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

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

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

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

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

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

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

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

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

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

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

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

Use of preparations containing EA up to 25% - Industrial

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

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

Date of issue/Date of revision : 19 September 2012

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

Use of preparations containing EA up to 25% - Professional

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

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

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

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

1.3 Details of the supplier of the safety data sheet

DELAMINE B.V. Barchman Wuytierslaan 10 3818 LH Amersfoort 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 : GBK/Infotrac ID 104075 : International (001) 352 323 3500 (24 hours per day)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : UVCB

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS] Acute Tox. 4, H302

Acute Tox. 4, H312

Skin Corr. 1B, H314

Eve 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

Date of issue/Date of revision : 19 September 2012 2/205

SECTION 2: Hazards identification

Hazard statements

Harmful if swallowed or in contact with skin.
 Causes severe skin burns and eye damage.
 May cause an allergic skin reaction.
 Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

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

Response

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

Storage

: Store locked up.

Disposal

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

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

: None known.Not applicable.

SECTION 3: Composition/information on ingredients

Substance/mixture : UVCB



			Clas	sification	
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. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[*]
amines, polyethylenepoly-	EC: 268-626-9 CAS: 68131-73-7 Index: 612-121-00-1	93.5 - 97.5	Xn; R21/22 C; R34 R43 N; R50/53	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[A]
3,6,9,12-tetra-	EC: 223-775-9	1.9 - 5.9	Xn; R21/22	Acute Tox. 4, H302	[B]

SECTION 3: Composition/information on ingredients

L	azatetradecamethylenediamine	CAS: 4067-16-7 Index: 612-064-00-2	C; R34 R43 N; R50/53	Acute Tox. 4, H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	
			See Section 16 for the full text of the R- phrases declared above.	See Section 16 for the full text of the H statements declared above.	

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

Type

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

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

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact

: Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

Inhalation

: Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

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.

SECTION 4: First aid measures

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact Causes serious eye damage.

Inhalation : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory

system. Exposure to decomposition products may cause a health hazard. Serious

effects may be delayed following exposure.

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

reaction

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

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:

> pain watering redness

Inhalation : No specific data.

Skin contact Adverse symptoms may include the following:

pain or irritation

redness

blistering may occur

Ingestion Adverse symptoms may include the following:

stomach pains

4.3 Indication of any immediate medical attention and special treatment needed

: 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.

Date of issue/Date of revision : 19 September 2012 5/205

SECTION 5: Firefighting measures

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".

6.2 Environmental precautions

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

6.3 Methods and materials for containment and cleaning up

Small spill

: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill

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

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.

6/205

Date of issue/Date of revision : 19 September 2012

SECTION 7: Handling and storage

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.

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.

Recommended monitoring procedures

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

Derived effect levels

Product/ingredient name	Type	Exposure	Value	Population	Effects
Amines, polyethylenepoly-	DNEL	Short term	8550 mg/	Workers	Systemic
		Inhalation	m³		
	DNEL	Long term Dermal	0.91 mg/	Workers	Systemic
			kg bw/day		-
	DNEL	Long term	1.59 mg/m ³	Workers	Systemic
		Inhalation			-
	DNEL	Long term Dermal	0.44 mg/	Workers	Local
			cm ²		
	DNEL	Short term Dermal	13 mg/kg	Consumers	Systemic
			bw/day		
	DNEL	Short term	2542 mg/	Consumers	Systemic
		Inhalation	m³		
	DNEL	Short term Oral	32 mg/kg	Consumers	Systemic
			bw/day		
	DNEL	Short term Dermal	1.59 mg/	Consumers	Local
			cm ²		
	DNEL	Long term Dermal	0.4 mg/kg	Consumers	Systemic
			bw/day		
	DNEL	Long term	0.46 mg/m ³	Consumers	Systemic
		Inhalation			
	DNEL	Long term Oral	0.65 mg/	Consumers	Systemic
			kg bw/day		

Date of issue/Date of revision : 19 September 2012 7/205

SECTION 8: Exposure controls/personal protection

DNEL	Long term Dermal	0.68 mg/	Consumers	Local	ı
		cm ²			l

Predicted effect concentrations

Product/ingredient name	Туре	Compartment Detail	Value	Method Detail
Amines, polyethylenepoly-	PNEC PNEC PNEC	Fresh water Marine Fresh water sediment Marine water sediment Soil	0.29 mg/kg 1.6 µg/l 1.6 µg/l 0.14 mg/kg dwt 0.14 mg/kg dwt 10 mg/kg dwt 3.19 mg/l	Assessment Factors Assessment Factors Assessment Factors Assessment Factors

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

Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.

Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

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

Skin protection

Hand protection

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. > 8 hours (breakthrough time): neoprene

Body protection

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: neoprene Boots.

Respiratory protection

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

Environmental exposure controls

: 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. : Not available. **Odour threshold**

11.4

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

Initial boiling point and boiling

range

: 443°C

Flash point : Closed cup: 197°C **Evaporation rate** Not available. Flammability (solid, gas) : Not applicable **Burning time** : Not applicable. **Burning rate** : Not applicable.

Upper/lower flammability or

explosive limits

: Not available.

: 0.00000077 kPa [room temperature] Vapour pressure

Vapour density : Not available.

Relative density 1.014

Solubility(ies)

>50 g/l

Partition coefficient: n-octanol/: -3.67

water

Auto-ignition temperature : 370°C

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

Oxidising properties : None.

9.2 Other information

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

Chlorinated hydrocarbon.

Date of issue/Date of revision : 19 September 2012 9/205

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

Polyethyleneamines, HEPA-S140

SECTION 10: Stability and reactivity

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.

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

applicable.

Mutagenicity

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

Conclusion/Summary

: No mutagenic effect.

Carcinogenicity

Conclusion/Summary

: skin No carcinogenic effect.

Reproductive toxicity

Conclusion/Summary

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

applicable.

Teratogenicity

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

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely

routes of exposure

: Routes of entry anticipated: Oral.

Potential acute health effects

Date of issue/Date of revision : 19 September 2012 10/205

SECTION 11: Toxicological information

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

effects

: No specific data.

Potential delayed effects: No specific data.

Potential chronic health effects

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

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

General : Once sensitized, a severe allergic reaction may occur when subsequently exposed to

very low levels.

Carcinogenicity: No known significant effects or critical hazards.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

Absorption: Slowly absorbed.Metabolism: Rapidly metabolised.Elimination: Rapidly excreted.Other information: No specific data.

SECTION 12: Ecological information

12.1 Toxicity

۰

Product/ingredient name	Result	Species	Exposure
Amines, polyethylenepoly-	EC50 319.3 mg/l	Micro-organism	2 days
	Acute EC50 0.23 mg/l	Algae	72 hours
	Acute EC50 2.2 mg/l	Daphnia	48 hours
	Acute LC50 100 mg/l	Fish	96 hours
	Acute NOEC 0.16 mg/l	Algae	72 hours

Conclusion/Summary

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

12.2 Persistence and degradability

Conclusion/Summary

: This substance is not expected to bioaccumulate through food chains in the environment. Toxic Persistent Not readily biodegradable.

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

12.3 Bioaccumulative potential

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

12.4 Mobility in soil

Soil/water partition coefficient (Koc)

: >3000

Mobility : No specific data.

12.5 Results of PBT and vPvB assessment

PBT : No.

vPvB : No.

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

SECTION 13: Disposal considerations

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

13.1 Waste treatment methods

Product

Methods of disposal

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

Hazardous waste

Packaging

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

Date of issue/Date of revision : 19 September 2012 12/205

SECTION 13: Disposal considerations

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	IMDG	IATA
14.1 UN number	UN2735	UN2735	UN2735	UN2735
14.2 UN proper shipping name	POLYAMINES, LIQUID, CORROSIVE, N.O.S.(HIGHER ETHYLENE POLYAMINES HEPA)	POLYAMINES, LIQUID, CORROSIVE, N.O.S.(Amines, polyethylenepoly-)	POLYAMINES, LIQUID, CORROSIVE, N.O.S.(Amines, polyethylenepoly-). Marine pollutant (3,6,9, 12-tetra- azatetradecamethylenediamine)	Polyamines, liquid, corrosive, n.o.s. (Amines, polyethylenepoly-)
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	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
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 L Packaging instructions: 852 Cargo Aircraft Only Quantity limitation: 60 L Packaging instructions: 856 Limited Quantities - Passenger Aircraft Quantity limitation: 1 L Packaging instructions: Y841

SECTION 14: Transport information

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

: Not listed

Integrated pollution prevention and control

list (IPPC) - Water

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.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate

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

1272/20081

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]

Date of issue/Date of revision : 19 September 2012 14/205

SECTION 16: Other information

<u> </u>		
Classific	tion Justification	n
Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	Expert judgment	
Full text of abbreviated H statements	H302 Harmful if swallowed. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects.	
Full text of classifications [CLP/GHS]	Acute Tox. 4, H302 Acute Tox. 4, H312 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Eye Dam. 1, H318 Skin Corr. 1B, H314 Skin Sens. 1, H317 ACUTE TOXICITY: ORAL - Category	ry 4 ategory 1 - Category 1 RITATION - Category 1 Category 1B
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-terraquatic environment.	n adverse effects in the
Full text of classifications [DSD/DPD]	C - Corrosive Xn - Harmful N - Dangerous for the environment	
Date of issue/ Date of revision	19 September 2012	
	00 = 1 0044	

Date of previous issue : 28 February 2011

Version : 5

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.



Consumer

Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition

Product name Polyethyleneamines, HEPA-S140

Section 1: Title

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

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

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

Processes and activities covered

by the exposure scenario **Assessment Method**

Not applicable.

See Section 3

Section 2: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Lube oil use

Operational conditions: Not determined

Indoor/Outdoor use. **Product characteristics:**

Amounts used:

Not available. Fraction of EU tonnage used in region:

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

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

Environment factors not influenced by risk

management:

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

Other given operational conditions affecting

environmental exposure:

Release fraction to air from process (initial release prior Not available

to RMM):

Release fraction to soil from process (initial

release prior to RMM):

Not available.

Release fraction to wastewater from process (initial

release prior to RMM):

Not available

Conditions and measures related to municipal sewage

treatment plant:

Estimated substance removal from wastewater via on-Not available.

site sewage treatment (%):

Total efficiency of removal from wastewater after on-site Not available.

and off-site (domestic treatment plant) RMMs (%):

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

(kg/d):

Not available.

Assumed domestic sewage treatment plant flow (m³/d): Not available

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.

Section 2.2: Control of consumer exposure

Contributing scenario controlling consumer exposure for 0:

Physical state:

Physical state: liquid

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

Contributing scenarios: Operational conditions and risk management measures

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

Operations Conditions (consumer):

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

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

Product Category(ies) 1: Adhesives, sealants Application

Operations Conditions (consumer):

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

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

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

Operations Conditions (consumer):

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

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

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

Operations Conditions (consumer):

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

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

Section 3: Exposure estimation and reference to its source

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Lube oil use

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

Polyethyleneamines, HEPA-S140

Identified use name: Consumer uses of ethyleneamines

Sector of end use: SU21

Subsequent service life relevant for that use: No. Environmental Release Category: ERC08c, ERC08t Market sector by type of chemical product: PC01, PC09b Article category related to subsequent service life: Not applicable.

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

Section 3:.2 Exposure estimation - Consumers

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

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

Scenario: substance in the

article::

Exposure estimation and Adhesives, sealants -25%; 5%; 25%; 5% 3; 3; 2; 2 60 kg ConsExpo 4.1

Mixing and loading; reference to its source -Adhesives, sealants -Consumers: 0: 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 applied (g): ventilation rate: (I/h):

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

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

Scenario Molecular (Update model):

weight (g/mole):

32 9 20; 500; 100; 50 20 3.09E+03 550 1

Dermal:

Application methods: instant

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

area) cm2: model): 2; 43; 2; 22

0.05; 0.1; 0.02; 1

Inhalation mg/m³ Dermal load (mg/cm2): Dermal External dose (mg/kg Dermal (Internal dose) mg/kg (Concentration on day of bw/day:

exposure):

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

Dermal (External dose) mg/kg Inhalation event/Exposure mg/ **Dermal systemic exposure** Inhalation (mg/kg/day) Long (external dose) with gloves bw/day: m³ (Short term exposure): term exposure:

(90% efficiency) mg/kg bw/day

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

(Long term exposure):

11.2; 3.0; 11.5; 3.1

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

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

Environment	Not available.
Health	Not available.

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

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



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

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

preparations containing EA up to 0.5% - Professional

Process Category: PROC21, PROC24

Sector of end use: SU22

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

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

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

Fraction of EU tonnage used in region: 25%

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

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

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

Emission Days (days/year):

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

Technical on-site conditions and measures to reduce or limit

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

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

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

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

Not applicable.

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

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

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

Not available.

1.0x10-5

Not available.

Not available

Not available.

Polyethyleneamines, HEPA-S140

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

Professional

Process Category: PROC21, PROC24

Sector of end use: SU22

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

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

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

Fraction of EU tonnage used in region: 25%

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

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

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

365 Emission Days (days/year):

Environment factors not influenced by risk management:

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

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

Release fraction to air from process (initial release prior to

RMM):

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

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

prevent release:

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

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

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

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

If discharging to domestic sewage treatment plant, provide

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

Conditions and measures related to municipal sewage treatment plant:

Not available.

=>53.1

0.01

Not available

Not available

Not available.

Not applicable.

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable.

4650 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

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

1160 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 5272

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

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

Environment factors not influenced by risk management:

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

Polyethyleneamines, HEPA-S140

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

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

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

Professional

Process Category: PROC21, PROC24

Sector of end use: SU22

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

Other given operational conditions affecting environmental

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

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

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

Technical on-site conditions and measures to reduce or limit

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

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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%): Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

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

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

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Not available.

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor use.

Product characteristics: Not applicable. Amounts used:

Fraction of EU tonnage used in region: 25%

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

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

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

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

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

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

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

only):

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

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

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

Treat air emission to provide a typical removal efficiency of

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

1860 Tonnes/year

Not available

Indoor. industrial setting

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

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

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

No wastewater treatment required.

Polyethyleneamines, HEPA-S140

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

Professional

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

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Section 2.2: Control of worker exposure

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

Not available

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

Not applicable.

Not applicable.

Not applicable.

Other given operational conditions affecting workers Indoor, professional setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

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

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

management supervision controls.

Section 2.2: Control of worker exposure

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

Product characteristics: Solid. Covers concentrations up to 0.5%

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.

Not applicable.

Other given operational conditions affecting workers Indoor, professional setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

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

management supervision controls.

Total release for regional

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

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

Release from point source

Value Justification O **FUSES** calculation

Concentration in sewage (PECstp)

Concentration in sewage sludge

mg/kg dwt

0 **EUSES** calculation

PEC aquatic (local+regional) **Justification Local concentration** 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.

Polyethyleneamines, HEPA-S140

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

Justification

Professional

Process Category: PROC21, PROC24

Sector of end use: SU22

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

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

Total release for regional

Justification

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

Release from point source

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

Section 3:.1 Environment - Exposure estimation

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

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

Polyethyleneamines, HEPA-S140

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

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

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

Section 3:.1 Environment - Exposure estimation

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

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

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

mound of oxpooding	Continuating Coontained	Dood Contoon a dion	out in out of
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.06	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.

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

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

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

Short term exposure, Local, Inhalable

Not applicable.

0.12

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

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

Environment Not available. Not available. Health

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

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

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



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

preparations containing EA up to 2% - Professional

Process Category: PROC21, PROC24

Sector of end use: SU22

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

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

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

Fraction of EU tonnage used in region: 25%

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

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

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

Emission Days (days/year):

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

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

Treat air emission to provide a typical removal efficiency of

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

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

If discharging to domestic sewage treatment plant, provide

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

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

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

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

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

1.0x10-5

Not available.

Not available

Not available.

Not applicable.

2000

Polyethyleneamines, HEPA-S140

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

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

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

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

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

Fraction of EU tonnage used in region: 25%

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

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

Maximum daily site tonnage (kg/day): Frequency and duration of use: Continuous release.

365 Emission Days (days/year):

Environment factors not influenced by risk management:

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

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

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

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

prevent release:

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

Treat air emission to provide a typical removal efficiency of

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

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

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

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

plant:

Not available.

93

Not available.

0.01

0.01

Not available

Not available

Not available.

Not applicable.

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

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

Not available.

=>53.1

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 4650 Tonnes/year

Amounts used: Fraction of EU tonnage used in region: 25%

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

1160 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 5272

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

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

Environment factors not influenced by risk management:

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

Polyethyleneamines, HEPA-S140

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

Professional

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

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

Other given operational conditions affecting environmental

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

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

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

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

Treat air emission to provide a typical removal efficiency of

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

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

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

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Not available.

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor use.

Product characteristics: Amounts used:

Fraction of EU tonnage used in region: 25%

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

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

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

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

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

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

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

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

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

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

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

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

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

Not applicable.

1860 Tonnes/year

Not available

Not available.

Indoor. industrial setting

1.0x10-5

Not available

Not available.

Not available. Not applicable.

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

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

No wastewater treatment required.

Polyethyleneamines, HEPA-S140

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

Process Category: PROC21, PROC24

Sector of end use: SU22

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Section 2.2: Control of worker exposure

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

Product characteristics: Solid. Covers concentrations up to 2%

Amounts used: Not applicable. Frequency and duration of use: Not applicable.

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

Not applicable.

Not applicable.

Not applicable.

Not available

Other given operational conditions affecting workers Indoor, professional setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

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

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

management supervision controls.

Section 2.2: Control of worker exposure

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

Product characteristics: Solid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Not applicable.

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

Other given operational conditions affecting workers Indoor, professional setting

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.

Total release for regional

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

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

Release from point source

Value Justification Concentration in sewage (PECstp) O **FUSES** calculation

Concentration in sewage sludge 0

mg/kg dwt

EUSES calculation

PEC aquatic (local+regional) **Justification Local concentration** 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.

Polyethyleneamines, HEPA-S140

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

Justification

Professional

Process Category: PROC21, PROC24

Sector of end use: SU22

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

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

Total release for regional

Justification

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

Release from point source

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

Section 3:.1 Environment - Exposure estimation

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

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

Polyethyleneamines, HEPA-S140

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

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

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

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

Section 3:.1 Environment - Exposure estimation

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

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

Section 3:.2 Workers - Exposure est		oray manipulation of substance	a bound in materials and/or articles
Contributing scenario controlling we		Dose/Concentration	S bound in materials and/or articles Justification
Route of exposure	Contributing scenarios		
Long term exposure, Systemic, Dermal	Not applicable.	0.0003	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.02	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute 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:.2 Workers - Exposure est	imation		
Contributing scenario controlling we	orker exposure for 1: High (m	echanical) energy work-up of si	ubstances bound in materials and/or articles
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0003	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.02	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL

Not applicable.

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic,

Short term exposure, Systemic,

Short term exposure, Systemic, Combined

Dermal

Inhalable

Not applicable

Not applicable

Not applicable

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

has been derived.

has been derived.

has been derived.

has been derived.

Process Category: PROC21, PROC24

Since the substance is not classified for

Since the substance is not classified for

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

acute effects and therefore, no acute DNEL

acute effects and therefore, no acute DNEL

Sector of end use: SU22

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

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Local,

Inhalable

Not applicable.

0.03

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

has been derived.

The ECETOC TRA tool has been used to

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

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

Environment Not available. Health Not available.

Not applicable.

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

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



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

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

preparations containing EA up to 100% - Industrial

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

PROC15

Substance supplied to that use in form of: As such

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Section 2:: Operational conditions and risk management measures

Section 2.	1: Contro	of environmental	exposure
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Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use.

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

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

Emission Days (days/year): 300

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental Indoor. industrial setting

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

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

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

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

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

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

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

Organisational measures to prevent/limit release from site:

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

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

Not available.

=>53.1

1.1x10-5

1.0x10-4

1.61x10-8

Not available.

Not available.

Not available

Not applicable.

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

Polyethyleneamines, HEPA-S140

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

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

Substance supplied to that use in form of: As such Sector of end use: SU03 Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a 36/205 Conditions and measures related to municipal sewage treatment plant:

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

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor use.

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

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): 15500 Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

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

Indoor, industrial setting Other given operational conditions affecting environmental

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):

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

prior to RMM):

Release fraction to air from wide dispersive use (regional Not available.

only):

Not available Release fraction to soil from wide dispersive use (regional

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

Technical conditions and measures at process level (source) to

prevent release:

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

Not available.

wastewater.

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 (%):

If discharging to domestic sewage treatment plant, provide

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

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

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor use.

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

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

Polyethyleneamines, HEPA-S140

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

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

Prevent discharge of undissolved substance to or recover from onsite

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

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

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

Frequency and duration of use: Continuous release.

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

Environment factors not influenced by risk management:

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

Other given operational conditions 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):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

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

prevent release:

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

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

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1.1x10-5

n

Not available.

Not available.

Not available

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

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

No wastewater treatment required.

Section 2.2: Control of worker exposure

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

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

Amounts used:

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. industrial setting

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level Not applicable.

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

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 2.2: Control of worker exposure

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

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

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers Indoor, industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

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

removal efficiency of (%): 90%

Not applicable.

Polyethyleneamines, HEPA-S140

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

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

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

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Personal protection:

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

Section 2.2: Control of worker exposure

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

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

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers exposure:

Indoor. industrial setting

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

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. Wear appropriate respiratory protection. with a

minimum efficacy of 90%

Section 2.2: Control of worker exposure

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

Product characteristics:

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

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers

Indoor. industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

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 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 4: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)

Product characteristics:

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

Amounts used:

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Not applicable.

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

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

Indoor. industrial setting

Technical conditions and measures at process level

(source) to prevent release:

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

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

Personal protection:

Not applicable.

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

Not applicable.

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

minimum efficacy of 90%

Polyethyleneamines, HEPA-S140

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

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

PROC08a, PROC08b, PROC09, PROC15

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

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

Section 2.2: Control of worker exposure

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

containers at non-dedicated facilities

Product characteristics:

Amounts used:

Frequency and duration of use:

Human factors not influenced by risk management: Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

Not applicable.

Do not carry out operation for more than 1 hour

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

Indoor. industrial setting

Not applicable.

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

removal efficiency of (%): 90%

Not applicable.

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

minimum efficacy of 95%

Section 2.2: Control of worker exposure

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

containers at dedicated facilities

Product characteristics:

Amounts used:

Frequency and duration of use:

Human factors not influenced by risk management: Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

Not applicable.

Avoid carrying out operation for more than 4 hours.

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

Indoor, industrial setting

Not applicable.

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

removal efficiency of (%): 90%

Not applicable.

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

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

management supervision controls.

Section 2.2: Control of worker exposure

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

including weighing)

Product characteristics: Amounts used:

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

Not applicable.

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

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

Indoor, industrial setting

Not applicable.

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

removal efficiency of (%): 90%

Not applicable.

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

management supervision controls. Wear appropriate respiratory protection. with a

minimum efficacy of 90%

Polyethyleneamines, HEPA-S140

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

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

Substance supplied to that use in form of: As such

Sector of end use: SU03

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

Section 2.2: Control of worker exposure

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

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

Amounts used:

Not applicable.

Frequency and duration of use:

Human factors not influenced by risk management: Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

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

Indoor. industrial setting

Not applicable.

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

removal efficiency of (%): 90%

Not applicable.

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

management supervision controls. Wear appropriate respiratory protection. with a

minimum efficacy of 90%

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

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

Polyethyleneamines, HEPA-S140

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

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:.1 Environment - Exposure estimation

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

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

Section 3:.1 Environment - Exposure estimation

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

Release from point source (local exposure estimation) kg/	Total release for regional exposure estimation kg/day	Justification
0	0	EUSES calculation
0	0	EUSES calculation
0.207	0.127	EUSES calculation
0	0	EUSES calculation
Value	Justification	
0	EUSES calculation	
0	EUSES calculation	
Local concentration	PEC aquatic (local+regional)	Justification
0	6.74x10-5	EUSES calculation
0	6.71x10-7	EUSES calculation
Not applicable	Not applicable	Not applicable.
Local concentration	PEC sediment (local+regional)	Justification
Not evaluated.	6.77x10-2	EUSES calculation
Not evaluated.	6.74x10-4	EUSES calculation
Local concentration	PEC soil (local+regional)	Justification
3.51x10-3	1.53x10-2	EUSES calculation
7.06x10-3	1.89x10-2	EUSES calculation
Not evaluated.	7.70x10-5	EUSES calculation
	(local exposure estimation) kg/day 0 0 0.207 0 Value 0 0 Local concentration 0 Not applicable Local concentration Not evaluated. Not evaluated. Local concentration 3.51x10-3 7.06x10-3	(local exposure estimation) kg/ day 0

Polyethyleneamines, HEPA-S140

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

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

Substance supplied to that use in form of: As such

Sector of end use: SU03

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

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

Section 3:.2 Workers - Exposure estimation

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

Route of exposure **Contributing scenarios Dose/Concentration 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 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 Not applicable.

Long term exposure, Systemic,

Combined

Long term exposure, Local, Dermal

Long term exposure, Local, Inhalable

Not applicable. Not applicable

Not applicable.

Not applicable.

Not applicable.

Not applicable. 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:.2 Workers - Exposure estimation

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

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

Long term exposure, Systemic, **Dermal**

Not applicable.

0 14

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

below this value

Long term exposure, Systemic,

Inhalable

Not applicable.

0.548

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

exposure estimates for other PROC are below this value Not applicable.

Long term exposure, Systemic,

Combined Long term exposure, Local, Dermal

Long term exposure, Local,

Dermal

Not applicable.

Not applicable. Not applicable. Not applicable. Not applicable.

Not applicable.

Not applicable. Not applicable.

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

Polyethyleneamines, HEPA-S140

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

Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC15 Substance supplied to that use in form of: As such

Sector of end use: SU03

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

Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Combined** Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, Not applicable. 0.55 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 2: Use in closed batch process (synthesis or formulation) **Dose/Concentration Contributing scenarios** Route of exposure **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. 0.30 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Not applicable. Long term exposure, Systemic, Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Dermal** Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Combined** Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, Not applicable. 0.62 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 3: Use in batch and other process (synthesis) where opportunity for exposure arises 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 0.30 The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Not applicable. Not applicable. Not applicable. Long term exposure, Systemic, 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. Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic,

Dermal

Not applicable

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

has been derived.

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

Substance supplied to that use in form of: As such

Since the substance is not classified for

acute effects and therefore, no acute DNEL

Sector of end use: SU03

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

44/205

Industrial

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 The ECETOC TRA tool has been used to Short term exposure, Local, Not applicable. 0.62 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 3:.2 Workers - Exposure estimation

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

(multistage and/or significant contact) Route of exposure

Long term exposure, Systemic, **Dermal**

Contributing scenarios

Not applicable. 0.27

Dose/Concentration

Justification

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

Long term exposure, Systemic, Inhalable

Not applicable.

0.30

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

below this value Not applicable.

Long term exposure, Systemic, Combined

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

Inhalable

Not applicable. Not 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.

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

has been derived.

Short term exposure, Systemic, Inhalable

Not applicable

Not applicable

Not applicable.

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

has been derived.

Short term exposure, Systemic,

Combined

Not applicable

Not applicable.

Not applicable.

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

has been derived.

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

has been derived

Short term exposure, Local,

Inhalable

Dermal

Not applicable.

0.60

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

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

below this value

Section 3:.2 Workers - Exposure estimation

Short term exposure, Local, Dermal Not applicable.

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

Route of exposure Long term exposure, Systemic, **Contributing scenarios** Not applicable.

Dose/Concentration 0.27

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 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

Long term exposure, Systemic, Inhalable	Not applicable.	0.37	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic,	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.74	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
containers at dedicated facilities	orker exposure for 6: Transfe		charging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.548	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, 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

0.55

Polyethyleneamines, HEPA-S140

Short term exposure, Local,

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% -

has been derived.

below this value

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

Substance supplied to that use in form of: As such

The ECETOC TRA tool has been used to

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

Sector of end use: SU03

Section 3:.2 Workers - Exposure est			
Contributing scenario controlling we including weighing)	orker exposure for 7: Transfe	r of substance or preparation in	to small containers (dedicated filling line,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.30	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute 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.	0.62	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est			
Contributing scenario controlling we	orker exposure for 8: Use as I	aboratory reagent	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.30	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.

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Long term exposure, Systemic, Inhalable	Not applicable.	0.30	The ECETOC TRA tool has been used estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.

Polyethyleneamines, HEPA-S140

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

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

Substance supplied to that use in form of: As such

Sector of end use: SU03

Short term exposure, Local, Inhalable

Not applicable.

0.62

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

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

Environment Not available. Health Not available.

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

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

Polyethyleneamines, HEPA-S140

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

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



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of 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

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use.

Product characteristics: Not applicable. Amounts used:

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

Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental

exposure:

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

only):

Release fraction to air from wide dispersive use (regional

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

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

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

Treat air emission to provide a typical removal efficiency of

(%):

Polyethyleneamines, HEPA-S140

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

18600 Tonnes/year

Not available.

300

Indoor. industrial setting

1.0x10-4

1.61x10-8

Not available.

Not available.

Not available. Not applicable.

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

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

=>53.1

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater

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

> Industrial Process Category: PROC05, PROC08a, PROC08b, PROC09

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

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

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor use.

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used: Fraction of EU tonnage used in region: 25%

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

300 Emission Days (days/year):

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental Indoor, industrial setting

1.61x10-8

Not available.

Not available.

Not applicable.

=>53.1

Not available.

wastewater.

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):

Not available. Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

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

Technical conditions and measures at process level (source) to

prevent release:

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

Treat air emission to provide a typical removal efficiency of

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

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

If discharging to domestic sewage treatment plant, provide

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

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

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor use.

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

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

Emission Days (days/year): 225

Polyethyleneamines, HEPA-S140

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

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

Industrial

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

Sector of end use: SU03

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

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

prevent release:

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

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

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Indoor, industrial setting

1 1x10-5

Not available.

Not available.

Not available

Not applicable.

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

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

No wastewater treatment required.

Not available.

Section 2.2: Control of worker exposure

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

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

Not applicable.

Not applicable.

Not applicable.

dispersion and exposure:

Personal protection:

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

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: 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:

Frequency and duration of use:

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

exposure:

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

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

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

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

Not applicable.

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

removal efficiency of (%): 90%

Not applicable.

Polyethyleneamines, HEPA-S140

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

Industrial

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

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

Personal protection:

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

Section 2.2: Control of worker exposure

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

containers at dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers

exposure:

Indoor, industrial setting

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection:

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

management supervision controls.

Section 2.2: Control of worker exposure

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

including weighing)

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers

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.

Total release for regional

EUSES calculation

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

5.85x10-5

Release from point source

	day	exposure estimation kg/day	
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

Concentration in sewage sludge

mg/kg dwt

0.168 **FUSES** calculation

Local concentration PEC aquatic (local+regional) **Justification** Fresh water mg/l 5.76x10-8 6.75x10-5 **EUSES** calculation **EUSES** calculation Marine water mg/l 5 76x10-7 7 29x10-6 Intermittent release. mg/l Not applicable Not applicable Not applicable. **Local concentration** PEC sediment (local+regional) **Justification**

Polyethyleneamines, HEPA-S140

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

Justification

Industrial

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

Sector of end use: SU03

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

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

Total release for regional

Justification

Section 3:.1 Environment - Exposure estimation

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

Release from point source

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

Section 3:.1 Environment - Exposure estimation

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

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

Polyethyleneamines, HEPA-S140

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

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

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

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

· · · · · · · · · · · · · · · · · · ·	entributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articl cultistage and/or significant contact)			
Route of exposure	Contributing scenarios	Dose/Concentration	Justification	
Long term exposure, Systemic, Dermal	Not applicable.	0.005	The ECETOC TRA tool has been used to estimate workplace exposures unless	

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

Long term exposure, Systemic,

Not applicable.

O.61

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

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

Combined below this value

Not applicable. Not applicable.

Long term exposure, Local, DermalNot 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

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

has been derived.

hort term exposure, Systemic,

Not applicable

Not applicable.

Since the substance is not classified for

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

Short term exposure, Local, Not applicable. 1.22 has been derived.

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

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

Polyethyleneamines, HEPA-S140

Section 3:.2 Workers - Exposure estimation

Inhalable

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

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

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Local, Dermal Not applicable.

Combined

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

Not applicable.

. 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

Short term exposure, Local, Inhalable

Not applicable.

1.22

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

below this value

Section 3:.2 Workers - Exposure estimation

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

including weighing)

Route of exposure Contributing scenarios Dose/Concentration Justification

Long term exposure, Systemic,

Dermal

Not applicable. 0.00

0.005

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

below this value

Long term exposure, Systemic,

Inhalable

Not applicable. 0.6

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.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Long term exposure, Systemic, Combined

Long torm over

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

Inhalable

Short term exposure, Systemic,

Dermal

Short term exposure, Systemic, Inhalable

Short term exposure, Systemic,

Combined

Short term exposure, Local, Dermal Short term exposure, Local,

Inhalable

Not applicable.

ole. Not applicable.

Not applicable.

1.22

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

able. Not applicable.

The ECETOC TRA tool has been used to

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

below this value

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

Environment Not available. **Health** Not available.

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

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.

Polyethyleneamines, HEPA-S140

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

. Industrial

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

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



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

preparations containing EA up to 2% - Professional

Process Category: PROC08a

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

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use.

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

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

300 Emission Days (days/year):

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

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

Treat air emission to provide a typical removal efficiency of

(%):

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

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

=>53.1

Not available.

Indoor. professional setting

1.1x10-5

1.0x10-4

1.61x10-8

Not available.

Not available.

Not available.

Not applicable.

Prevent discharge of undissolved substance to or recover from onsite

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

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

wastewater

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

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

57/205

Professional

Polyethyleneamines, HEPA-S140

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

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor use.

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

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

300 Emission Days (days/year):

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental Indoor, 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 1 0x10-4 RMM):

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

prior to RMM):

Not available. Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional Not available.

only):

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

Technical conditions and measures at process level (source) to

prevent release:

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

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

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 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater 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

Not available.

Conditions and measures related to municipal sewage treatment

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

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor use.

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

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

Emission Days (days/year): 225

Polyethyleneamines, HEPA-S140

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

Professional

Process Category: PROC08a

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

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental

exposure:

Indoor. professional setting

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

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

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

Release fraction to soil from wide dispersive use (regional

only):

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

prevent release:

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

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

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1 1x10-5

Not available.

Not available.

Not available

Not applicable.

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

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

No wastewater treatment required.

Not available.

Section 2.2: Control of worker exposure

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

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers

exposure:

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:

Indoor, professional setting

Not applicable.

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

removal efficiency of (%): 90%

Not applicable.

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

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

management supervision controls.

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	2.5x10-4	2.0x10-4	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.155	0.127	EUSES calculation
Soil (direct releases only)	0	1.27	EUSES calculation
	Value	Justification	

Polyethyleneamines, HEPA-S140

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

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
	4.04.40.5	Not evaluated.	FUCEC coloulation
During emission mg/m³	4.31x10-5	NOL EVALUATEU.	EUSES calculation
During emission mg/m³ Annual average mg/m³	4.31x10-5 3.54x10-5	3.54x10-5	EUSES calculation
· ·			
Annual average mg/m³	3.54x10-5	3.54x10-5	EUSES calculation

Section 3:.1 Environment - Exposure estimation

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

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

Section 3:.1 Environment - Exposure estimation

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

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

Section 3:.2 Workers - Exposure estimation

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

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.005	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.31	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute 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 closed system with little opportunity for exposure - Use of preparations containing EA up to 2% -

Professional

Process Category: PROC08a

Substance supplied to that use in form of: As such

Sector of end use: SU22

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

Short term exposure, Local, Dermal Not applicable

Short term exposure, Local,

Inhalable

Not applicable.

0.61

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

has been derived.

The ECETOC TRA tool has been used to

estimate workplace exposures unless otherwise indicated. The PROC with the

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

below this value

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

Environment Not available. Health Not available.

Not applicable.

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

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

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



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of 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 environmental exposure

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use.

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

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

300 Emission Days (days/year):

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental

exposure:

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

Release fraction to air from wide dispersive use (regional

only):

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

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

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

Treat air emission to provide a typical removal efficiency of

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

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Polyethyleneamines, HEPA-S140

No air emission controls required; required removal efficiency is 0%. =>53.1

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

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater

Indoor. industrial setting

1.0x10-4

1.61x10-8

Not available.

Not available.

Not available.

Not applicable.

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

Industrial

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

Sector of end use: SU03

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

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

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor use.

Frequency and duration of use:

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

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

300 Emission Days (days/year):

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental Indoor, industrial setting

Continuous release

Not available.

Not available.

Not available.

Not applicable.

=>53.1

Not available.

wastewater.

2000

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 1.61x10-8

prior to RMM):

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

only):

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

prevent release:

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

Treat air emission to provide a typical removal efficiency of

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

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

If discharging to domestic sewage treatment plant, provide

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

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

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor use.

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

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

Emission Days (days/year): 225

Polyethyleneamines, HEPA-S140

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

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

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

Prevent discharge of undissolved substance to or recover from onsite

Industrial

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

Sector of end use: SU03

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

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

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

Treat air emission to provide a typical removal efficiency of

(%):

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Indoor, industrial setting

1 1x10-5

Not available.

Not available.

Not available

Not applicable.

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

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

No wastewater treatment required.

Liquid. Covers concentrations up to 0.5%

Not available.

Section 2.2: Control of worker exposure

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

Indoor, industrial setting

Product characteristics:

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

Personal protection:

Not applicable.

Not applicable.

Not applicable.

dispersion and exposure:

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

management supervision controls.

Section 2.2: Control of worker exposure

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

containers at non-dedicated facilities **Product characteristics:**

Amounts used: Not applicable.

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers exposure:

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

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Liquid. Covers concentrations up to 0.5%

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

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

Indoor, industrial setting

Not applicable.

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

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

Industrial

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

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

Personal protection:

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

Section 2.2: Control of worker exposure

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

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers

exposure:

Not applicable.

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

Indoor, industrial setting

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

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

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

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 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 given operational conditions affecting workers Indoor, industrial setting

exposure:

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 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Release from point source

	(local exposure estimation) kg/ day	exposure estimation kg/day	
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

Concentration in sewage (PECstp)

mg/l

Concentration in sewage sludge

mg/kg dwt

0.168

Value

5.85x10-5

FUSES calculation

EUSES calculation

Justification

Total release for regional

Local concentration PEC aquatic (local+regional) **Justification** Fresh water mg/l 5.76x10-8 6.75x10-5 **EUSES** calculation **EUSES** calculation Marine water mg/l 5 76x10-7 7 29x10-6 Intermittent release. mg/l Not applicable Not applicable Not applicable. **Local concentration** PEC sediment (local+regional) **Justification**

Polyethyleneamines, HEPA-S140

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

Justification

Industrial

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

Sector of end use: SU03

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

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

Release from point source Total release for regional

Section 3:.1 Environment - Exposure estimation

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

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

Section 3:.1 Environment - Exposure estimation

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

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

Polyethyleneamines, HEPA-S140

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

Justification

. Industrial

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

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

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

Section	3:.2	Workers	- Ex	posure	estimation
Occion	JZ	TTOI KCI 3	^	posuic	Communion

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

(multistage and/or significant contact) Route of exposure **Contributing scenarios Dose/Concentration Justification** The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.001 **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. 0.76 estimate workplace 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. Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable. Not applicable. Not applicable. Inhalable Not applicable. Not applicable. Not applicable.

Combined

Short term exposure, Systemic,

Dermal

Short term exposure, Systemic,

Inhalable

Short term exposure, Systemic,

Combined

Short term exposure, Local, Dermal Short term exposure, Local,

Inhalable

The ECETOC TRA tool has been used to

Not applicable. Not applicable.

Not applicable. Not applicable.

Not applicable. Not applicable.

Not applicable. Not applicable. 1.52 The ECETOC TRA tool has been used to

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

below this value

Section 3:.2 Workers - Exposure estimation

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

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

Long term exposure, Systemic,

Dermal

Not applicable.

Not applicable.

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 exposure estimates for other PROC are below this value

Polyethyleneamines, HEPA-S140

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

Industrial

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

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

Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, 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.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est	imation		
Contributing scenario controlling we containers at dedicated facilities	orker exposure for 2: Transfe	er of substance or preparation (c	charging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	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, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless 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 Workers - Exposure estimation Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) Route of exposure **Contributing scenarios Justification Dose/Concentration** Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.001 **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, Combined Long term exposure, Local, Dermal

Short term exposure, Systemic,

Short term exposure, Systemic,

Short term exposure, Systemic,

Short term exposure, Local,

Short term exposure, Local, Dermal

Long term exposure, Local,

Inhalable

Dermal

Inhalable

Combined

Inhalable

Not applicable.

Not applicable. 1.52 Not applicable.

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

Section 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/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 env	ironmental exposure
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Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use.

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

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

300 Emission Days (days/year):

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental

exposure:

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

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

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

only):

Release fraction to air from wide dispersive use (regional Not available.

Release fraction to soil from wide dispersive use (regional

only):

Not available.

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

prevent release:

Not applicable. 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)

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

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

Conditions and measures related to municipal sewage treatment

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

=>53.1

Indoor. professional setting

1.61x10-8

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater

Not available.

Polyethyleneamines, HEPA-S140

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

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

71/205

Professional

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

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor use.

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

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

300 Emission Days (days/year):

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental Indoor, 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 1 0x10-4

RMM):

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

prior to RMM):

Not available. Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional Not available.

only):

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

Technical conditions and measures at process level (source) to

prevent release:

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

=>53.1

Not available.

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

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

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

If discharging to domestic sewage treatment plant, provide

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

Organisational measures to prevent/limit release from site: 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

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor use.

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

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

Emission Days (days/year): 225

Polyethyleneamines, HEPA-S140

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

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

Professional Process Category: PROC08a

Substance supplied to that use in form of: As such

Sector of end use: SU22

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental

exposure:

Indoor. professional setting

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

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

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

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

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1 1x10-5

Not available.

Not available

Not available

Not applicable.

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

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

No wastewater treatment required.

Not available.

Section 2.2: Control of worker exposure

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

Product characteristics: Amounts used:

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

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

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Liquid. Covers concentrations up to 0.5%

Not applicable.

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

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

Indoor, professional setting

Not applicable.

Not applicable.

Not applicable.

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

management supervision controls.

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Release from point source Total release for regional **Justification** (local exposure estimation) kg/ exposure estimation kg/day day 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) n 1.27 **EUSES** calculation **Justification** Value

Polyethyleneamines, HEPA-S140

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

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

73/205

Professional

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.

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

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

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

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

Section 3:.2 Workers - Exposure estimation

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

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute 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 closed system with little opportunity for exposure - Use of preparations containing EA up to 0.5% -

Professional

Process Category: PROC08a

Substance supplied to that use in form of: As such

Sector of end use: SU22

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

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

acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Inhalable

Not applicable.

1.52

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

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

Environment Not available.

Health Not available.

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

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/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation

as most likely exposure form - Use of preparations containing EA up to 15% - Professional

Process Category: PROC08a, PROC10, PROC11 Substance supplied to that use in form of: In a mixture Sector of end use: SU22 Subsequent service life relevant for that use: No.

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

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

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

Fraction of EU tonnage used in region: 25%

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

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550

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

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

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

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

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

Technical conditions and measures at process level (source) to

prevent release:

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

Treat air emission to provide a typical removal efficiency of

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

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

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

Organisational measures to prevent/limit release from site:

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

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

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater

1.0x10-5

Not available

Not available.

Polyethyleneamines, HEPA-S140

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

preparations containing EA up to 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,

Conditions and measures related to municipal sewage treatment

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

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Emission Days (days/year):

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

25% Fraction of EU tonnage used in region:

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

Annual site tonnage (tonnes/year): 93 255 Average Local Daily Tonnage (kg/day):

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

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

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

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

Treat air emission to provide a typical removal efficiency of

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

If discharging to domestic sewage treatment plant, provide

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

365

Indoor/Outdoor use. professional setting

0.01

0.01

Not available

Not available.

Not available.

Not applicable.

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

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

=>53.1

Not available.

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Tonnes/year Amounts used: Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): Not available Not available. Fraction of Regional tonnage used locally: 1160 Annual site tonnage (tonnes/year):

Average Local Daily Tonnage (kg/day): 5272 Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

220 **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 15% - Professional

Process Category: PROC08a, PROC10, PROC11 Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No.

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

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental exposure:

Indoor/Outdoor use. industrial setting

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

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

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

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

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

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

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

1 0x10-5

Not available.

Not available

Not available.

Not applicable.

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

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

No wastewater treatment required.

Not available

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor use.

Product characteristics: Amounts used:

Fraction of EU tonnage used in region: 25%

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

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

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

Emission Days (days/year):

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

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

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

prior to RMM):

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

Release fraction to soil from wide dispersive use (regional

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

prevent release:

Not applicable.

1860 Tonnes/year

Not available.

Not available.

Continuous release

Indoor, industrial setting

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 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

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%.

No wastewater treatment required.

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

(%):

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

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

If discharging to domestic sewage treatment plant, provide

Treat air emission to provide a typical removal efficiency of

Not available. the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: 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

Other given operational conditions affecting workers Indoor, professional setting

exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

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.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Roller application or brushing

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used:

Frequency and duration of use: Exposure duration per day: 15 min. to < 1 hour

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

Other given operational conditions affecting workers Indoor. professional setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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. Wear appropriate respiratory protection. with a

minimum efficacy of 95%

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 2: Non industrial spraying

Product characteristics: Liquid. Covers concentrations up to 10%

Amounts used: Not applicable.

Frequency and duration of use: Exposure duration per day: 15 min. to < 1 hour

Human factors not influenced by risk management:

Other given operational conditions affecting workers exposure:

Technical conditions and measures at process level

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

from source towards the worker:

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

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

Indoor, professional setting

Not applicable.

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

removal efficiency of (%): 90%

Not applicable.

Polyethyleneamines, HEPA-S140

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

preparations containing EA up to 15% - Professional Process Category: PROC08a, PROC10, PROC11

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

Sector of end use: SU22

Subsequent service life relevant for that use: No.

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

ERC08f 80/205

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

day		
0	2.34	EUSES calculation
0	0.586	EUSES calculation
0.0155	2.38	EUSES calculation
0	4.2	EUSES calculation
Value	Justification	
0	EUSES calculation	
0	EUSES calculation	
Local concentration	PEC aquatic (local+regional)	Justification
0	6.74x10-5	EUSES calculation
0	6.71x10-6	EUSES calculation
Not applicable	Not applicable	Not applicable.
Local concentration	PEC sediment (local+regional)	Justification
Not evaluated.	6.77x10-2	EUSES calculation
Not evaluated.	6.74x10-3	EUSES calculation
Local concentration	PEC soil (local+regional)	Justification
3.51x10-4	0.0122	EUSES calculation
7.06x10-4	0.0122	EUSES calculation
Not evaluated.	6.09x10-5	EUSES calculation
Local concentration	PEC air (local+regional)	Justification
4.31x10-6	Not evaluated.	EUSES calculation
3.54x10-6	3.54x10-9	EUSES calculation
2.92x10-5	Not evaluated.	EUSES calculation
Local concentration	PEC aquatic (local+regional)	Justification Not applicable.
	0.0155 0 Value 0 0 Local concentration 0 Not applicable Local concentration Not evaluated. Not evaluated. Local concentration 3.51x10-4 7.06x10-4 Not evaluated. Local concentration 4.31x10-6 3.54x10-6 2.92x10-5	0.0155 2.38 0 4.2 Value Justification 0 EUSES calculation 0 EUSES calculation Local concentration PEC aquatic (local+regional) 0 6.74x10-5 0 6.71x10-6 Not applicable Not applicable Local concentration PEC sediment (local+regional) Not evaluated. 6.77x10-2 Not evaluated. 6.74x10-3 Local concentration PEC soil (local+regional) 3.51x10-4 0.0122 7.06x10-4 0.0122 Not evaluated. 6.09x10-5 Local concentration PEC air (local+regional) 4.31x10-6 3.54x10-9 2.92x10-5 Not evaluated. Local concentration PEC aquatic (local+regional)

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	5.1x10-4	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.19x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.343	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.18x10-5	7.92x10-5	EUSES calculation
Marine water mg/l	1.18x10-6	7.89x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification

Polyethyleneamines, HEPA-S140

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

Process Category: PROC08a, PROC10, PROC11
Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

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

ERC08f

Fresh water sediment mg/kg dwt	Not evaluated.	7.95x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.92x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	2.66x10-13	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	5.36x10-13	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	5.91x10-5	Not evaluated.	EUSES calculation
Annual average mg/m³	2.69x10-15	3.58x10-11	EUSES calculation
Annual deposition mg/m²/d	2.22x10-14	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

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

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

Section 3:.1 Environment - Exposure estimation

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

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

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Professional Process Category: PROC08a, PROC10, PROC11

Substance supplied to that use in form of: In a mixture
Sector of end use: SU22

Subsequent service life relevant for that use: No.

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

ERC08f **82/205**

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

Section 3: 2	Workers -	Fynosura	petimation

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

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,

Section 3:.2 Workers - Exposure est			
Contributing scenario controlling we	orker exposure for 1: Roller a	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:.2 Workers - Exposure est			
Contributing scenario controlling we	orker exposure for 2: Non inc	lustrial 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.

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

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 **84/205** Short term exposure, Local, Dermal Not applicable.

Short term exposure, Local,

Inhalable

Not applicable.

0.243

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

estimate workplace exposures unless

has been derived. The ECETOC TRA tool has been used to

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

below this value

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

Environment Not available. Health Not available.

Not applicable.

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

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

Process Category: PROC08a, PROC10, PROC11 Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

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

ERC08f



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation

as most likely exposure form - Use of preparations containing EA up to 2% - Professional

Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No.

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

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

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

Fraction of EU tonnage used in region: 25%

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

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550

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

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

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental

exposure:

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

Release fraction to air from wide dispersive use (regional

only):

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

Release fraction to wastewater from wide dispersive use:

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

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

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

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

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

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

Organisational measures to prevent/limit release from site:

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

Indoor/Outdoor use. industrial setting

No wastewater treatment required.

Not available.

Prevent discharge of undissolved substance to or recover from onsite

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

wastewater

Not available

Not available.

Not available.

Not applicable.

Polyethyleneamines, HEPA-S140

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

preparations containing EA up to 2% - Professional Process Category: PROC08a, PROC11

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

Sector of end use: SU22

Subsequent service life relevant for that use: No.

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

ERC08f

Conditions and measures related to municipal sewage treatment

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

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

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

25% Fraction of EU tonnage used in region:

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

Annual site tonnage (tonnes/year): 93 255 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage (kg/day): Frequency and duration of use: Continuous release

Emission Days (days/year):

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

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

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

Treat air emission to provide a typical removal efficiency of

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

If discharging to domestic sewage treatment plant, provide

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

plant:

Not available.

365

Indoor/Outdoor use. professional setting

0.01

0.01

Not available

Not available.

Not available.

Not applicable.

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

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

=>53.1

Not available.

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor/Outdoor use.

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

Not available. Fraction of Regional tonnage used locally: 1160 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 5272 Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

220 **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% - Professional

Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

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

ERC08f

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM):

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

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

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

Release fraction to soil from wide dispersive use (regional

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

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

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

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

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

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Indoor/Outdoor use. industrial setting

1 0x10-5

Not available.

Not available

Not available.

Not applicable.

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

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

No wastewater treatment required.

Not available

Section 2.1: Control of environmental exposure

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

Operational conditions: Indoor use.

Product characteristics: Amounts used:

Fraction of EU tonnage used in region: 25%

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

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

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

Emission Days (days/year):

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

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

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

prior to RMM):

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

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

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

Not applicable.

1860 Tonnes/year

Not available.

Indoor, industrial setting

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

Polyethyleneamines, HEPA-S140

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

Process Category: PROC08a, PROC11

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

Sector of end use: SU22

Subsequent service life relevant for that use: No.

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

ERC08f

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

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

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

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

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

No wastewater treatment required.

Not available.

Section 2.2: Control of worker exposure

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

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

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

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

Indoor, professional setting

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:

exposure:

Not applicable.

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

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

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

removal efficiency of (%): 90%

Not applicable.

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

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Non industrial spraying

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Avoid carrying out activities involving exposure for more than 4 hours.

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

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

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 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Justification Release from point source Total release for regional exposure estimation kg/day (local exposure estimation) kg/ day 0 Waste water 2.34 **EUSES** calculation Surface water 0 0.586 **EUSES** calculation 2 38 air (direct + STP) 0.0155 **EUSES** calculation Soil (direct releases only) **EUSES** calculation 4.2 **Justification** Value

Polyethyleneamines, HEPA-S140

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

preparations containing EA up to 2% - Professional Process Category: PROC08a, PROC11

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

Sector of end use: SU22

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

ERC08f

Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Local concentration 3.51x10-4	PEC soil (local+regional) 0.0122	Justification EUSES calculation
		•	
dwt	3.51x10-4	0.0122	EUSES calculation
dwt Grassland averaged mg/kg dwt	3.51x10-4 7.06x10-4	0.0122 0.0122	EUSES calculation
dwt Grassland averaged mg/kg dwt	3.51x10-4 7.06x10-4 Not evaluated.	0.0122 0.0122 6.09x10-5	EUSES calculation EUSES calculation EUSES calculation
dwt Grassland averaged mg/kg dwt Groundwater mg/l	3.51x10-4 7.06x10-4 Not evaluated. Local concentration	0.0122 0.0122 6.09x10-5 PEC air (local+regional)	EUSES calculation EUSES calculation EUSES calculation Justification
dwt Grassland averaged mg/kg dwt Groundwater mg/l During emission mg/m³	3.51x10-4 7.06x10-4 Not evaluated. Local concentration 4.31x10-6	0.0122 0.0122 6.09x10-5 PEC air (local+regional) Not evaluated.	EUSES calculation EUSES calculation EUSES calculation Justification EUSES calculation
dwt Grassland averaged mg/kg dwt Groundwater mg/l During emission mg/m³ Annual average mg/m³	3.51x10-4 7.06x10-4 Not evaluated. Local concentration 4.31x10-6 3.54x10-6	0.0122 0.0122 6.09x10-5 PEC air (local+regional) Not evaluated. 3.54x10-9	EUSES calculation EUSES calculation EUSES calculation Justification EUSES calculation EUSES calculation

Contributing scenario controlling environmental exposure for 1: Lube oil use

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

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.

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

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

Section 3:.1 Environment - Exposure estimation

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

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

Polyethyleneamines, HEPA-S140

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

preparations containing EA up to 2% - Professional

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

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

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Route of exposure Long term exposure, Systemic,

Dermal

Contributing scenarios

Not applicable.

Dose/Concentration

0.09

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are below this value

Justification

Long term exposure, Systemic,

Inhalable

Not applicable.

0.61

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are below this value

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal Long term exposure, Local,

Inhalable

Not evaluated Not applicable

Not applicable.

Not applicable.

Not applicable.

Not applicable. Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Not applicable.

Short term exposure, Systemic, **Dermal**

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived

Short term exposure, Systemic, Inhalable

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived

Short term exposure, Systemic,

Combined

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Dermal Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local,

Inhalable

Not applicable.

1.22

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Non industrial spraying

Route of exposure Long term exposure, Systemic,

Dermal

Contributing scenarios Not applicable.

Dose/Concentration 0.21

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

0.15

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 Not applicable.

Long term exposure, Systemic,

Combined

Long term exposure, Local, Dermal Long term exposure, Local,

Inhalable

Not applicable.

Not evaluated. Not applicable Not applicable. Not applicable.

Not applicable.

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Professional Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Short term exposure, Systemic, Not applicable. Not applicable Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for **Combined** acute effects and therefore, no acute DNEL has been derived. Since the substance is not classified for Short term exposure, Local, Dermal Not applicable Not applicable. acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, Not applicable. 0.30 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

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.

below this value

preparations containing EA up to 2% - Professional **Process Category:** PROC08a, PROC11

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation

as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture Sector of end use: SU22 Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Amounts used:

Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1550

Maximum daily site tonnage (kg/day): Frequency and duration of use:

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

(%): Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Not applicable.

1860 Tonnes/year

25%

Not available.

465

Not available.

Continuous release.

300

Indoor/Outdoor use. industrial setting

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Prevent discharge of undissolved substance to or recover from onsite

wastewater

Not available.

Polyethyleneamines, HEPA-S140 Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 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 94/205

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

Conditions and measures related to municipal sewage treatment

Assumed domestic sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: 372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available

Annual site tonnage (tonnes/year): 255 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage (kg/day): Frequency and duration of use:

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: Not available. Local marine water dilution factor: Not available

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%):

plant:

Not applicable.

25%

93

Not available.

Continuous release

365

Indoor/Outdoor use. professional setting

0.01

0.01

Not available

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53.1

Not available.

Continuous release.

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Tonnes/year Amounts used: Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available Not available. Fraction of Regional tonnage used locally: 1160 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 5272 Maximum daily site tonnage (kg/day): Not available

220 **Emission Days (days/year):**

Polyethyleneamines, HEPA-S140

Frequency and duration of use:

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Process Category: PROC08a, PROC11 Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Environment factors not influenced by risk management:

Local freshwater dilution factor: Local marine water dilution factor: Not available.

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM): Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Not available

Indoor/Outdoor use. industrial setting

1 0x10-5

Not available.

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Not applicable.

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: Not available Local marine water dilution factor: Not available.

Indoor, industrial setting Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

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.

No air emission controls required; required removal efficiency is 0%.

Treat air emission to provide a typical removal efficiency of

(%):

No wastewater treatment required.

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Conditions and measures related to municipal sewage treatment plant:

Organisational measures to prevent/limit release from site:

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Not available.

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. professional setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure: **Personal protection:**

Not applicable.

Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Non industrial spraying

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Not applicable.

Other given operational conditions affecting workers Indoor. professional setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Use the following local exhaust ventilation types: Treat air emission to provide a typical removal efficiency of (%): 90%

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Total release for regional

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	oustineation
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	

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

Justification

Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Local concentration 3.51x10-4	PEC soil (local+regional) 0.0122	Justification EUSES calculation
dwt	3.51x10-4	0.0122	EUSES calculation
dwt Grassland averaged mg/kg dwt	3.51x10-4 7.06x10-4	0.0122 0.0122	EUSES calculation EUSES calculation
dwt Grassland averaged mg/kg dwt	3.51x10-4 7.06x10-4 Not evaluated.	0.0122 0.0122 6.09x10-5	EUSES calculation EUSES calculation EUSES calculation
dwt Grassland averaged mg/kg dwt Groundwater mg/l	3.51x10-4 7.06x10-4 Not evaluated. Local concentration	0.0122 0.0122 6.09x10-5 PEC air (local+regional)	EUSES calculation EUSES calculation EUSES calculation Justification
dwt Grassland averaged mg/kg dwt Groundwater mg/l During emission mg/m³	3.51x10-4 7.06x10-4 Not evaluated. Local concentration 4.31x10-6	0.0122 0.0122 6.09x10-5 PEC air (local+regional) Not evaluated.	EUSES calculation EUSES calculation EUSES calculation Justification EUSES calculation
dwt Grassland averaged mg/kg dwt Groundwater mg/l During emission mg/m³ Annual average mg/m³	3.51x10-4 7.06x10-4 Not evaluated. Local concentration 4.31x10-6 3.54x10-6	0.0122 0.0122 6.09x10-5 PEC air (local+regional) Not evaluated. 3.54x10-9	EUSES calculation EUSES calculation EUSES calculation Justification EUSES calculation EUSES calculation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	5.1x10-4	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.19x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.343	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.18x10-5	7.92x10-5	EUSES calculation
Marine water mg/l	1.18x10-6	7.89x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	7.95x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.92x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	2.66x10-13	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	5.36x10-13	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	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.

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,

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 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,

ERC086, ERC08f **99/205**

Local concentration PEC air (local+regional) **Justification** During emission mg/m³ **EUSES** calculation Not evaluated. Annual average mg/m³ 0 3.57x10-11 **EUSES** calculation Annual deposition mg/m²/d 0 Not evaluated. **EUSES** calculation **Local concentration** PEC aquatic (local+regional) **Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Route of exposure Long term exposure, Systemic,

Dermal

Contributing scenarios

Not applicable.

Dose/Concentration 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.

0.76

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 Not applicable.

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal

Long term exposure, Local, Inhalable

Not applicable. Not applicable.

Not applicable.

Not applicable. Not applicable.

Not applicable.

Not applicable. Not applicable.

Short term exposure, Systemic,

Dermal

Not applicable. Not applicable. Not applicable.

Not applicable.

Short term exposure, Systemic, Inhalable

Short term exposure, Systemic,

Not applicable.

Not applicable. Not applicable. Not applicable. Not applicable.

Combined

Short term exposure, Local, Dermal Short term exposure, Local,

Inhalable

Not applicable. Not applicable. Not applicable.

1.52

Not applicable.

The ECETOC TRA tool has been used to estimate workplace exposures unless

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Non industrial spraying

Route of exposure Long term exposure, Systemic,

Dermal

Contributing scenarios Not applicable.

Dose/Concentration

Justification The ECETOC TRA tool has been used to estimate workplace exposures unless

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic, Not applicable

Inhalable

0.30

0.11

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the

highest exposure level is given since the exposure estimates for other PROC are

below this value Not applicable.

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal Long term exposure, Local,

Inhalable

Not applicable.

Not evaluated. Not applicable Not applicable. Not applicable.

Not applicable.

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

Short term exposure, Systemic, Not applicable 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 acute effects and therefore, no acute DNEL

has been derived.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Short term exposure, Systemic, Not applicable **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 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.

preparations containing EA up to 0.5% - Professional Process Category: PROC08a, PROC11

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation

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.

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics:

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1550

Maximum daily site tonnage (kg/day): Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

(%): Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%): If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Not applicable.

Not available.

465

Not available.

300

Indoor/Outdoor use. industrial setting

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater

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

102/205

Polyethyleneamines, HEPA-S140

Conditions and measures related to municipal sewage treatment

Assumed domestic sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: 1300 Tonnes/year Amounts used:

25% Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally:

Annual site tonnage (tonnes/year): 326 1087 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not applicable.

Not available

1000

Indoor/Outdoor use. industrial setting

3.0x10-5

1.0x10-3

1.0x10-3

Not available.

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53.1

1160

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 4650 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): Not available. Not available. Fraction of Regional tonnage used locally:

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 5272 Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

220 **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 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

(%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%): Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Indoor/Outdoor use. industrial setting

1 0x10-5

Not available.

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use:

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor:

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Not applicable.

Not available.

Continuous release

Indoor/Outdoor use, industrial setting

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact)

Product characteristics: Liquid. Covers percentage substance in the product up to 25%.

Amounts used: Not applicable.

Frequency and duration of use: Exposure duration per day: 15 min. to < 1 hour

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting exposure:

Technical conditions and measures at process level

(source) to prevent release: Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases, dispersion and exposure:

Personal protection:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics: Liquid. Covers percentage substance in the product up to 25%.

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently). Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting

exposure:

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure: Personal protection:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Product characteristics: Liquid. Covers percentage substance in the product up to 25%.

Amounts used: Not applicable.

Frequency and duration of use: Do not carry out operation for more than 1 hour

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting exposure:

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation into small containers (dedicated filling line,

including weighing)

Product characteristics:

Amounts used:

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Liquid. Covers percentage substance in the product up to 25%.

Not applicable.

Covers daily exposures up to 8 hours (unless stated differently). Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Indoor. industrial setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0.0155	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

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,

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	7.78x10-4	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	2.33x10-5	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.82x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.523	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.80x10-5	8.54x10-5	EUSES calculation
Marine water mg/l	1.80x10-6	8.51x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	8.57x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	8.54x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	5.29x10-7	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	1.06x10-6	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.49x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	5.33x10-9	5.37x10-9	EUSES calculation
Annual deposition mg/m²/d	4.408	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09
Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0685714	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.3656	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 108/205

Short term exposure, Systemic, Not applicable. Not applicable Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL Combined has been derived. Not applicable. Since the substance is not classified for Short term exposure, Local, Dermal Not applicable. acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, Not applicable. 0.73115 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Route of exposure

Long term exposure, Systemic, **Dermal**

Contributing scenarios Not applicable.

Dose/Concentration 0.0685714

Justification

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

The ECETOC TRA tool has been used to

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 Not applicable.

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal

Long term exposure, Local,

Inhalable

Not evaluated.

Not applicable. Not applicable

Not applicable.

Not applicable. Not applicable. Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, **Dermal**

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

Dermal

Not applicable.

0.73115

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

Route of exposure Long term exposure, Systemic, **Contributing scenarios**

Not applicable.

Dose/Concentration

0.034286

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 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 109/205

Long term exposure, Systemic, Inhalable	Not applicable.	0.548325	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute 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.	1.096725	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we including weighing)		er of substance or preparation in	to small containers (dedicated filling line,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0685714	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 DNEL has been derived.
Short term exposure, Systemic,	Not applicable	Not applicable.	Since the substance is not classified for

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

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. 0.73115 The ECETOC TRA tool has been used to estimate workplace exposures unless

estimate workplace 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,

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.

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, ERC08t



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of 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

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1550

Maximum daily site tonnage (kg/day): Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM): Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Not applicable.

Not available.

465

Not available.

300

Indoor/Outdoor use. industrial setting

1.0x10-5

Not available

Not available.

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Prevent discharge of undissolved substance to or recover from onsite wastewater

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

Conditions and measures related to municipal sewage treatment

Assumed domestic sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1300 Tonnes/year Amounts used:

25% Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available

Annual site tonnage (tonnes/year): 326 1087 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Indoor/Outdoor use. industrial setting

3.0x10-5

1.0x10-3

1.0x10-3

Not available.

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=53.1

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 4650 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Not available. Fraction of Regional tonnage used locally: 1160 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 5272

Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 15% - Industrial Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Emission Days (days/year): 220 Environment factors not influenced by risk management:

1000 Local freshwater dilution factor:

Local marine water dilution factor: 1000

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to RMM):

Release fraction to wastewater from process (initial release prior to RMM):

Release fraction to air from wide dispersive use (regional

only): Release fraction to soil from wide dispersive use (regional

only): Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%): Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Indoor/Outdoor use. industrial setting

1 0x10-5

Not available.

Not available

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use:

Emission Days (days/year): 220

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM): Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Not applicable.

465

Continuous release.

Indoor/Outdoor use. industrial setting

1.0x10-5

0

Not available

Not available. Not available

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Industrial

Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%): If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment plant:

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available

Not applicable.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact)

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. industrial setting exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure: Personal protection:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Calendering operations

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Not applicable.

Other given operational conditions affecting workers Indoor, industrial setting exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 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

Not applicable.

Other given operational conditions affecting workers Indoor. industrial setting exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion from source towards the worker:

Use the following local exhaust ventilation types: Treat air emission to provide a typical removal efficiency of (%): 90%

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 15% - Industrial Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Organisational measures to prevent/limit releases, dispersion and exposure:

Personal protection:

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls. Wear appropriate respiratory protection. with a minimum efficacy of 90%

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used: Not applicable.

Frequency and duration of use: Exposure duration per day: 1-4 hours per day

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. industrial setting exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 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 given operational conditions affecting workers

exposure:

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Indoor, industrial setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 5: Transfer of substance or preparation into small containers (dedicated filling line,

including weighing)

Product characteristics: Liquid. Covers concentrations up to 15%

Not applicable. Amounts used:

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. industrial setting exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure: Personal protection:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 15% - Industrial Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 6: Treatment of articles by dipping and pouring

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used:

Not applicable.

Frequency and duration of use:

Exposure duration per day: 1-4 hours per day

Human factors not influenced by risk management:

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

Indoor. industrial setting

Not applicable.

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Use the following local exhaust ventilation types: Treat air emission to provide a typical

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

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 7: Production of preparations* or articles by tabletting, compression, extrusion,

pelletisation

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used:

Not applicable.

Frequency and duration of use:

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management:

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

Indoor, industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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,

Not applicable.

dispersion and exposure: Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Total release for regional

exposure estimation kg/day

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Release from point source

(local exposure estimation) kg/

	day		
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0.0155	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 15% - Industrial Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

Justification

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

1	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Total release for regional

Justification

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	7.78x10-4	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	2.33x10-5	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.82x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.523	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.80x10-5	8.54x10-5	EUSES calculation
Marine water mg/l	1.80x10-6	8.51x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	8.57x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	8.54x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	5.29x10-7	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	1.06x10-6	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.49x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	5.33x10-9	5.37x10-9	EUSES calculation
Annual deposition mg/m²/d	4.408	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Industrial

Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b, PROC09, PROC13, PROC14

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

1	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Industrial

Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b, PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

	mation		
Contributing scenario controlling wo (multistage and/or significant contact		or blending in batch processes t	for formulation of preparations* and articles
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0822	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.457	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not evaluated.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.914	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure esti Contributing scenario controlling wo		ering operations	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0822	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.457	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not evaluated.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
	Not applicable	Not applicable.	Since the substance is not classified for

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

Not applicable Not applicable. Since the substance is not classified for Short term exposure, Systemic, acute effects and therefore, no acute DNEL Combined has been derived. Short term exposure, Local, Dermal Not applicable. Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. The ECETOC TRA tool has been used to 0.914 Short term exposure, Local, Not applicable. Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 2: Industrial spraying **Route of exposure Contributing scenarios** Justification **Dose/Concentration** The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.1286 **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 Long term exposure, Systemic, Not evaluated. Not evaluated. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Not applicable Since the substance is not classified for Long term exposure, Local, Not applicable. Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Since the substance is not classified for Short term exposure, Systemic, Not applicable Not applicable. Combined acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, Dermal Not applicable. Since the substance is not classified for Not applicable. acute effects and therefore, no acute DNEL has been derived. 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:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Route of exposure **Contributing scenarios Dose/Concentration** Justification Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.0411 **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value 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 evaluated. Not evaluated. Not applicable. Combined Polyethyleneamines, HEPA-S140 Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 15% - Industrial

Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 121/205

Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
ong term exposure, Local, nhalable	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, nhalable	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, nhalable	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

			exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we containers at dedicated facilities		er of substance or preparation (c	charging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0822	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.

Inhalable			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

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 Workers - Exposure est	imation		
Contributing scenario controlling we including weighing)	orker exposure for 5: Transfe	r of substance or preparation int	to small containers (dedicated filling line,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0822	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.457	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not evaluated.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute 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 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 DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.914	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling w		ent of articles by dinning and no	uring
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic,	Not applicable.	0.0411	The ECETOC TRA tool has been used to
Dermal	ног аррисаше.	0.0411	estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.548	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not evaluated.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local,	Not applicable	Not applicable.	Since the substance is not classified for

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic,

Short term exposure, Systemic,

Not applicable

Not applicable

Inhalable

Dermal

Inhalable

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Industrial

has been derived.

has been derived.

has been derived.

Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

acute effects and therefore, no acute DNEL

acute effects and therefore, no acute DNEL

Since the substance is not classified for

Since the substance is not classified for acute effects and therefore, no acute DNEL

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f **123/205** 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,

Inhalable

Not applicable.

1.097

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 7: Production of preparations* or articles by tabletting, compression, extrusion,

pelletisation

Route of exposure Long term exposure, Systemic, Dermal

Contributing scenarios Not applicable.

Dose/Concentration 0.0822

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic,

Inhalable

0.457

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 Not applicable.

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal

Long term exposure, Local,

Inhalable

Not applicable. Not applicable

Not evaluated.

Not applicable.

Not 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.

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. Since the substance is not classified for

Short term exposure, Systemic, Combined

Short term exposure, Local,

Inhalable

Not applicable

Not applicable.

Not applicable.

acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Dermal Not applicable.

Not applicable.

0.914

Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 15% - Industrial Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation

as most likely exposure form - Use of preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14,

PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1550

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 300

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of

(%): Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Indoor/Outdoor use. industrial setting

1.0x10-5

n

Not available.

Not available.

Not available

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Organisational measures to prevent/limit release from site: Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

1.0x10-3

1.0x10-3

Not available

Not available.

Not available.

=53.1

Not available.

Not applicable.

Conditions and measures related to municipal sewage treatment plant:

Assumed domestic sewage treatment plant flow (m³/d):

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1300 Tonnes/year

Amounts used:

25% Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 326 Average Local Daily Tonnage (kg/day): 1087 Maximum daily site tonnage (kg/day):

Not available. Frequency and duration of use: Continuous release.

300 Emission Days (days/year):

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Indoor/Outdoor use. industrial setting Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to 3.0x10-5

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 4650 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 1160 5272 Average Local Daily Tonnage (kg/day):

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

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

prevent release:

Technical on-site conditions and measures to reduce or limit

Technical conditions and measures at process level (source) to

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Indoor/Outdoor use. industrial setting

1.0x10-5

Not available.

Not available

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

1.0x10-5

Not available

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

25% Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Not available Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

220 **Emission Days (days/year):**

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor:

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional Not available.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Technical conditions and measures at process level (source) to

Release fraction to wastewater from wide dispersive use:

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%): Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact)

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 given operational conditions affecting workers

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: 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).

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Indoor, industrial setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg Other given operational conditions affecting workers Indoor. industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Technical conditions and measures to control dispersion from source towards the worker:

Organisational measures to prevent/limit releases,

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 worker exposure

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg Human factors not influenced by risk management:

Not applicable.

Not applicable.

Not applicable.

Other given operational conditions affecting workers Indoor, industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity Personal protection: training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 4: Transfer of substance or preparation into small containers (dedicated filling line,

Indoor. industrial setting

Not applicable.

Not applicable.

Not applicable.

including weighing)

Liquid. Covers concentrations up to 2% **Product characteristics:**

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 5: Roller application or brushing

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Indoor. industrial setting

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

Personal protection:

dispersion and exposure:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 6: Treatment of articles by dipping and pouring

Product characteristics: Liquid. Covers concentrations up to 2%

Not applicable. **Amounts used:**

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Indoor. industrial setting

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 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).

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg Human factors not influenced by risk management:

Other given operational conditions affecting workers Indoor. industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 8: Hand-mixing with intimate contact and only PPE available

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Indoor, industrial setting

Technical conditions and measures at process level

(source) to prevent release:

from source towards the worker:

Technical conditions and measures to control dispersion

Organisational measures to prevent/limit releases, dispersion and exposure:

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0.0155	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Total release for regional

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	7.78x10-4	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	2.33x10-5	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.82x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.523	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.80x10-5	8.54x10-5	EUSES calculation
Marine water mg/l	1.80x10-6	8.51x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	8.57x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	8.54x10-3	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial

Justification

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	5.29x10-7	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	1.06x10-6	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.49x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	5.33x10-9	5.37x10-9	EUSES calculation
Annual deposition mg/m²/d	4.408	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19
Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

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.

1.22

Polyethyleneamines, HEPA-S140

Short term exposure, Local,

Inhalable

Not applicable.

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

below this value

PROC10, PROC13, PROC14, PROC19

The ECETOC TRA tool has been used to

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 133/205

Section 3:.2 Workers - Exposure est Contributing scenario controlling we		al spraying	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.09	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we containers at non-dedicated facilitie	orker exposure for 2: Transfe	r of substance or preparation (c	charging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.09	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.09	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 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 134/205

Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure esti	imation		
-		er of substance or preparation (charg	ging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.05	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure esti Contributing scenario controlling we including weighing)		er of substance or preparation into s	mall containers (dedicated filling line,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.05	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 135/205

Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure esti Contributing scenario controlling wo		lication or brushing	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.09	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Section 3:.2 Workers - Exposure est			
Contributing scenario controlling we	orker exposure for 6: Treatme	ent of articles by dipping and po	ouring
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.09	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we pelletisation		tion of preparations* or articles	by tabletting, compression, extrusion,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.05	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Chart town avecause Customia	Not applicable	Not applicable	Not applicable

Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, Not applicable. 1.22 Inhalable

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

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 137/205

Section 3:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 8: Hand-mixing with intimate contact and only PPE available Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.09 estimate workplace exposures unless **Dermal** otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. 0.61 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Not applicable. Not applicable. Long term exposure, Systemic, Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Dermal** Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, Not applicable. 1.22 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 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.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f **138/205**



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation

as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14,

PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Amounts used:

Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1550

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Not applicable.

1860 Tonnes/year

25%

Not available.

465

300

Indoor/Outdoor use. industrial setting

1.0x10-5

n

Not available.

Not available.

Not available Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

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 139/205 Organisational measures to prevent/limit release from site: Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

300

1.0x10-3

Not available

Not available.

Not available.

=53.1

Not available.

Not applicable.

Indoor/Outdoor use. industrial setting

Conditions and measures related to municipal sewage treatment

plant:

Assumed domestic sewage treatment plant flow (m³/d):

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable.

1300 Tonnes/year Amounts used:

25% Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 326 Average Local Daily Tonnage (kg/day): 1087 Maximum daily site tonnage (kg/day):

Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

3.0x10-5

Release fraction to air from process (initial release prior to RMM):

Release fraction to soil from process (initial release prior to 1.0x10-3

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

only):

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 4650 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 1160 5272 Average Local Daily Tonnage (kg/day):

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

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

Emission Days (days/year): 220

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1.0x10-5

Not available.

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Continuous release.

1.0x10-5

Not available

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Frequency and duration of use:

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

25% Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Not available Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114 Maximum daily site tonnage (kg/day): Not available.

220 **Emission Days (days/year):**

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor:

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

Not available.

only):

Release fraction to soil from wide dispersive use (regional

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Technical conditions and measures at process level (source) to

Release fraction to wastewater from wide dispersive use:

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site: Conditions and measures related to municipal sewage treatment

plant:

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact)

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Indoor, industrial setting Other given operational conditions affecting workers

Indoor. industrial setting and professional setting exposure:

Indoor, professional setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

dispersion and exposure:

Organisational measures to prevent/limit releases,

Not applicable.

Not applicable.

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Industrial spraying

Product characteristics: Liquid. Covers concentrations up to 0.5%

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 given operational conditions affecting workers

exposure:

Indoor, industrial setting Indoor. industrial setting and professional setting

Indoor, professional setting

Technical conditions and measures at process level

(source) to prevent release:

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%

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 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg Human factors not influenced by risk management:

Other given operational conditions affecting workers Indoor, industrial setting

Indoor. industrial setting and professional setting exposure:

Indoor, professional setting

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable. Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Not applicable.

Not applicable.

Not applicable.

Other given operational conditions affecting workers Indoor. industrial setting

Indoor. industrial setting and professional setting exposure:

Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure: Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 4: Transfer of substance or preparation into small containers (dedicated filling line,

including weighing)

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Indoor. industrial setting Indoor. industrial setting and professional setting

Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases, dispersion and exposure:

Not applicable.

Not applicable.

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 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 given operational conditions affecting workers Indoor, industrial setting

exposure: Indoor, industrial setting and professional 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:

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 6: Treatment of articles by dipping and pouring

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting exposure:

Indoor, industrial setting and professional setting Indoor, professional setting

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.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 7: Production of preparations* or articles by tabletting, compression, extrusion,

pelletisation

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. industrial setting

Indoor. industrial setting and professional setting exposure:

Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 8: Hand-mixing with intimate contact and only PPE available

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting

Indoor. industrial setting and professional setting exposure:

Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of

preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0.0155	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source	Total release for regional	Justification
	(local exposure estimation) kg/	exposure estimation kg/day	
	day		
Waste water	7.78x10-4	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	2.33x10-5	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.82x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.523	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.80x10-5	8.54x10-5	EUSES calculation
Marine water mg/l	1.80x10-6	8.51x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	8.57x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	8.54x10-3	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 145/205

	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	5.29x10-7	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	1.06x10-6	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.49x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	5.33x10-9	5.37x10-9	EUSES calculation
Annual deposition mg/m²/d	4.408	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m ³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f **146/205**

1	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 Work	cers - Expo	sure est	timation
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Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact	ct)	,	The state of the s
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local,	Not applicable.	1.52	The ECETOC TRA tool has been used to

Inhalable

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Industrial spraying

Route of exposure **Contributing scenarios Dose/Concentration Justification**

Long term exposure, Systemic,

Dermal

Not applicable.

0.11

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22 Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

 Long term exposure, Systemic, Inhalable	Not applicable.	0.30	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
 Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

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Section	3 · 2 V	Vorkers -	Fynosure	estimation

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial

below this value

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f **148/205**

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal Short term exposure, Local, Inhalable	Not applicable. Not applicable.	Not applicable. 1.52	Not applicable. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f 149/205

Section 3:.2 Workers - Exposure est	imation		
Contributing scenario controlling we		pplication or brushing	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal Short term exposure, Local, Inhalable	Not applicable. Not applicable.	Not applicable. 1.52	Not applicable. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we		ent of articles by dinning and no	uring
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.

Not applicable.

Not applicable.

Not applicable.

1.52

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic,

Short term exposure, Systemic,

Short term exposure, Local,

Short term exposure, Local, Dermal Not applicable.

Inhalable

Combined

Inhalable

Not applicable.

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 0.5% - Industrial

Not applicable.

Not applicable.

Not applicable.

below this value

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

The ECETOC TRA tool has been used to

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Section 3:.2 Workers - Exposure est Contributing scenario controlling wan pelletisation		tion of preparations* or articles	by tabletting, compression, extrusion,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal Short term exposure, Local, Inhalable	Not applicable. Not applicable.	Not applicable. 1.52	Not applicable. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est	imation		
Contributing scenario controlling we	orker exposure for 8: Hand-m	ixing with intimate contact and	only PPE available
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic,	Not applicable.	Not applicable.	Not applicable.

		exposure estimates for other PROC are below this value
Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Not applicable.	Not applicable.	Not applicable.
Not evaluated.	Not applicable.	Not applicable.
Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
	Not applicable. Not evaluated. Not applicable Not applicable	Not applicable. Not evaluated. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic, Combined

Short term exposure, Local, Dermal Not applicable

Not applicable

Identified use name: 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

has been derived.

has been derived.

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

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

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f **151/205**

Short term exposure, Local, Inhalable

Not applicable.

1.52

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of 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)

Professional

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation

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.

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Amounts used:

Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1550

Maximum daily site tonnage (kg/day): Frequency and duration of use: Continuous release.

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%): If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

as most likely exposure form - Use of preparations containing EA up to 25% - Professional

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08f

Not applicable.

1860 Tonnes/year

25%

Not available.

465

Not available.

300

Indoor/Outdoor use. industrial setting

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater

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

153/205

Polyethyleneamines, HEPA-S140

Conditions and measures related to municipal sewage treatment

Assumed domestic sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 372 Tonnes/year Amounts used:

25% Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available

Annual site tonnage (tonnes/year): 93 255 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release

365 Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: Not available. Local marine water dilution factor: Not available

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only): Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%): Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Indoor/Outdoor use. professional setting

0.01

0.01

Not available

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53.1

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Tonnes/year Amounts used: Fraction of EU tonnage used in region: 25% Regional use tonnage (tonnes/year): Not available Not available. Fraction of Regional tonnage used locally: 1160 Annual site tonnage (tonnes/year):

Average Local Daily Tonnage (kg/day): 5272 Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

220 **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 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 154/205 Environment factors not influenced by risk management:

Local freshwater dilution factor: Local marine water dilution factor: Not available.

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

(%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Not available

Indoor/Outdoor use. industrial setting

1 0x10-5

Not available.

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Not applicable.

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: Not available Local marine water dilution factor: Not available.

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Indoor, industrial setting

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Professional

Process Category: PROC05, PROC08a

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

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 air emission to provide a typical removal efficiency of (%):

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

No wastewater treatment required.

Not available.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact)

Product characteristics: Liquid. Covers percentage substance in the product up to 25%.

Amounts used: Not applicable.

Frequency and duration of use: Exposure duration per day: 15 min. to < 1 hour

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, professional setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion from source towards the worker:

Organisational measures to prevent/limit releases, dispersion and exposure:

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. Wear appropriate respiratory protection. with a

minimum efficacy of 95%

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics: Liquid. Covers percentage substance in the product up to 25%.

Amounts used: Not applicable.

Frequency and duration of use: Avoid carrying out activities involving exposure for more than 15 minutes.

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Not applicable.

Not applicable.

Not applicable.

Other given operational conditions affecting workers Indoor, professional setting exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

Personal protection:

dispersion and exposure:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls. Wear appropriate respiratory protection. with a

minimum efficacy of 95%

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Total release for regional Release from point source Justification (local exposure estimation) kg/ exposure estimation kg/day

day

Waste water 0 2.34 **EUSES** calculation 0.586 **EUSES** calculation **Surface water** n 0.0155 2.38 **EUSES** calculation air (direct + STP)

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

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.

Total release for regional

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	5.1x10-4	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.19x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.343	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.18x10-5	7.92x10-5	EUSES calculation
Marine water mg/l	1.18x10-6	7.89x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	7.95x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	7.92x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	2.66x10-13	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	5.36x10-13	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	2.69x10-15	Not evaluated.	EUSES calculation
Annual average mg/m³	2.69x10-15	3.58x10-11	EUSES calculation
Annual deposition mg/m²/d	2.22x10-14	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Professional

Justification

Process Category: PROC05, PROC08a Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Professional

Process Category: PROC05, PROC08a

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Local concentration PEC air (local+regional) **Justification** During emission mg/m³ **EUSES** calculation Not evaluated. Annual average mg/m³ 0 3.57x10-11 **EUSES** calculation Annual deposition mg/m²/d 0 Not evaluated. **EUSES** calculation **Local concentration** PEC aquatic (local+regional) **Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact) Route of exposure

Long term exposure, Systemic,

Dermal

Contributing scenarios

Not applicable. 0.0685714

Dose/Concentration Justification

> estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

The ECETOC TRA tool has been used to

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 Not applicable.

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal Long term exposure, Local,

Inhalable

Not applicable. Not applicable

Not evaluated.

Not applicable.

Not applicable.

Not applicable. Not applicable. Since the substance is not classified for

acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, **Dermal**

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived

Short term exposure, Systemic, Inhalable

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived

Short term exposure, Systemic,

Combined

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Dermal Not applicable.

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Inhalable

Not applicable.

0.73115

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Long term exposure, Systemic,

Dermal

Route of exposure

Contributing scenarios

Dose/Concentration

0.0685714

Justification The ECETOC TRA tool has been used to estimate workplace exposures unless

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

Long term exposure, Systemic,

Inhalable

Not applicable.

Not applicable.

0.45697

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

Inhalable

Not evaluated. Not applicable. Not applicable.

Not applicable.

Long term exposure, Local, Dermal Long term exposure, Local,

Not applicable

Not applicable. Not applicable.

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Professional

Process Category: PROC05, PROC08a Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f

Short term exposure, Systemic, Not applicable. Not applicable Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for **Combined** acute effects and therefore, no acute DNEL has been derived. Since the substance is not classified for Short term exposure, Local, Dermal Not applicable. Not applicable. acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, Not applicable. 0.91393 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the

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.

reparations containing EA up to 25% - Professional Process Category: PROC05, PROC08a

highest exposure level is given since the exposure estimates for other PROC are

below this value

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e,

ERC08f **160/205**



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/List of use descriptors Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% -

Professional

Process Category: PROC08a

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC04, ERC10b

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1274

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 365

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release: Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of

(%):

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Conditions and measures related to municipal sewage treatment

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available

1.1x10-5

Not available.

Not available.

Not available

Not applicable.

n

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Process Category: PROC08a

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC04, ERC10b

Assumed domestic sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

220 Emission Days (days/year):

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor: Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to 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):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use: Not available.

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of 3 (%):

Conditions and measures related to municipal sewage treatment plant:

Section 2.2: Control of worker exposure

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Not available.

Not available.

Not applicable.

Not available.

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large

Not applicable.

Not applicable.

containers at non-dedicated facilities **Product characteristics:** Liquid. Covers concentrations up to 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, professional setting

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Organisational measures to prevent/limit releases,

Personal protection:

dispersion and exposure:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Process Category: PROC08a

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Fuel additive.

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	6.37x10-6	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	1.76x10-7	0.0118	EUSES calculation
Grassland averaged mg/kg dwt	3.53x10-7	0.0118	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	1.77x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	1.77x10-9	1.8x10-9	EUSES calculation
Annual deposition mg/m²/d	1.46x10-8	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	oustineation
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	1.25x10-3	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification

Total release for regional

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Justification

Process Category: PROC08a

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC04, ERC10b

Agricultural soil averaged mg/kg 2.07x10-5 1.19x10-2 **EUSES** calculation dwt Grassland averaged mg/kg dwt 4.17x10-5 **EUSES** calculation 1.19x10-2 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 PEC aquatic (local+regional) **Local concentration** Justification Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Route of exposure **Contributing scenarios Dose/Concentration Justification**

Long term exposure, Systemic,

Dermal

Not applicable.

The ECETOC TRA tool has been used to 0.027

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic,

Inhalable

0.76

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the

highest exposure level is given since the exposure estimates for other PROC are below this value

Long term exposure, Systemic,

Combined

Long term exposure, Local, Dermal

Long term exposure, Local, Inhalable

Not evaluated. Not evaluated.

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.

Not applicable.

Short term exposure, Systemic, **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, Inhalable

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived

Short term exposure, Systemic,

Combined

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Dermal Not applicable Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local,

Inhalable

Not applicable.

1.52

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Professional

Process Category: PROC08a

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% -

Professional

Process Category: PROC08a, PROC10

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC04, ERC10b

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1274

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 365

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of

(%):

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

1.1x10-5

Not available.

Not available.

Not available

Not applicable.

n

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Professional

Process Category: PROC08a, PROC10

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Conditions and measures related to municipal sewage treatment plant:

Assumed domestic sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable 1860 Tonnes/year Amounts used:

25% Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Indoor/Outdoor use, industrial setting Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1.1.10-5

Not available

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used:

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers

Technical conditions and measures at process level

(source) to prevent release:

exposure:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Covers daily exposures up to 8 hours (unless stated differently).

Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Indoor, professional setting

Not applicable.

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Professional

Process Category: PROC08a, PROC10

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Roller application or brushing

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Not applicable.

Other given operational conditions affecting workers Indoor, professional setting exposure:

Technical conditions and measures at process level

(source) to prevent release: 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

Justification

management supervision controls.

Total release for regional

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Fuel additive.

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	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.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Professional

Process Category: PROC08a, PROC10

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Wood preservative.

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	1.25x10-3	2.38	EUSES calculation
Soil (direct releases only)	0	2.38	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	2.07x10-5	1.19x10-2	EUSES calculation
Grassland averaged mg/kg dwt	4.17x10-5	1.19x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.92x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.47x10-7	Not evaluated.	EUSES calculation
Annual average mg/m³	2.09x10-7	2.09x10-7	EUSES calculation
Annual deposition mg/m²/d	1.72x10-6	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 0: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.110	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.305	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Professional

Process Category: PROC08a, PROC10

Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Short term exposure, Local, Dermal Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local,

Inhalable

Not applicable.

0.61

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Roller application or brushing

Route of exposure **Contributing scenarios Dose/Concentration** Justification

Long term exposure, Systemic,

Dermal

Not applicable.

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

Long term exposure, Systemic,

Inhalable

Not applicable. 0.305

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

Long term exposure, Local, Dermal Long term exposure, Local,

Inhalable

Not evaluated. Not applicable

Not applicable

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.

Not applicable.

Not applicable.

Short term exposure, Systemic, **Dermal**

Not applicable

Not applicable.

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL

has been derived. Since the substance is not classified for

Short term exposure, Systemic, Inhalable

Not applicable

Not applicable.

acute effects and therefore, no acute DNEL has been derived.

acute effects and therefore, no acute DNEL

Since the substance is not classified for has been derived

Short term exposure, Systemic, Combined

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 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Professional

Process Category: PROC08a, PROC10 Substance supplied to that use in form of: In a mixture

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% -

Industrial

Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC16

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC04, ERC10b

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1274

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 365

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

(%): Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of 3 (%):

Organisational measures to prevent/limit release from site:

1.1x10-5

n

Not available.

Not available.

Not available

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

Polyethyleneamines, HEPA-S140 Identified use name: Use of 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

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

Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09,

Conditions and measures related to municipal sewage treatment plant:

Assumed domestic sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use.

Product characteristics: 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%):

plant:

Not applicable

25%

Not available.

Indoor/Outdoor use, industrial setting

1.1x10-5

Not available

Not available

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Not available.

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Section 2.2: Control of worker exposure

(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:

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

Other given operational conditions affecting workers Indoor, industrial setting exposure: Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Not applicable.

Organisational measures to prevent/limit releases, Not applicable.

dispersion and exposure:

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

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Calendering operations

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Not applicable.

Other given operational conditions affecting workers Indoor, industrial setting Indoor. professional setting exposure:

Technical conditions and measures at process level Not applicable.

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor, industrial setting exposure: Indoor, professional setting

Technical conditions and measures at process level Not applicable.

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

Not applicable.

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

Use the following local exhaust ventilation types: Treat air emission to provide a typical

management supervision controls.

removal efficiency of (%): 90%

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Not applicable.

Other given operational conditions affecting workers Indoor, industrial setting Indoor. professional setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

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% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09,

PROC13. PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 4: Transfer of substance or preparation into small containers (dedicated filling line,

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

Not applicable.

Not applicable.

Indoor, industrial setting Indoor, professional setting

Other given operational conditions affecting workers

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 5: Treatment of articles by dipping and pouring

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg Human factors not influenced by risk management:

Other given operational conditions affecting workers Indoor, industrial setting Indoor. professional setting

exposure: Not applicable.

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Use the following local exhaust ventilation types: Treat air emission to provide a typical

removal efficiency of (%): 90%

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 6: Using material as fuel sources, limited exposure to unburned product to be

expected

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Indoor, professional setting Not applicable.

Not applicable.

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09,

PROC13. PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Fuel additive.

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	6.37x10-6	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	1.76x10-7	0.0118	EUSES calculation
Grassland averaged mg/kg dwt	3.53x10-7	0.0118	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	1.77x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	1.77x10-9	1.8x10-9	EUSES calculation
Annual deposition mg/m²/d	1.46x10-8	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Total release for regional

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Wood preservative.

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)	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

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC16

Justification

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22 Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC04, ERC10b

Agricultural soil averaged mg/kg dwt	2.07x10-5	1.19x10-2	EUSES calculation
Grassland averaged mg/kg dwt	4.17x10-5	1.19x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.92x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.47x10-7	Not evaluated.	EUSES calculation
Annual average mg/m³	2.09x10-7	2.09x10-7	EUSES calculation
Annual deposition mg/m²/d	1.72x10-6	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

			_	
Section	3.2	Workers :	- Exposure	estimation

Inhalable

Inhalable

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)

Contributing scenarios Dose/Concentration 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

Long term exposure, Systemic, Not applicable. 0.61 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Long term exposure, Systemic, Not evaluated. Not applicable. Not applicable. Combined

Not applicable. Not evaluated. Long term exposure, Local, Dermal Not applicable.

Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for

acute effects and therefore, no acute DNEL

Justification

has been derived.

Short term exposure, Systemic, Not applicable. Since the substance is not classified for Not applicable **Dermal** acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL

has been derived

Not applicable. Not applicable Since the substance is not classified for Short term exposure, Systemic,

Combined acute effects and therefore, no acute DNEL has been derived.

Since the substance is not classified for Short term exposure, Local, Dermal Not applicable Not applicable. acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Not applicable. 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:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Calendering operations

Route of exposure **Contributing scenarios Dose/Concentration** Justification The ECETOC TRA tool has been used to

Long term exposure, Systemic, Not applicable. 0.055

Dermal estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are below this value

The ECETOC TRA tool has been used to Long term exposure, Systemic, 0.61 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 applicable. Not applicable. Not evaluated.

Combined

Long term exposure, Local, Dermal Not evaluated. Not applicable. Not applicable. Polyethyleneamines, HEPA-S140 Identified use name: Use of preparations containing ethylenamines in open

processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 3:.2 Workers	 Exposure estimation 	on
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Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.110	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.305	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Section 3:.2 Workers - Exposure est			
containers at dedicated facilities			harging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.055	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling weighing)		r of substance or preparation in	to small containers (dedicated filling line,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.055	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute 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

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

has been derived.

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

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:.2 Workers - Exposure est Contributing scenario controlling we		ent of articles by dinning and no	nuring
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,	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
		naterial 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.	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 applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Polyethyleneamines, HEPA-S140		processes with low exposure form - Use Process Category: PRO Substan	of preparations containing ethylenamines in open exposure potential and evaporation as most likely of preparations containing EA up to 2% - Industrial DC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC16 nce supplied to that use in form of: In a mixture Sector of end use: SU03, SU22 absequent service life relevant for that use: No.
		Environmen	ntal Release Category: ERC01, ERC04, ERC10b 178/205

Long term exposure, Local, Inhalable

Not applicable.

Not applicable.

Not applicable.

Short term exposure, Systemic,

Not applicable.

Not applicable.

Not applicable.

Dermal

Short term exposure, Systemic, Not applicable.

Inhalable

Not applicable.

Not applicable.

Short term exposure, Systemic, Not applicable. Combined

Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

Short term exposure, Local, Inhalable

Not applicable.

The ECETOC TRA tool has been used to 1.22

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 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 environmental exposure

Contributing scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 1274

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

Emission Days (days/year): 365

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental Indoor/Outdoor use. industrial setting

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

only):

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of

(%):

Treat on-site wastewater (prior to receiving water discharge)

the required onsite wastewater removal efficiency of 3 (%):

to provide the required removal efficiency of 3 (%): If discharging to domestic sewage treatment plant, provide

Organisational measures to prevent/limit release from site:

No wastewater treatment required.

Not available.

1.1x10-5

Not available.

Not available.

Not available

Not applicable.

n

Prevent discharge of undissolved substance to or recover from onsite wastewater

No air emission controls required; required removal efficiency is 0%.

Soil emission controls are not applicable as there is no direct release to soil.

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

Conditions and measures related to municipal sewage treatment plant:

Assumed domestic sewage treatment plant flow (m³/d): 2000

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable 1860 Tonnes/year Amounts used:

25% Fraction of EU tonnage used in region:

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

1.1.10-5

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):

Release fraction to air from wide dispersive use (regional

only):

Not available Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use: Not available. Not applicable.

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit Soil emission controls are not applicable as there is no direct release to soil.

Not available.

Not available

Indoor/Outdoor use. industrial setting

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

Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required.

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles

(multistage and/or significant contact)

Product characteristics: Liquid. Covers concentrations up to 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:

Indoor, industrial setting

Other given operational conditions affecting workers

exposure:

Not applicable.

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion

Not applicable.

from source towards the worker: Organisational measures to prevent/limit releases,

Not applicable.

dispersion and exposure:

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: Calendering operations

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Indoor, industrial setting

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 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 Indoor, industrial setting

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at dedicated facilities

Liquid. Covers concentrations up to 0.5%

Product characteristics: Amounts used:

Not applicable.

Frequency and duration of use:

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management:

Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

Indoor, industrial 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.

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC16 Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No.

182/205

Environmental Release Category: ERC01, ERC04, ERC10b

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 4: Transfer of substance or preparation into small containers (dedicated filling line,

including weighing)

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Not applicable.

Indoor. industrial setting

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level Not applicable.

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 5: Roller application or brushing

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers Indoor. industrial setting

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 6: Treatment of articles by dipping and pouring

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Indoor, industrial setting

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Technical conditions and measures to control dispersion

from source towards the worker:

Not applicable.

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 7: Using material as fuel sources, limited exposure to unburned product to be

expected

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management: Default breathing volume Light work 10: m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers

exposure:

Indoor, industrial setting

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC16

Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Technical conditions and measures at process level (source) to prevent release:

Technical conditions and measures to control dispersion from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Not applicable.

Not applicable.

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls.

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Fuel additive.

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	6.37x10-6	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	1.76x10-7	0.0118	EUSES calculation
Grassland averaged mg/kg dwt	3.53x10-7	0.0118	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	1.77x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	1.77x10-9	1.8x10-9	EUSES calculation
Annual deposition mg/m²/d	1.46x10-8	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Wood preservative.

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	1.25x10-3	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

1	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	2.07x10-5	1.19x10-2	EUSES calculation
Grassland averaged mg/kg dwt	4.17x10-5	1.19x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.92x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.47x10-7	Not evaluated.	EUSES calculation
Annual average mg/m³	2.09x10-7	2.09x10-7	EUSES calculation
Annual deposition mg/m²/d	1.72x10-6	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.2	Workers -	 Exposure 	estimation
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Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch processes for formulation of preparations* and articles (multistage and/or significant contact)

Route of exposure Contributing scenarios Dose/Concentration Justification

Long term exposure, Systemic, Dermal O.027 The ECETOC TRA tool has been used to estimate workplace exposures unless

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

Long term exposure, Systemic, Not applicable.

0.76 Delow 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, 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. Not applicable.

Short term exposure, Systemic, Not applicable. Not applicable. Not applicable.

Combined

Short term exposure, Local, DermalNot applicable.Not applicable.Not applicable.Short term exposure, Local,Not applicable.1.52The 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

Contributing scenario controlling worker exposure for 1: Calendering operations

Route of exposure Contributing scenarios Dose/Concentration Justification

Long term exposure, Systemic, Not applicable. 0.027 The ECETOC TRA tool has been used to estimate workplace exposures unless

estimate workplace 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

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

Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal Short term exposure, Local, Inhalable	Not applicable. Not applicable.	Not applicable. 1.52	Not applicable. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

containers at non-dedicated facilitie	S		
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.027	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

		r of substance or preparation (c	charging/discharging) from/to vessels/large
containers at dedicated facilities Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.027	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est Contributing scenario controlling we including weighing)		r of substance or preparation in	nto small containers (dedicated filling line,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.027	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

Section 3:.2 Workers - Exposure estimation Contributing 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.	0.027	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value	

Long term exposure, Systemic, Not applicable. 0.76 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Not applicable. Long term exposure, Systemic, Not applicable. Not applicable. Combined Not applicable. Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable. Not applicable. Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Dermal** Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable.

Not applicable.

otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

1.52

The ECETOC TRA tool has been used to

estimate workplace exposures unless

below this value

Polyethyleneamines, HEPA-S140

Short term exposure, Local,

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

Section 3:.2 Workers - Exposure est Contributing scenario controlling we		pplication or brushing	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.027	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute 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 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 DNEI has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure est		out of outlabor has discussed as	
Contributing scenario controlling we Route of exposure	•		Justification
		Dose/Concentration	The ECETOC TRA tool has been used to
Long term exposure, Systemic, Dermal	Not applicable.	0.027	estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic,	Not applicable.	0.76	The ECETOC TRA tool has been used to

Long term exposure, Systemic, Dermal	Not applicable.	0.027	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Short term exposure, Local, Inhalable

Not applicable.

1.52

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 3:.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 7: Using material as fuel sources, limited exposure to unburned product to be

expected

Route of exposure Long term exposure, Systemic,

Dermal

Contributing scenarios Not applicable.

Dose/Concentration 0.027

Justification

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Long term exposure, Systemic,

Inhalable

Not applicable.

0.76

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are

below this value Not applicable.

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal

Long term exposure, Local, Inhalable

Not applicable. Not applicable.

Not applicable.

Not applicable.

Not applicable. Not applicable.

Short term exposure, Systemic,

Dermal

Not applicable.

Not applicable.

Not applicable. Not applicable.

Not applicable.

Not applicable.

Not applicable.

Short term exposure, Systemic,

Short term exposure, Systemic,

Not applicable.

Not applicable.

Not applicable.

Not applicable. Not applicable.

Not applicable.

Combined

Short term exposure, Local, Dermal

Short term exposure, Local,

Inhalable

Not applicable. Not applicable.

1.52

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the

highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available Health Not available.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16

> Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of

preparations containing EA up to 0.5% - Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region: 25%

Not available. Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available

465 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1550

Maximum daily site tonnage (kg/day): Not available. Continuous release. Frequency and duration of use:

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Assumed domestic sewage treatment plant flow (m³/d):

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

Not available.

1.0x10-5

Not available.

Not available

Not available.

Not applicable.

2000

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 93 225 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

365 Emission Days (days/year):

Environment factors not influenced by risk management:

Not available. Local freshwater dilution factor: Local marine water dilution factor: Not available

Indoor/Outdoor use. industrial setting Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to 0.01

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

0.01

Not available

Not available

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53.1

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable.

4650 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available Fraction of Regional tonnage used locally: Not available

1160 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 5272

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

220 **Emission Days (days/year):**

Environment factors not influenced by risk management:

Local freshwater dilution factor: Not available Local marine water dilution factor: Not available.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -

Industrial

Process Category: PROC21, PROC24 Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to RMM):

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM): Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1.0x10-5

Not available

Not available.

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

220 **Emission Days (days/year):**

Environment factors not influenced by risk management:

Not available Local freshwater dilution factor: Local marine water dilution factor: Not available.

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to RMM):

Release fraction to wastewater from process (initial release prior to RMM):

Release fraction to air from wide dispersive use (regional only):

Release fraction to soil from wide dispersive use (regional only):

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

Not applicable.

1860 Tonnes/year

Not available

465

Indoor. industrial setting

1.0x10-5

Not available

Not available.

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -

> Process Category: PROC21, PROC24 Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

192/205

Industrial

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Low energy manipulation of substances bound in materials and/or articles

Not available

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

Not applicable.

Not applicable.

Not applicable.

Other given operational conditions affecting workers Indoor, professional setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: High (mechanical) energy work-up of substances bound in materials and/or articles

Product characteristics: Solid. Covers concentrations up to 0.5%

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 given operational conditions affecting workers Indoor, professional setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Not applicable.

Total release for regional

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

(local exposure estimation) kg/ exposure estimation kg/day dav Waste water 0 2 34 **FUSES** calculation 0.586 n **EUSES** calculation **Surface water** air (direct + STP) 0.0155 2.38 **EUSES** calculation Soil (direct releases only) 4.2 **EUSES** calculation 0

Release from point source

Value Justification Concentration in sewage (PECstp) O **FUSES** calculation

Concentration in sewage sludge 0

mg/kg dwt

EUSES calculation

PEC aquatic (local+regional) **Justification Local concentration** 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.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -

Justification

Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Fresh water sediment mg/kg dwt Marine water sediment mg/kg dwt	Local concentration Not evaluated. Not evaluated.	PEC sediment (local+regional) 6.77x10-2 6.74x10-3	Justification EUSES calculation EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Total release for regional

exposure estimation kg/day

Justification

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

Release from point source (local exposure estimation) kg/

	day		
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/m ³	6.49x10 ⁻⁹	Not evaluated.	EUSES calculation
Annual average mg/m³	5.33x10 ⁻⁹	5.37x10 ⁻⁹	EUSES calculation
Annual deposition mg/m²/d	4.40x10 ⁻⁸	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/	Total release for regional exposure estimation kg/day	Justification
	day		
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp)	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	1.18x10-2	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.2 Workers - Exposure est			
Contributing scenario controlling wo	orker exposure for 0: Low end Contributing scenarios	ergy manipulation of substance: Dose/Concentration	s bound in materials and/or articles Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.06	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute 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.	0.12	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3:.2 Workers - Exposure esti Contributing scenario controlling wo		echanical) energy work-up of su	ubstances bound in materials and/or articles
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

Dermal estimate workplace exposures unless otherwise indicated. The PROC with highest exposure level is given since exposure estimates for other PROC a below this value Long term exposure, Systemic, Inhalable Not applicable. O.06 The ECETOC TRA tool has been use estimate workplace exposures unless otherwise indicated. The PROC with highest exposure level is given since exposure estimates for other PROC a below this value Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Not applicable.				
Inhalable estimate workplace exposures unless otherwise indicated. The PROC with highest exposure level is given since exposure estimates for other PROC a below this value Long term exposure, Systemic, Not applicable. Not applicable. Not applicable.		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
Combined		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, Local, Dermal Not applicable. Not applicable. Not applicable.		Not applicable.	Not applicable.	Not applicable.
	erm exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Not applicable. Not applicable. Not applicable.		Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Dermal		Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Not applicable. Not applicable. Not applicable.		Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined		Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable.	erm exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 0.5% -Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Short term exposure, Local, Inhalable

Not applicable.

0.12

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 4:: Guidance to check compliance with the exposure scenario

Not available. **Environment** Not available. Health

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1:: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of

preparations containing EA up to 2% - Industrial

Process Category: PROC21, PROC24 Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Section 2:: Operational conditions and risk management measures

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Not available. Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available

465 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 1550

Maximum daily site tonnage (kg/day): Not available. Continuous release. Frequency and duration of use:

Emission Days (days/year):

Environment factors not influenced by risk management:

Local freshwater dilution factor: 1000 Local marine water dilution factor: 1000

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use:

Technical conditions and measures at process level (source) to

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Assumed domestic sewage treatment plant flow (m³/d):

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

Not available.

1.0x10-5

Not available.

Not available

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% -

Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

198/205

Polyethyleneamines, HEPA-S140

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable. 372 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available. Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 93 225 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

365 Emission Days (days/year):

Environment factors not influenced by risk management:

Not available. Local freshwater dilution factor: Local marine water dilution factor: Not available

Indoor/Outdoor use. industrial setting Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM):

Release fraction to soil from process (initial release prior to 0.01

RMM):

Release fraction to wastewater from process (initial release

prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge)

to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

0.01

Not available

Not available

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

=>53.1

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use.

Product characteristics: Not applicable.

4650 Tonnes/year Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Not available Fraction of Regional tonnage used locally: Not available

1160 Annual site tonnage (tonnes/year): Average Local Daily Tonnage (kg/day): 5272

Maximum daily site tonnage (kg/day): Not available. Frequency and duration of use: Continuous release.

220 **Emission Days (days/year):**

Environment factors not influenced by risk management:

Local freshwater dilution factor: Not available Local marine water dilution factor: Not available.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2%

Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM): Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release prior to RMM):

Release fraction to air from wide dispersive use (regional

only):

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1.0x10-5

Not available

Not available.

Not available.

Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Indoor/Outdoor use. industrial setting

Not available.

Section 2.1: Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

Operational conditions: Indoor use.

Product characteristics: Not applicable. Amounts used:

Fraction of EU tonnage used in region: 25%

Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Not available.

Annual site tonnage (tonnes/year): 465 Average Local Daily Tonnage (kg/day): 2114

Maximum daily site tonnage (kg/day): Not available Frequency and duration of use: Continuous release.

220 **Emission Days (days/year):**

Environment factors not influenced by risk management:

Not available Local freshwater dilution factor: Local marine water dilution factor: Not available.

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM):

Release fraction to wastewater from process (initial release prior to RMM):

Release fraction to air from wide dispersive use (regional only):

Release fraction to soil from wide dispersive use (regional only):

Release fraction to wastewater from wide dispersive use: Technical conditions and measures at process level (source) to

prevent release: Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 3 (%):

1860 Tonnes/year

Not available

Indoor. industrial setting

1.0x10-5

Not available

Not available.

Not available. Not applicable.

Soil emission controls are not applicable as there is no direct release to soil.

No air emission controls required; required removal efficiency is 0%.

No wastewater treatment required.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% -Industrial

Process Category: PROC21, PROC24 Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of ³ (%):

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 0: Low energy manipulation of substances bound in materials and/or articles

Not available

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.

Not applicable.

Not applicable.

Other given operational conditions affecting workers Indoor, professional setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity

training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Section 2.2: Control of worker exposure

Contributing scenario controlling worker exposure for 1: High (mechanical) energy work-up of substances bound in materials and/or articles

Product characteristics: Solid. Covers concentrations up to 2%

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.

Not applicable.

Not applicable.

Other given operational conditions affecting workers Indoor, professional setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Technical conditions and measures to control dispersion

from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection: Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive

management supervision controls.

Total release for regional

Section 3:: Exposure estimation

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

(local exposure estimation) kg/ exposure estimation kg/day dav Waste water 0 2 34 **FUSES** calculation 0.586 n **EUSES** calculation **Surface water** air (direct + STP) 0.0155 2.38 **EUSES** calculation Soil (direct releases only) 4.2 **EUSES** calculation 0

Release from point source

Value Justification Concentration in sewage (PECstp) O **FUSES** calculation

Concentration in sewage sludge

mg/kg dwt

0 **EUSES** calculation

PEC aquatic (local+regional) **Justification Local concentration** 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.

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% -

Justification

Industrial

Process Category: PROC21, PROC24

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Fresh water sediment mg/kg dwt Marine water sediment mg/kg dwt	Local concentration Not evaluated. Not evaluated.	PEC sediment (local+regional) 6.77x10-2 6.74x10-3	Justification EUSES calculation EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Total release for regional

exposure estimation kg/day

Justification

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

Release from point source (local exposure estimation) kg/

	day		
Waste water	7.78x10 ⁻⁴	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	2.33x10 ⁻⁵	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.82x10 ⁻⁴	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.523	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.80x10 ⁻⁵	8.54x10 ⁻⁵	EUSES calculation
Marine water mg/l	1.80x10 ⁻⁶	8.51x10 ⁻⁶	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	8.57x10 ⁻²	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	8.54x10 ⁻³	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	5.29x10 ⁻⁷	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	1.06x10 ⁻⁶	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.49x10 ⁻⁹	Not evaluated.	EUSES calculation
Annual average mg/m³	5.33x10 ⁻⁹	5.37x10 ⁻⁹	EUSES calculation
Annual deposition mg/m²/d	4.40x10 ⁻⁸	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Use as an epoxy curing agent

	Release from point source (local exposure estimation) kg/	Total release for regional exposure estimation kg/day	Justification
	day		
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp)	0	EUSES calculation	

Polyethyleneamines, HEPA-S140

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% -

Industrial

Process Category: PROC21, PROC24 Sector of end use: SU22

Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Epoxy curing agent in paint

	Release from point source (local exposure estimation) kg/	Total release for regional exposure estimation kg/day	Justification
Waste water	day 0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	0	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	0	Not evaluated.	EUSES calculation
Annual average mg/m³	0	3.57x10-11	EUSES calculation
Annual deposition mg/m²/d	0	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 0: Low energy manipulation of substances bound in materials and/or articles Route of exposure **Contributing scenarios Dose/Concentration Justification** The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.0003 estimate workplace exposures unless **Dermal** otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.02 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Combined** Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Since the substance is not classified for Short term exposure, Systemic, Not applicable Not applicable. Inhalable acute effects and therefore, no acute DNEL has been derived. Since the substance is not classified for Short term exposure, Systemic, Not applicable Not applicable. **Combined** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, Dermal Not applicable. 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. 0.03 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3:.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 1: High (mechanical) energy work-up of substances bound in materials and/or articles Route of exposure **Contributing scenarios Dose/Concentration** Justification Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.0003 **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. 0.02 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined 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 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

Not applicable.

has been derived. 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

Short term exposure, Systemic,

Short term exposure, Systemic,

Not applicable

Dermal

Inhalable

Combined

Identified use name: Handling of solid products with small amounts of unbound ethylenamines - Use of preparations containing EA up to 2% Industrial

Process Category: PROC21, PROC24 Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC11a

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Local,

Inhalable

Not applicable.

0.03

Since the substance is not classified for

acute effects and therefore, no acute DNEL

has been derived.

The ECETOC TRA tool has been used to

estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

below this value

Section 4:: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

Not applicable.

Section 5. Remarks: Additional good practice advice beyond the REACH CSA

Environment Not applicable. Health Not applicable. **Additional Good Practices** Not applicable.