calendering operations Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to 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 0.61 Long term exposure, Systemic, 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 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. Since the substance is not classified for Not applicable acute effects and therefore, no acute DNEL **Dermal** 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. 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 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. 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 **Section 3.1Workers Exposure estimation** Contributing exposure 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, 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 0.305 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 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. Since the substance is not classified for Not applicable 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 acute effects and therefore, no acute DNEL Dermal 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% -. Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09,

Not applicable.

1 22

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

PROC13, PROC16

153/166

Sector of end use: SU03, SU22

Substance supplied to that use in form of: In a mixture

Environmental Release Category: ERC01, ERC04, ERC10b

Subsequent service life relevant for that use: No.

has been derived.

Short term exposure, Local, Dermal Not applicable

Not applicable.

Short term exposure, Local,

Inhalable

Short term exposure, Systemic, Not applicable. Since the substance is not classified for 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 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 3.1Workers Exposure estimation** Contributing exposure scenario controlling worker exposure for 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities **Contributing scenarios** Route of exposure **Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.055 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. 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. Since the substance is not classified for Long term exposure, Local, Not applicable Not applicable. 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. Since the substance is not classified for Short term exposure, Systemic, Not applicable 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. 1.22 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 3.1Workers Exposure estimation** Contributing exposure scenario controlling worker exposure for 4: 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.	0.055	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.

Not applicable.

Polyethyleneamines, HEPA-S140

Long term exposure, Local, Dermal Not evaluated.

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

PROC13, PROC16
Substance supplied to that use in form of: In a mixture

Not applicable.

Sector of end use: SU03, SU22 Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC04, ERC10b

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

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.

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

Section 3.1Workers Exposure estimation

Long term exposure, Systemic,

Contributing exposure scenario controlling worker exposure for 5: Treatment of articles by dipping and pouring

Not applicable.

Route of exposure **Contributing scenarios Dose/Concentration** The ECETOC TRA tool has been used to Long term exposure, Systemic, 0 110 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 0.305

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

The ECETOC TRA tool has been used to

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. Since the substance is not classified for Not applicable

acute effects and therefore, no acute DNEL Inhalable

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

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

acute effects and therefore, no acute DNEL Combined

has been derived

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

acute effects and therefore, no acute DNEL

has been derived.

0.61 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 3.1Workers Exposure estimation

Long term exposure, Local, Dermal Not applicable.

Dermal

Contributing exposure scenario controlling worker exposure for 6: Using material as fuel sources, limited exposure to unburned product to be expected

Not applicable.

Route of exposure **Dose/Concentration Contributing scenarios Justification** Long term exposure, Systemic, Not applicable. Not applicable. Not applicable.

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

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

Combined

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

Not applicable.

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. 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. Not applicable. Short term exposure, Systemic, Not applicable. Combined Not applicable. Short term exposure, Local, Dermal Not applicable. Not applicable. Short term exposure, Local, Not applicable. Not applicable. Not applicable. Inhalable

Section 3.2 Environment Exposure estimation

Contributing exposure 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 3.2 Environment Exposure estimation

Contributing exposure 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	
	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

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, PROC096, PROC013, PROC013, PROC016

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

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 EUSES** calculation Agricultural soil averaged mg/kg 2.07x10-5 1.19x10-2 Grassland averaged mg/kg dwt 4.17x10-5 **EUSES** calculation 1.19x10-2 Groundwater mg/l **EUSES** calculation Not evaluated. 5.92x10-5 PEC air (local+regional) **Justification Local concentration** During emission mg/m³ **EUSES** calculation 3.47x10-7 Not evaluated. **EUSES** calculation Annual average mg/m³ 2.09x10-7 2.09x10-7 Annual deposition mg/m2/d 1.72x10-6 Not evaluated. **EUSES** calculation PEC aquatic (local+regional) **Justification Local concentration**

Section 4: Guidance to check compliance with the exposure scenario

Micro-organism mg/l

Environment Not available.

Health Not available.

Not applicable.

Not applicable.

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

Not applicable.

Environment Not applicable.

Health Not applicable.

Additional good practices Not applicable.

Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

Short title of the exposure scenario 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% -

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

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

Section 2: Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Contributing exposure 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%

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

Not applicable.

Not applicable.

Other operational conditions affecting worker 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.

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 2.1 Control of worker exposure

Contributing exposure 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

Other operational conditions affecting worker exposure: Indoor, industrial 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:

Not applicable.

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

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.

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% -

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

158/166

Industrial

Industrial

Section 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker 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. 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 2.1 Control of worker exposure

Contributing exposure 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

Other operational conditions affecting worker 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.

Section 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker 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:

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.

Section 2.1 Control of worker exposure

Contributing exposure scenario controlling worker exposure for 5: Roller application or brushing

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 operational conditions affecting worker exposure: Indoor, industrial setting

Technical conditions and measures at process level

(source) to prevent release:

dispersion and exposure:

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases,

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most

Industrial

Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16

likely exposure form - Use of preparations containing EA up to 0.5% -

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

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 2.1 Control of worker exposure

Contributing exposure 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

Not applicable.

Not applicable.

Other operational conditions affecting worker 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.

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 2.1 Control of worker exposure

Contributing exposure 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 operational conditions affecting worker 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.

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 environmental exposure

Contributing exposure scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 1274 Average Local Daily Tonnage (kg/day):

Frequency and duration of use: Continuous release.

365 Emission Days (days/year):

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use affecting environmental

exposure:

Indoor/Outdoor use. industrial setting

Release fraction to air from process (initial release prior to

RMM):

1 1x10-5

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Not applicable.

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

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

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

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

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

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required.

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

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 domestic sewage treatment plant flow (m3/d): 2000

Contributing exposure scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use.

Product Characteristics: Not applicable.

Concentration of substance in mixture or article:

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environmental factors not influenced by risk management:

Local marine water dilution factor: 1000

Other operational conditions of use 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):

Technical conditions and measures at process level (source) to

prevent release:

Not applicable.

1.1.10-5

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

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

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

(%):

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required.

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Section 3: Exposure estimation

Section 3.1Workers Exposure estimation

Contributing exposure 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, Not applicable. Not applicable. Not applicable. Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Not applicable. Long term exposure, Local, Dermal 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.

Polyethyleneamines, HEPA-S140

Combined

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, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, Not applicable. Not applicable. Not applicable. Inhalable **Section 3.1Workers Exposure estimation** Contributing exposure scenario controlling worker exposure for 1: Calendering operations Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable 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 Not applicable. Short term exposure, Systemic, 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. Not applicable. Not applicable. Inhalable Section 3.1Workers Exposure estimation Contributing exposure 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, The ECETOC TRA tool has been used to Not applicable. 0.027 **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, 0.76 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 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 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. 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. 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. 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

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

below this value

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

cable. Not applicate the cable the cable. Not applicate the cable the c	able. Not application or brushing Incentration Justiff The Elestima otherwhighes exposibelow The Elestima otherwhighes exposibelow The Elestima otherwhighes exposibelow Able. Not application of the property of the propert	ication CETOC TRA tool has been used to the workplace exposures unless wise indicated. The PROC with the st exposure level is given since the ure estimates for other PROC are this value CETOC TRA tool has been used to the workplace exposures unless wise indicated. The PROC with the st exposure level is given since the ure estimates for other PROC are this value opticable. The process of the p
cable. Not application applications and the control of the control	cation or brushing centration The Elestima otherwhighes exposibelow The Elestima otherwhighes exposibelow The Elestima otherwhighes exposibelow able. Not ap	ication CETOC TRA tool has been used to ate workplace exposures unless vise indicated. The PROC with the st exposure level is given since the ure estimates for other PROC are this value CETOC TRA tool has been used to ate workplace exposures unless vise indicated. The PROC with the st exposure level is given since the ure estimates for other PROC are this value oplicable.
cable. Not application applications able. Not application applications able. Not application applications able. Dose/Contable. 0.027	cation or brushing Incentration Justifi The Event in a content in the Event in the	ication CETOC TRA tool has been used to ate workplace exposures unless vise indicated. The PROC with the st exposure level is given since the ure estimates for other PROC are this value CETOC TRA tool has been used to ate workplace exposures unless vise indicated. The PROC with the st exposure level is given since the ure estimates for other PROC are this value
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cable. Not applications about the sable about	cation or brushing	pplicable.
able. Not application		•
able. Not application		•
	able. Not ap	oplicable.
able. Not applica	able. Not ap	oplicable.
able. Not applica	able. Not ap	oplicable.
cable. Not application	able. Not ap	oplicable.
cable. Not application	able. Not ap	oplicable.
able. Not application	able. Not ap	oplicable.
eable. Not application	able. Not ap	pplicable.
		pplicable.
•		small containers (dedicated
		oplicable. oplicable.
	·	pplicable.
able. Not applica	able. Not ap	pplicable.
cable. Not applica	able. Not ap	oplicable.
• • • • • • • • • • • • • • • • • • • •		pplicable.
	·	•
	•	pplicable.
• • • • • • • • • • • • • • • • • • • •		ication
	ing scenarios able. Not applica	ing scenarios able. Not applicable. No

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, 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

Contributing exposure scenario controlling worker exposure for 6: Treatment of articles by dipping and pouring

on poor in the second s	mening menior expectation or measurement at an approximation of a second of a seco			
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.	
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. Not applicable.	Not applicable. Not applicable.	

Section 3.1Workers Exposure estimation

Contributing exposure scenario controlling worker exposure for 7: Using material as fuel sources, limited exposure to unburned product to be expected

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.
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,	Not applicable.	Not applicable.	Not applicable.

Section 3.2 Environment Exposure estimation

Contributing exposure 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

Polyethyleneamines, HEPA-S140

Inhalable

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

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 3.2 Environment Exposure estimation

Contributing exposure 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	
	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.

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 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.