SAFETY DATA SHEET



Polyethyleneamines, HEPA-S140

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

1.1 Product identifier

Product name : Polyethyleneamines, HEPA-S140

 Index number
 : 612-121-00-1

 EC number
 : 268-626-9

REACH Registration number

Registration number	Legal entity
01-2119485823-28	Delamine BV

CAS number : 68131-73-7

Product description : Not applicable

Product type : Liquid.

Other means of : HEPA; Crude polyamine bottoms

identification

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

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

transfer agents Impregnation agents Intermediate. Laboratory activities Lubricants

and additives Pharmaceuticals. Surface-active agents

Area of application : Industrial applications.

Identified uses

consumer uses of ethyleneamines

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

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

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

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

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

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

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

Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 0.5% - Industrial

Use of ethylenamines in closed system with little opportunity for exposure - Use of preparations containing EA up to 0.5% - Professional

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

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

Use of preparations containing EA up to 15% - Professional

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

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

Use of preparations containing EA up to 0.5% - Professional

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

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

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

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

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

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

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

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

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

1.3 Details of the supplier of the safety data sheet

DELAMINE B.V.
Barchman Wuytierslaan 10
3818 LH Amersfoort
Netherlands

Telephone number: +31-334676897

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

responsible for this SDS

1.4 Emergency telephone number

Supplier

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

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : UVCB

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

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SECTION 2: Hazards identification

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

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

Xn: R21/22 C; R34 **R43**

N; R50/53

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

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

2.2 Label elements

Hazard pictograms







Signal word Danger

Hazard statements : Harmful if swallowed or in contact with skin.

Causes severe skin burns and eye damage.

May cause an allergic skin reaction.

Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

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

Response : F SWALLOWED: Rinse mouth. Do NOT induce vomiting.

> IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable

for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses. if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

: Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and

international regulations.

Hazardous ingredients

Supplemental label

elements

Storage

: Amines, polyethylenepoly-

: Not applicable.

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: Not applicable.

: Not applicable.

Polyethyleneamines, HEPA-S140

SECTION 2: Hazards identification

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Special packaging requirements

Containers to be fitted with child-resistant

fastenings

Tactile warning of danger : Not applicable.

2.3 Other hazards

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

Substance meets the : No

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

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

SECTION 3: Composition/information on ingredients

: No.

Substance/mixture : UVCB

			Class	ification	
Product/ingredient name	Identifiers	%	67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	Туре
mines, polyethylenepoly-	REACH #: 01-2119485823-28 EC: 268-626-9 CAS: 68131-73-7 Index: 612-121-00-1	100	Xn; R21/22 C; R34 R43 N; R50/53	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	[*]
amines, polyethylenepoly-	EC: 268-626-9 CAS: 68131-73-7 Index: 612-121-00-1	90 - 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	[A]
3,6,9,12-tetra- azatetradecamethylenediamine		1 - 10	Xn; R21/22 C; R34 R43	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1B, H314	[B]

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SECTION 3: Composition/information on ingredients

			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.	
3,6, 9-triazaundecamethylenediamine	EC: 203-986-2 CAS: 112-57-2 Index: 612-060-00-0	0.01 - 0.99	N; R50/53 Xn; R21/22 C; R34 R43 N; R51/53	Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1A, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 2, H411	[B]

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.

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SECTION 4: First aid measures

Ingestion

: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders

: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : No known significant effects or critical hazards.

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

reaction.

Ingestion: Farmful if swallowed. Corrosive to the digestive tract. Causes burns.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:

pain watering redness

Inhalation : No specific data.

Skin contact: Adverse symptoms may include the following:

pain or irritation

redness

blistering may occur

Ingestion : Adverse symptoms may include the following:

stomach pains

4.3 Indication of any immediate medical attention and special treatment needed

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

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

Specific treatments: No specific treatment.

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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

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

Unsuitable extinguishing media

: Halones

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture

: In a fire or if heated, a pressure increase will occur and the container may burst. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products

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

5.3 Advice for firefighters

Special protective actions for fire-fighters

: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters

: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

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 material for containment and cleaning up

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SECTION 6: Accidental release measures

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.

7.2 Conditions for safe storage, including any incompatibilities

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

Seveso Directive - Reporting thresholds (in tonnes)

Danger criteria

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SECTION 7: Handling and storage

	Notification and MAPP threshold	Safety report threshold
E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1	100	200
C9i: Very toxic for the environment	100	200

7.3 Specific end use(s)

Recommendations : No specific data. **Industrial sector specific** : No specific data.

solutions

SECTION 8: Exposure controls/personal protection

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

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures

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

DNELs/DMELs

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

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SECTION 8: Exposure controls/personal protection

DNEL	Short term Dermal	1.59 mg/	Consumers	Local
		cm ²	_	_
DNEL	Long term Dermal		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		
DNEL	Long term Dermal	0.68 mg/	Consumers	Local
		cm ²		

PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail
mines, polyethylenepoly-	Fresh water Marine Fresh water sediment	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

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SECTION 8: Exposure controls/personal protection

Body protection

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

Other skin protection

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

Respiratory protection

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

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Liquid. [Clear.]

Colour : Brown.

Odour : Odourless.

Odour threshold : Not available.

pH : 11.4

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

Initial boiling point and boiling : 443°C

range

Flash point : Closed cup: 197°C

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.

Vapour pressure : 0.00000077 kPa [room temperature]

Vapour density: Not available.Relative density: Not available.Solubility(ies): Not available.

Solubility in water : >50 g/l Partition coefficient: n-octanol/ : -3.67

water

Auto-ignition temperature : 370°C

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SECTION 9: Physical and chemical properties

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

Explosive properties : Not applicable.

Oxidising properties : None.

9.2 Other information

Density : 1.014 g/cm³ [20°C]

Physical/chemical properties

comments

: No additional information.

SECTION 10: Stability and reactivity

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

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions

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

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

10.4 Conditions to avoid : 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

acids.

Chlorinated hydrocarbon.

10.6 Hazardous decomposition products

: Under normal conditions of storage and use, hazardous decomposition products

should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
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.

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SECTION 11: Toxicological information

Eyes

: Corrosive to eyes.

Respiratory

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

applicable.

Sensitisation

Product/ingredient name	Route of exposure	Species	Result
mines, 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

Carcinogenicity

: No mutagenic effect.

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

Eye contact

: Causes serious eye damage.

Inhalation

: No known significant effects or critical hazards.

Skin contact

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

reaction.

Ingestion

: Harmful if swallowed. Corrosive to the digestive tract. Causes burns.

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SECTION 11: Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics

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

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate

Potential delayed effects

: No specific data.

effects

: No specific data.

Long term exposure

Potential immediate

: No specific data.

effects

Potential delayed effects : No specific data.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
mines, 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.

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SECTION 12: Ecological information

12.1 Toxicity

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

Conclusion/Summary

: Dangerous for the environment.

PNEC Intermittent release.= 0.016 mg/l

12.2 Persistence and degradability

Conclusion/Summary

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

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

12.3 Bioaccumulative potential

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

12.4 Mobility in soil

Soil/water partition

>3000

coefficient (Koc)

Mobility : No specific data.

12.5 Results of PBT and vPvB assessment

PBT : No.

vPvB : No

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

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

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SECTION 13: Disposal considerations

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

Methods of disposal

Special precautions

- The classification of the product may meet the criteria for a hazardous waste.
- : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

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. (amines, polyethylenepoly-)	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.	y es.
Additional information	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. Hazard identification number 80	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. Special provisions 274	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. Emergency schedules (EmS) F-A, S-B	The environmentally hazardous substance mark may appear if required by other transportation regulations. Passenger and Cargo Aircraft Quantity limitation: 5 L

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Polyethyleneamines, HEPA-S140

SECTION 14: Transport information

	1		la
		Special provisions	Packaging instructions:
Limited quantity	,	223, 274	852
5 L		,	Cargo Aircraft Only
J L			
			Quantity limitation: 60
Special provision	<u>ons</u>		L
274			Packaging instructions:
			856
Tunnel seds			
<u>Tunnel code</u>			<u>Limited Quantities -</u>
(E)			Passenger Aircraft
			Quantity limitation: 1 L
			Packaging instructions:
			Y841
			Special provisions
			A3, A803
			A3, A603

14.6 Special precautions for user

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

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

: Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions : 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.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category

E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1

C9i: Very toxic for the environment

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Polyethyleneamines, HEPA-S140

SECTION 15: Regulatory information

15.2 Chemical Safety

Assessment

: Complete.

15.3 Registration status : Applicable.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms: ATE = Acute Toxicity Estimate

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

1272/20081

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

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

vPvB = Very Persistent and Very Bioaccumulative

Key literature references and sources for data

: Regulation (EC) No. 1272/2008 [CLP]; European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), concluded in Geneva on 30 September 1957 plus amendments (Uniform text: Journal of Laws 27/2009 pos. 162 plus amendments); Regulation for the transport of dangerous materials on the Rhine (ADN); Occupational exposure limits; International regulations

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

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

Full text of abbreviated H statements

: H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

May cause an allergic skin reaction. H317

Causes serious eye damage. H318 H400 Very toxic to aquatic life.

Very toxic to aquatic life with long lasting effects. H410

H411 Toxic to aquatic life with long lasting effects.

Full text of classifications

[CLP/GHS]

: Acute Tox. 4, H302 ACUTE TOXICITY (oral) - Category 4 Acute Tox. 4, H312 ACUTE TOXICITY (dermal) - Category 4 Aquatic Acute 1, H400 **ACUTE AQUATIC HAZARD - Category 1** Aquatic Chronic 1, H410 LONG-TERM AQUATIC HAZARD - Category 1 Aguatic Chronic 2, H411 LONG-TERM AQUATIC HAZARD - Category 2

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

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

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SECTION 16: Other information

Full text of abbreviated R phrases

Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1

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

R34- Causes burns.

R43- May cause sensitisation by skin contact.

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

aquatic environment.

R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the

aquatic environment.

Full text of classifications

[DSD/DPD]

: C - Corrosive Xn - Harmful

N - Dangerous for the environment

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

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revision

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Notice to reader

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

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

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Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition UVCB

Product name Polyethyleneamines, HEPA-S140

Section 1 Title

Short title of the exposure 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

Not applicable.

Assessment Method

See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Lube oil use

Operational conditions: Not determined

Product characteristics: Indoor/Outdoor use

Amounts used:

Fraction of EU tonnage used in region Not available.

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

Maximum daily site tonnage 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 1000 Local marine water dilution factor

Other given operational conditions affecting

environmental exposure:

Release fraction to air from process (initial release prior 0.01

to RMM)

Release fraction to soil from process (initial release 0.01

prior to RMM)

Release fraction to wastewater from process (initial 0.01

release prior to RMM)

Conditions and measures related to municipal sewage

treatment plant:

Estimated substance removal from wastewater via on-

site sewage treatment

Total efficiency of removal from wastewater after on-

site and off-site (domestic treatment plant) RMMs

Maximum allowable site tonnage (Msafe) based on release following total wastewater treatment removal Not available.

Not available.

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	

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.

Concentration in sewage (PECstp) 1.19x10-4 **EUSES** calculation Concentration in sewage sludge 0.343 **EUSES** calculation mg/kg dwt **Local concentration Justification** PEC aquatic (local+regional) Fresh water mg/l 1.18x10-5 7.92x10-5; Regional PEC[Total]: **EUSES** calculation 6.84x10-5 7.89x10-6; Regional PEC[Total]: **EUSES** calculation Marine water mg/l 1.18x10-6 6.75x10-6 Intermittent release, mg/l Not applicable Not applicable Not applicable. Local concentration PEC sediment (local+regional) **Justification** Fresh water sediment mg/kg dwt 7.95x10-2; Regional PEC: 0.127 Not evaluated. **EUSES** calculation Marine water sediment mg/kg dwt 7.92x10-3;Regional PEC[Total]: **EUSES** calculation Not evaluated. 1.16x10-2 **Local concentration** PEC soil (local+regional) **Justification** Agricultural soil averaged mg/kg Not applicable. Regional PEC: 1.15x10-2 Not applicable. dwt Grassland averaged mg/kg dwt Not applicable. Not applicable. Not applicable. Groundwater mg/l Not applicable. Not applicable. Not applicable. **Justification** Local concentration PEC air (local+regional) During emission mg/m³ Not applicable. Not applicable. Not applicable. Annual average mg/m³ Not applicable. Not applicable. Not applicable. Annual deposition mg/m²/d Not applicable. Not applicable. Not applicable. Local concentration PEC aquatic (local+regional) **Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.2 Exposure estimation - Consumers

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

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

60 ka

scenario: substance in the article::

Exposure estimation and Adhesives, sealants - 3; 3; 2; 2 25%; 5%; 25%; 5%

reference to its source Consumers: 0:

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

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

Inhalation:

Mode of release: evaporation

Exposure estimation and reference to its source -

Consumers: 1:

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

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

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

scenario Molecular (Update model):

enario Molecular (Opuale mod

weight (g/mole):

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

Dermal:

Application methods: instant

Polyethyleneamines, HEPA-S140

Sector of end use: SU21

Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08c, ERC08f

Environmental Release Category: ERC08c, ERC08f Market sector by type of chemical product: PC01, PC09b Article category related to subsequent service life: Not applicable.

0.6

20/220

ConsExpo 4.1

Surface area (Skin contact

area) cm2:

Product amount (g):

Dermal load (mg/cm2):

Uptake fraction (Update

model):

Inhalation event (mg/m³):

11.2; 3.0; 11.5; 3.1

term exposure:

2; 43; 2; 22

Inhalation mg/m³

0.05; 0.1; 0.02; 1

Dermal External dose (mg/kg

bw):

Dermal (Internal dose) mg/kg

bw/day:

(Concentration on day of exposure):

0.039; 0.188; 0.040; 0.191

0.002; 0.001; 5E-4; 0.001

6.25; 0.12; 2.5; 0.46

11.2; 3.0; 11.5; 3.1

0.208; 0.08; 0.08; 1.67

Inhalation (mg/kg/day) Long

0.002; 0.001; 5E-4; 0.001

Dermal (External dose) mg/kg

bw/day:

Inhalation event/Exposure mg/

m³ (Short term exposure):

Dermal systemic exposure (external dose) with gloves

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

0.0002; 0.0001; 5E-5; 0.0001 0.039; 0.188; 0.040; 0.191

Section 3.3 Exposure estimation- Consumers

Contributing scenario controlling consumer exposure for 3:

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

Dermal

Not applicable.

Not applicable.

Not applicable.

Long term exposure, Systemic,

Inhalable

Not applicable.

Not applicable.

Long term exposure, Systemic, Combined

Not applicable.

Not applicable.

Not applicable.

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

Not applicable. Not applicable.

Not applicable.

Not applicable.

Long term exposure, Systemic, Oral Not applicable.

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

Short term exposure, Systemic, **Dermal**

Not applicable.

Not applicable.

Not applicable.

Short term exposure, Systemic,

Inhalable

Inhalable Short term exposure, Systemic,

Not applicable.

Not applicable.

Not applicable.

Combined

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

Not applicable.

Not applicable. Not applicable.

Not applicable. Not applicable.

Inhalable

Short term exposure, Systemic, Not applicable.

Oral

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 Polvethyleneamines, 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	f 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 Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage Not available. Frequency and duration of use: Continuous release

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

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor Local marine water dilution factor 1000

Other given operational conditions affecting environmental

exposure:

Indoor/Outdoor use industrial setting

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)

Not available.

1.0x10-5

Release fraction to soil from wide dispersive use (regional

Not available.

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

prevent release:

Not available.

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Not applicable.

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

Treat air emission to provide a typical removal efficiency of

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

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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Not available.

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 on-site sewage treatment plant flow

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 25%

Regional use tonnage Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not applicable.

Not available.

93

365

Indoor/Outdoor use industrial setting

0.01

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.

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 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used: 4650 Tonnes/year

Fraction of EU tonnage used in region 25%

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage Not available. Frequency and duration of use:

Emission Days (days/year) 220

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

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1160

Continuous release

Indoor/Outdoor use industrial setting

1.0x10-5

Not available.

Not available.

Not available.

Not applicable.

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

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

No wastewater treatment required.

Not available

Section 2.1 Control of environmental exposure

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

Operational conditions: Indoor use

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

25% Fraction of EU tonnage used in region

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

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

Maximum daily site tonnage 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 RMM)

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

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

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use

Fechnical 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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1.0x10-5

Indoor industrial setting

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: Low energy manipulation of substances bound in materials and/or articles

Product characteristics: Solid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Not applicable. Human factors not influenced by risk management: Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

Other given operational conditions affecting workers 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.

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: 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 2.2 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: 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:

Not applicable.

Not applicable.

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

Justification

management supervision controls.

Total release for regional

exposure estimation kg/day

Section 3: Exposure estimation

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Release from point source

(local exposure estimation) kg/

	day	exposure estimation kg/day	
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0.0155	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

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

Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	5.1x10-4	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.19x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.343	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.18x10-5	7.92x10-5	EUSES calculation
Marine water mg/l	1.18x10-6	7.89x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
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/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: 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

Intermittent release. mg/l	Not applicable Local concentration	Not applicable PEC sediment (local+regional)	Not applicable. 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.

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 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.	0.12	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	mation		
Contributing scenario controlling we articles	orker exposure for 1: High (m	nechanical) energy work-up of s	ubstances bound in materials and/or
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.06	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local,	Not applicable.	Not applicable.	Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic,

Inhalable

Dermal

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

Not applicable. Not applicable.

0.12

Short term exposure, Systemic,

Inhalable

Short term exposure, Systemic,

Combined

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Local, Not applicable.

Not applicable.

Not applicable.

Inhalable

Not applicable. Not applicable.

Not applicable. Not applicable.

Not applicable. Not applicable.

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

exposure estimates for other PROC are

below this value

Section 4: Guidance to check compliance with the exposure scenario

EnvironmentNot available.HealthNot available.

Not applicable.

Not applicable.

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 Polvethyleneamines, 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%

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage Not available. Frequency and duration of use: Continuous release

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

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor Local marine water dilution factor 1000

Other given operational conditions affecting environmental exposure:

Indoor/Outdoor use industrial setting

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)

Not available.

1.0x10-5

Release fraction to soil from wide dispersive use (regional

Not available.

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%.

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

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

to provide the required removal efficiency of

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Not available.

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 on-site sewage treatment plant flow

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. Amounts used:

Fraction of EU tonnage used in region 25%

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

372 Tonnes/year

93

365

Indoor/Outdoor use industrial setting

0.01

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.

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 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used: 4650 Tonnes/year

Fraction of EU tonnage used in region 25%

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

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

plant:

220

Indoor/Outdoor use industrial setting

1.0x10-5

Not available.

Not available.

Not available.

Not applicable.

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

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

No wastewater treatment required.

Not available

Section 2.1 Control of environmental exposure

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

Operational conditions: Indoor use

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

25% Fraction of EU tonnage used in region

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

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

Maximum daily site tonnage 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 RMM)

Release fraction to soil from process (initial release prior to

RMM)

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

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use

Fechnical 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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

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.

Not available.

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:

Frequency and duration of use: Not applicable. Human factors not influenced by risk management:

Other given operational conditions affecting workers exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

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.

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 2.2 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:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

Indoor 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

Justification

management supervision controls.

Total release for regional

exposure estimation kg/day

Section 3: Exposure estimation

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Release from point source

(local exposure estimation) kg/

	day	exposure communer kgrady	
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

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

Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	5.1x10-4	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.19x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.343	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.18x10-5	7.92x10-5	EUSES calculation
Marine water mg/l	1.18x10-6	7.89x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
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/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: 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

Intermittent release. mg/l	Not applicable Local concentration	Not applicable PEC sediment (local+regional)	Not applicable. 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.

Contributing scenarios	Dose/Concentration	Justification
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
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
Not applicable.	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 DNE has been derived.
Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
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
mation orker exposure for 1: High (m	echanical) energy work-up of s	ubstances bound in materials and/or
Contributing scenarios	Dose/Concentration	Justification
	Not applicable. Not applicable. Not applicable. Not applicable Not applicable Not applicable Not applicable Not applicable Not applicable Not applicable. Not applicable.	Not applicable. Not applicable.

Long term exposure, Systemic, Not applicable. 0.0003 The ECETOC TRA tool has been used to **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. 0.02 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived.

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

Short term exposure, Systemic,

Dermal

Not applicable

Not applicable.

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

cute effects and therefore, no acute

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 in given since 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 Polvethyleneamines, 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 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 4650 Fraction of Regional tonnage used locally 100% 4650 Annual site tonnage 15500 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage 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:

Indoor industrial setting

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

Release fraction to wastewater from process (initial release

prior to RMM)

1.61x10-8

Release fraction to air from wide dispersive use (regional

Not available.

Release fraction to soil from wide dispersive use (regional

Not available.

Not available.

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

prevent release:

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

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)

=>53.1

to provide the required removal efficiency of

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Not available.

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 on-site sewage treatment plant flow

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:

Amounts used:

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

Maximum daily site tonnage 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

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

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

Release fraction to air from wide dispersive use (regional

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

Release fraction to wastewater from wide dispersive use

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

Technical on-site conditions and measures to reduce or limit

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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Not applicable.

18600 Tonnes/year

300

Indoor industrial setting

1.1x10-5

1.0x10-4

1.61x10-8

Not available.

Not available.

Not available.

Not applicable.

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

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

=>53.1

Not available.

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

Polyethyleneamines, HEPA-S140

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

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow

2000

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Formulation of preparations

Operational conditions: Indoor use

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region 25% 4650 Regional use tonnage Fraction of Regional tonnage used locally 100% **Annual site tonnage** 4650 Average Local Daily Tonnage (kg/day): 20667

Maximum daily site tonnage 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 exposure:

Release fraction to air from process (initial release prior to

RMM)

Release fraction to soil from process (initial release prior to

RMM)

Release fraction to wastewater from process (initial release

prior to RMM)

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

225

1000

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.

Polyethyleneamines, HEPA-S140

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

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

Substance supplied to that use in form of: As such

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

Environmental Release Category: ERC01, ERC02, ERC06a

Section 2.2 Control of worker exposure

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

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

Amounts used: Not applicable.

Frequency and duration of use:

Covers daily exposures up to 8 hours (unless stated differently) Human factors not influenced by risk management: Default breathing volume Light work: 10 m³/d Default Body weight: Workers: 70 kg

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.

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: Use in closed, continuous process with occasional controlled exposure

Product characteristics:

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Amounts used:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

Not applicable.

Avoid carrying out operation for more than 4 hours.

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

Indoor industrial setting

Not applicable.

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

removal efficiency of 90%

Not applicable.

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

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

management supervision controls.

Section 2.2 Control of worker exposure

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

Product characteristics:

Amounts used:

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

Not applicable.

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

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

Indoor industrial setting

Not applicable.

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

removal efficiency of 90%

Not applicable.

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

minimum efficacy of 90%

Polyethyleneamines, HEPA-S140

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

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

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

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

Section 2.2 Control of worker exposure

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

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%

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:

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Amounts used:

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

Not applicable.

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 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:

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.

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

Personal protection:

Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Wear chemical-resistant gloves (tested to EN374) in combination with intensive management supervision controls. Wear appropriate respiratory protection. with a minimum efficacy of 95%

Section 2.2 Control of worker exposure

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

containers at dedicated facilities

Product characteristics:

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers exposure:

Amounts used:

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

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

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

Personal protection:

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

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

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

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)

Not applicable.

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:

Not applicable.

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

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

removal efficiency of 90%

Indoor industrial setting

Not applicable.

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

Section 2.2 Control of worker exposure

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

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:

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%

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

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 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.
İ			

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

Substance supplied to that use in form of: As such

Sector of end use: SU03

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

Section 3.1 Environment - Exposure estimation

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

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Formulation of preparations

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	0	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.207	0.127	EUSES calculation
Soil (direct releases only)	0	0	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-7	EUSES calculation

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

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

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.

Contributing scenario controlling we			
Route of exposure Long term exposure, Systemic, Dermal	Contributing scenarios Not applicable.	Dose/Concentration 0.007	Justification The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.06	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic,	Not applicable	Not applicable.	Since the substance is not classified for

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Local,

Short term exposure, Local, Dermal Not applicable.

0.12

Combined

Inhalable

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

has been derived.

has been derived.

below this value

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

acute effects and therefore, no acute DNEL

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

The ECETOC TRA tool has been used to

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

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

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.	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.	0.55	The ECETOC TRA tool has been used to estimate workplace 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: Use in closed batch process (synthesis or formulation)

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.30	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in 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, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, The ECETOC TRA tool has been used to 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 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 The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.30 estimate workplace exposures unless Inhalable otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Not applicable. Not applicable. Long term exposure, Systemic, Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable. Since the substance is not classified for Not applicable Dermal acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL Inhalable has been derived. Not applicable 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

Short term exposure, Systemic,

Short term exposure, Local, Inhalable

Not applicable.

0.62

has been derived.

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

Section 3.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 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

Not applicable.

Contributing scenarios

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.	0.30	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEI has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.60	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

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

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.27	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
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, 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

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

has been derived.

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, Local, Dermal Not applicable. Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, Not applicable. 0.74 The ECETOC TRA tool has been used to estimate workplace exposures unless Inhalable otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 6: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.14 **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.548 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. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Not applicable Not applicable. Short term exposure, Systemic, 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. 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. 0.55 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

Section 3.2 Workers - Exposure estimation

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

Route of exposure Long term exposure, Systemic,

Dermal

Contributing scenarios

Not applicable.

Dose/Concentration

0.14

Justification

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

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.	0.30	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,	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 esti Contributing scenario controlling w		aboratory reagent	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal Long term exposure, Systemic,	Not applicable. 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 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, 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% - 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, 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

EnvironmentNot available.HealthNot available.

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

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.

Polyethyleneamines, HEPA-S140

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

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

Substance supplied to that use in form of: As such

Sector of end use: SU03

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



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Polvethyleneamines. HEPA-S140 **Product name**

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

Section 2.1 Control of environmental ex	cosure
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Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used: 18600 Tonnes/year

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

Maximum daily site tonnage 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

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

Release fraction to wastewater from process (initial release

1.61x10-8

prior to RMM) 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

Not available.

Technical conditions and measures at process level (source) to

prevent release:

Not applicable.

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

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

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of Organisational measures to prevent/limit release from site: Not available.

=>53.1

Prevent discharge of undissolved substance to or recover from onsite

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

wastewater.

Conditions and measures related to municipal sewage treatment

plant:

Assumed on-site sewage treatment plant flow 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.

Amounts used:

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

Maximum daily site tonnage

Frequency and duration of use: Continuous release

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

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor Local marine water dilution factor 1000

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM)

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

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use

Technical conditions and measures at process level (source) to

prevent release:

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

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

to provide the required removal efficiency of

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

18600 Tonnes/year

Not available.

Indoor industrial setting

1.1x10-5

1.0x10-4

1.61x10-8

Not available.

Not available.

Not available.

Not applicable.

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

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

=>53.1

Not available.

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

Polyethyleneamines, HEPA-S140

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

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

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Conditions and measures related to municipal sewage treatment

Assumed on-site sewage treatment plant flow

2000

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Formulation of preparations

Operational conditions: Indoor use

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region 25% 4650 Regional use tonnage Fraction of Regional tonnage used locally 100% **Annual site tonnage** 4650 Average Local Daily Tonnage (kg/day): 20667

Maximum daily site tonnage Not available. 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 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

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

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.

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 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:

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:

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.

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: 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 2%

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 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:

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

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

(source) to prevent release:

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

Personal protection:

Liquid. Covers concentrations up to 2%

Not applicable.

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

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

Indoor industrial setting

Not applicable.

Not applicable.

Not applicable.

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

management supervision controls.

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

Section 2.2 Control of worker exposure

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

including weighing)

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers

Indoor industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

Not applicable.

Not applicable.

Organisational measures to prevent/limit releases,

Not applicable.

dispersion and exposure:

Personal protection:

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

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

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: Manufacture of substances

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

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

Local concentrationPEC aquatic (local+regional)JustificationMicro-organism mg/lNot applicable.Not applicable.Not applicable.

Section 3.1 Environment - Exposure estimation

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

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Formulation of preparations

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

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

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	- Fynosura	actimation

	orker exposure for 0: Mixing	or blending in batch processes	for formulation of preparations and articles
(multistage and/or significant contact Route of exposure	ct) 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 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 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.	1.22	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

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% -

below this value

Industrial

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

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

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

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.005	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.

Polyethyleneamines, HEPA-S140

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

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

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

Short term exposure, Systemic,

Dermal

Not applicable.

Not applicable.

Not applicable.

Short term exposure, Systemic,

Inhalable

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Short term exposure, Systemic,

Combined

Not applicable.

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Local, Not applicable. Inhalable

1.22

Not applicable. The ECETOC TRA tool has been used to

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

below this value

Section 3.2 Workers - Exposure estimation

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

including weighing)

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

Dose/Concentration 0.005

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

Dermal

Not applicable.

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

exposure estimates for other PROC are

below this value Not applicable.

Not applicable.

Not applicable.

Long term exposure, Systemic,

Combined

Long term exposure, Local, Dermal

Long term exposure, Local,

Inhalable

Short term exposure, Systemic,

Dermal

Short term exposure, Systemic,

Inhalable

Short term exposure, Systemic,

Combined

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

Inhalable

Not applicable.

0.61

Not applicable.

Not applicable. Not applicable.

Not applicable.

Not applicable.

1.22

Not applicable.

Not applicable.

Not applicable.

Not applicable. Not applicable.

Not applicable.

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

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

below this value

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

Industrial

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

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



Professional

Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition UVCB

Product name Polvethyleneamines, 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 4650 Fraction of Regional tonnage used locally 100% **Annual site tonnage** 4650

15500 Average Local Daily Tonnage (kg/day): Maximum daily site tonnage 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 professional setting

Release fraction to air from process (initial release prior to

1.1x10-5

1.61x10-8

Not available.

Not available.

Not available.

Not applicable.

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

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:

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

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Not available.

=>53.1

Prevent discharge of undissolved substance to or recover from onsite

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

wastewater.

Conditions and measures related to municipal sewage treatment

plant:

Assumed on-site sewage treatment plant flow 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:

Amounts used:

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

Maximum daily site tonnage

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

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

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

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

Release fraction to wastewater from wide dispersive use

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

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

Treat air emission to provide a typical removal efficiency of

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Not applicable.

18600 Tonnes/year

15500

Not available.

300

1000

Indoor professional setting

1.1x10-5

1.0x10-4

1.61x10-8

Not available.

Not available.

Not available.

Not applicable.

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

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

=>53.1

Not available.

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

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

Conditions and measures related to municipal sewage treatment

Assumed on-site sewage treatment plant flow

2000

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Formulation of preparations

Operational conditions: Indoor use

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region 4650 Regional use tonnage Fraction of Regional tonnage used locally 100% **Annual site tonnage** 4650 Average Local Daily Tonnage (kg/day): 20667

Maximum daily site tonnage Not available. Frequency and duration of use:

Emission Days (days/year)

Environment factors not influenced by risk management:

Local freshwater dilution factor Local marine water dilution factor 1000

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

25%

Continuous release

225

1000

Indoor professional setting

1.1x10-5

Not available.

Not available.

Not available.

Not applicable.

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

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

No wastewater treatment required.

Not available.

Section 2.2 Control of worker exposure

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

containers at non-dedicated facilities

Liquid. Covers concentrations up to 2% **Product characteristics:**

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:

Personal protection:

Not applicable.

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

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: Manufacture of substances

Release from point source

	(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

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

Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.1 Environment - Exposure estimation

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

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Formulation of preparations

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	0	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.207	0.127	EUSES calculation
Soil (direct releases only)	0	0	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation

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

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

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

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

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

Polvethyleneamines. HEPA-S140 **Product name**

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

Operational conditions: Indoor use

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

Fraction of EU tonnage used in region 25%

Regional use tonnage 4650

Fraction of Regional tonnage used locally 100% **Annual site tonnage** 4650 15500 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage 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

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

Release fraction to wastewater from process (initial release

1.61x10-8

Release fraction to air from wide dispersive use (regional

prior to RMM)

Not available.

Release fraction to soil from wide dispersive use (regional

Not available.

Release fraction to wastewater from wide dispersive use

Not available.

Technical conditions and measures at process level (source) to

prevent release:

Not applicable.

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

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

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Not available.

=>53.1

Organisational measures to prevent/limit release from site:

Prevent discharge of undissolved substance to or recover from onsite

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

wastewater.

Conditions and measures related to municipal sewage treatment

plant:

Assumed on-site sewage treatment plant flow

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:

18600 Tonnes/year Amounts used:

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

Maximum daily site tonnage

Frequency and duration of use: Continuous release

Emission Days (days/year)

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor Local marine water dilution factor 1000

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

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

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

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use

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

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

Treat air emission to provide a typical removal efficiency of

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Not applicable.

Not available.

300

Indoor industrial setting

1.1x10-5

1.0x10-4

1.61x10-8

Not available.

Not available.

Not available.

Not applicable.

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

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

=>53.1

Not available.

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

Polyethyleneamines, HEPA-S140

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

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

Conditions and measures related to municipal sewage treatment

Assumed on-site sewage treatment plant flow

2000

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Formulation of preparations

Operational conditions: Indoor use

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region 25% 4650 Regional use tonnage Fraction of Regional tonnage used locally 100% **Annual site tonnage** 4650 Average Local Daily Tonnage (kg/day): 20667

Maximum daily site tonnage Frequency and duration of use:

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

Environment factors not influenced by risk management:

Local freshwater dilution factor Local marine water dilution factor 1000

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not available.

Continuous release

1000

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.

Polyethyleneamines, HEPA-S140

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

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

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC06a Section 2.2 Control of worker exposure

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

(multistage and/or significant contact)

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers

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 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

Liquid. Covers concentrations up to 0.5%

Amounts used:

Not applicable.

Frequency and duration of use:

Product characteristics:

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 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

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.

Polyethyleneamines, HEPA-S140

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

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

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

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

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: Manufacture of substances

Release from point source

	(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)	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

Polyethyleneamines, HEPA-S140

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

Industria

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

Sector of end use: SU03 relevant for that use: No

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

Local concentrationPEC aquatic (local+regional)JustificationMicro-organism mg/lNot applicable.Not applicable.Not applicable.

Section 3.1 Environment - Exposure estimation

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

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Formulation of preparations

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

Polyethyleneamines, HEPA-S140

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

Industria

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

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

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

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the

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% -

below this value

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

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

Section 3.2 Workers - Exposure estimates - Exposure			
Contributing scenario controlling we containers at non-dedicated facilitie		r of substance or preparation (charging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute 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 estil Contributing scenario controlling we		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.	0.001	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 torm exposure Systemic	Not applicable	0.76	The ECETOC TPA tool has been used to

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.

Polyethyleneamines, HEPA-S140

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

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

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

Short term exposure, Systemic,

Dermal

Not applicable.

Not applicable.

Short term exposure, Systemic,

Inhalable

Short term exposure, Systemic,

Not applicable.

Not applicable.

Not applicable.

Combined

Short term exposure, Local, Dermal Not applicable.

Not applicable.

Short term exposure, Local, Inhalable

Not applicable.

Not applicable.

1.52

Not applicable.

Not applicable.

Not applicable.

Not applicable.

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

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

below this value

Section 3.2 Workers - Exposure estimation

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

including weighing)

Route of exposure

Long term exposure, Systemic, **Dermal**

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

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

Short term exposure, Systemic,

Dermal

Short term exposure, Systemic, Inhalable

Short term exposure, Systemic, Combined

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

Inhalable

Contributing scenarios

0.001

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

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. 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: 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



Professional

Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition UVCB

Product name Polvethyleneamines, HEPA-S140

Section 1: Title

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

preparations containing EA up to 0.5% - Professional

Process Category: PROC08a

Substance supplied to that use in form of: As such

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Section 2: Operational conditions and risk management measures

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region 25% Regional use tonnage 4650 Fraction of Regional tonnage used locally 100% **Annual site tonnage** 4650

15500 Average Local Daily Tonnage (kg/day): Maximum daily site tonnage 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 professional setting

Release fraction to air from process (initial release prior to

1.1x10-5 1.0x10-4

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM)

1.61x10-8

Release fraction to air from wide dispersive use (regional

only)

Not available.

Release fraction to soil from wide dispersive use (regional

Not available.

Release fraction to wastewater from wide dispersive use

Not available.

Technical conditions and measures at process level (source) to

prevent release:

Not applicable.

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

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

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Not available.

=>53.1

Prevent discharge of undissolved substance to or recover from onsite

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

wastewater.

Conditions and measures related to municipal sewage treatment

plant:

Assumed on-site sewage treatment plant flow

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:

Amounts used:

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

Maximum daily site tonnage

Frequency and duration of use: Continuous release

Emission Days (days/year)

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor Local marine water dilution factor 1000

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

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

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

Release fraction to wastewater from wide dispersive use

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

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

Treat air emission to provide a typical removal efficiency of

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Not applicable.

18600 Tonnes/year

100%

Not available.

300

Indoor professional setting

1.1x10-5

1.0x10-4

1.61x10-8

Not available.

Not available.

Not available.

Not applicable.

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

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

=>53.1

Not available.

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

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

Conditions and measures related to municipal sewage treatment

Assumed on-site sewage treatment plant flow

2000

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Formulation of preparations

Operational conditions: Indoor use

Product characteristics: Not applicable.

18600 Tonnes/year Amounts used:

Fraction of EU tonnage used in region 25% 4650 Regional use tonnage Fraction of Regional tonnage used locally 100% **Annual site tonnage** 4650 Average Local Daily Tonnage (kg/day): 20667

Maximum daily site tonnage 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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not available.

225

Indoor professional setting

1.1x10-5

Not available.

Not available.

Not available.

Not applicable.

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

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

No wastewater treatment required.

Not available.

Section 2.2 Control of worker exposure

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

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

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: Manufacture of substances

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste costs	day	0.0.40.4	FUOFO a decidada a
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

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

Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.1 Environment - Exposure estimation

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

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Formulation of preparations

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	0	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0.207	0.127	EUSES calculation
Soil (direct releases only)	0	0	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
Fresh water mg/l	Local concentration 0	PEC aquatic (local+regional) 6.74x10-5	Justification 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% -

. 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

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 W	orkers .	. Exnosi	ire estimatio	n

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
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.	1.52	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

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% -

below this value

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 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.

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)

Professional

Identification of the substance or mixture

Product definition UVCB

Product name Polvethyleneamines. 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.

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region 25%

Not available. Regional use tonnage Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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/Outdoor use industrial setting

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 Not available.

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

only)

Release fraction to wastewater from wide dispersive use

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

Not available.

1.0x10-5

Not available.

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 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, ERC08t

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

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

Treat air emission to provide a typical removal efficiency of

No wastewater treatment required.

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Not available.

Organisational measures to prevent/limit release from site:

Prevent discharge of undissolved substance to or recover from onsite

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

wastewater.

Conditions and measures related to municipal sewage treatment

Assumed on-site sewage treatment plant flow

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: Amounts used:

Fraction of EU tonnage used in region

Regional use tonnage Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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

Release fraction to soil from process (initial release prior to

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

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

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use

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

Technical on-site conditions and measures to reduce or limit

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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Not applicable.

372 Tonnes/year

Not available.

93

Not available.

Continuous release

365

Indoor/Outdoor use professional setting

0.01

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:

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,

ERC08t

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. Amounts used:

Fraction of EU tonnage used in region

Regional use tonnage Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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.

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

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

If discharging to domestic sewage treatment plant, provide

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

the required onsite wastewater removal efficiency of

Tonnes/year

25%

Not available.

1160

5272

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.

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,

ERC08t

Section 2.1 Control of environmental exposure

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

Operational conditions: Indoor use

Product characteristics: Not applicable.

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region

Regional use tonnage Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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 Not available.

Other given operational conditions affecting environmental

exposure:

Release fraction to air from process (initial release prior to

RMM)

Release fraction to soil from process (initial release prior to

RMM)

Release fraction to wastewater from process (initial release

prior to RMM)

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

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

Other given operational conditions affecting workers

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

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

plant:

exposure:

Not available.

465

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.

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 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

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 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,

ERC08t

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: Roller application or brushing of adhesive and other coating

Product characteristics: Liquid. Covers concentrations up to 15%

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:

Exposure duration per day: 15 min. to < 1 hour

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. Wear appropriate respiratory protection, with a

minimum efficacy of 95%

Section 2.2 Control of worker exposure

Contributing scenario controlling worker exposure for 2: Spraying outside industrial settings and/or applications

Product characteristics: Liquid. Covers concentrations up to 10%

Not applicable. 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

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.

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,

> ERC08t 93/236

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0.0155	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	5.1x10-4	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.19x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.343	EUSES calculation	

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

	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	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.
Polyothylonoaminos HERA-\$140		Identified use name: Use of et	hylonominos in onon n

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 **95/236**

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: 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.	0.0411	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.

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

Long term exposure, Local, Since the substance is not classified for Not applicable Not applicable. Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable. Not applicable Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Since the substance is not classified for Not applicable Not applicable. Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for 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. 0.914 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: Roller application or brushing of adhesive and other coating Route of exposure **Contributing scenarios Dose/Concentration Justification** The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.0822 **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 0.457 The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not evaluated. Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Since the substance is not classified for Not applicable Not applicable. Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable. Since the substance is not classified for Not applicable Dermal acute effects and therefore, no acute DNEL has been derived. Not applicable. Since the substance is not classified for Short term exposure, Systemic, Not applicable acute effects and therefore, no acute DNEL Inhalable has been derived. Since the substance is not classified for Short term exposure, Systemic, Not applicable Not applicable. acute effects and therefore, no acute DNEL Combined has been derived. Short term exposure, Local, Dermal Not applicable. Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. 0.914 The ECETOC TRA tool has been used to Short term exposure, Local, Not applicable.

Polyethyleneamines, HEPA-S140

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% - Professional Process Category: PROC08a, PROC10, PROC11

below this value

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

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: SU22

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

ERC08f

Section 3.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 2: Spraying outside industrial settings and/or applications **Dose/Concentration** Route of exposure **Contributing scenarios Justification** The ECETOC TRA tool has been used to Long term exposure, Systemic, 0.214 Not applicable. **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. 0.121 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not evaluated. Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for 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. acute effects and therefore, no acute DNEL Combined has been derived. Short term exposure, Local, Dermal Not applicable. Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, The ECETOC TRA tool has been used to Not applicable. 0.243

Section 4: Guidance to check compliance with the exposure scenario

EnvironmentNot available.HealthNot available.

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

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.

Polyethyleneamines, HEPA-S140

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% - 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.

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

below this value

Environmental Release Category: ERC01, ERC08b, ERC08c, ERC08e, ERC08t



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition UVCB

Product name Polvethyleneamines. 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.

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region 25%

Not available. Regional use tonnage Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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/Outdoor use industrial setting

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

only)

Release fraction to wastewater from process (initial release

prior to RMM)

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

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:

1.0x10-5

Not available. Not available.

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 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,

ERC08t

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

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

Treat air emission to provide a typical removal efficiency of

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

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

No wastewater treatment required.

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Not available.

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 on-site sewage treatment plant flow

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 Fraction of Regional tonnage used locally Not available.

93 **Annual site tonnage** Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage 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 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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Not applicable.

Not available.

255

Not available.

365

Not available.

Indoor/Outdoor use professional setting

0.01

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.

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, ERC08t

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Polyethyleneamines, HEPA-S140

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. Amounts used: Tonnes/year

25% Fraction of EU tonnage used in region

Not available. Regional use tonnage Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage

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

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

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Not available.

Not available.

Indoor/Outdoor use industrial setting

1.0x10-5

Not available.

Not available.

Not available.

Not applicable.

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

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

No wastewater treatment required.

Not available.

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,

ERC08t

Section 2.1 Control of environmental exposure

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

Operational conditions: Indoor use

Product characteristics: Not applicable.

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region

Regional use tonnage Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

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

plant:

Not available.

2114

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.

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

exposure:

Polyethyleneamines, HEPA-S140

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

> preparations containing EA up to 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, ERC08t

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: Spraying outside industrial settings and/or applications

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 2%

Not applicable.

Avoid carrying out activities involving exposure for more than 4 hours.

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.

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

Justification

minimum efficacy of 90%

Total release for regional

Section 3: Exposure estimation

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	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 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,

ERC08t

	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.

Contributing scenario controlling environmental exposure for 1: Lube oil use

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

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

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

eparations 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: $\mbox{No.}$

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

ERC08f 105/236

Intermittent release. mg/l	Not applicable Local concentration	Not applicable PEC sediment (local+regional)	Not applicable. 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: 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.	0.09	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 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 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 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

Polyethyleneamines, HEPA-S140

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

parations containing EA up to 2% - Professional Process Category: PROC08a, PROC11

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

Sector of end use: SU22

Subsequent service life relevant for that use: $\ensuremath{\mathsf{No}}$.

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

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.21	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.15	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute 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.	0.30	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

Section 4: (Guidance	to chec	k compliance	with the	exposure scenario	

Health Not available.	١	Environment	Not available.
	ı	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 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: Not applicable.

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region 25%

Regional use tonnage Not available.

Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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

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:

Not available.

1.0x10-5

Indoor/Outdoor use industrial setting

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 108/236 Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

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

Treat air emission to provide a typical removal efficiency of

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

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

Organisational measures to prevent/limit release from site:

to provide the required removal efficiency of

Not available.

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

Conditions and measures related to municipal sewage treatment

Assumed on-site sewage treatment plant flow

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 Not available. Fraction of Regional tonnage used locally

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

Maximum daily site tonnage 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

Release fraction to soil from process (initial release prior to

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

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

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use

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

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Not applicable.

Not available.

Continuous release

365

Indoor/Outdoor use professional setting

0.01

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.

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,

ERC08t

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. Amounts used: Tonnes/year

25% Fraction of EU tonnage used in region

Not available. Regional use tonnage Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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

Release fraction to soil from process (initial release prior to

RMM)

Release fraction to wastewater from process (initial release

prior to RMM)

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

only)

Release fraction to wastewater from wide dispersive use

Technical conditions and measures at process level (source) to

prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

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

to provide the required removal efficiency of

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

220

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.

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, ERC08t Section 2.1 Control of environmental exposure

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

Operational conditions: Indoor use

Product characteristics: Not applicable.

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage Not available.

Frequency and duration of use: Continuous release

Emission Days (days/year)

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental

exposure:

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

Release fraction to soil from process (initial release prior to

RMM)

Release fraction to wastewater from process (initial release

prior to RMM)

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

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

Other given operational conditions affecting workers

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

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.

Not available.

Section 2.2 Control of worker exposure

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

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

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

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

Indoor professional setting

Polyethyleneamines, HEPA-S140

exposure:

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, ERC08t

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: Spraying outside industrial settings and/or applications

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:

Personal protection:

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 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: 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

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

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	5.1x10-4	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.19x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.343	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.18x10-5	7.92x10-5	EUSES calculation
Marine water mg/l	1.18x10-6	7.89x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
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.

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

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: $\ensuremath{\mathsf{No}}$.

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

ERC08f 114/236

Intermittent release. mg/l	Not applicable Local concentration	Not applicable PEC sediment (local+regional)	Not applicable. 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: 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

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 115/236 Section 3.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 1: Spraying outside industrial settings and/or applications **Contributing scenarios** Route of exposure **Dose/Concentration Justification** The ECETOC TRA tool has been used to Long term exposure, Systemic, 0.11 Not applicable. **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. 0.30 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 evaluated. Not applicable. Not applicable. Not applicable Long term exposure, Local, Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable. Since the substance is not classified for Not applicable **Dermal** acute effects and therefore, no acute DNEL has been derived. Since the substance is not classified for Short term exposure, Systemic, Not applicable Not applicable. Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL Combined has been derived. Since the substance is not classified for Short term exposure, Local, Dermal Not applicable Not applicable. acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, 1.22 The ECETOC TRA tool has been used to Not applicable. estimate workplace exposures unless Inhalable otherwise indicated. The PROC with the

Section 4: Guidance to check compliance with the exposure scenario

Environment Not available.

Health Not available.

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

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.

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

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

below this value

Sector of end use: SU22

Subsequent service life relevant for that use: No.

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

ERC08f 116/236



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Product name Polvethyleneamines. HEPA-S140

Section 1: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

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

Section 2: Operational conditions and risk management measures

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region 25%

Not available. Regional use tonnage Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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

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

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:

Not available.

1.0x10-5

Indoor/Outdoor use industrial setting

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,

ERC08t

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

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

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

No wastewater treatment required.

Not available.

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

2000

wastewater.

Conditions and measures related to municipal sewage treatment

Assumed on-site sewage treatment plant flow

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use

Product characteristics: 1300 Tonnes/year Amounts used:

Fraction of EU tonnage used in region

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

326 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 1087

Maximum daily site tonnage 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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Not applicable.

25%

Not available.

300

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.

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,

ERC08t

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. Amounts used: 4650 Tonnes/year

25% Fraction of EU tonnage used in region

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage Not available.

Frequency and duration of use: Continuous release

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

Environment factors not influenced by risk management:

Local freshwater dilution factor 1000 Local marine water dilution factor 1000

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM)

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

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

only)

Release fraction to wastewater from wide dispersive use

Technical conditions and measures at process level (source) to

prevent release:

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

Treat air emission to provide a typical removal efficiency of

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

to provide the required removal efficiency of

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

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.

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,

ERC08t

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 Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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 exposure:

Release fraction to air from process (initial release prior to

RMM)

Release fraction to soil from process (initial release prior to

RMM)

Release fraction to wastewater from process (initial release

prior to RMM)

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

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

If discharging to domestic sewage treatment plant, provide

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

Conditions and measures related to municipal sewage treatment

plant:

Not applicable.

465

2114

220

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 2.2 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)

Polyethyleneamines, HEPA-S140

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:

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.

ERC08t

120/236

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

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: Other given operational conditions affecting workers exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

Indoor industrial setting

Not applicable.

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

removal efficiency of 90%

Not applicable.

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

Section 2.2 Control of worker exposure

Contributing scenario controlling worker exposure for 2: 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 25%.

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.

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,

> ERC08t 121/236

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,

Not applicable.

Not applicable.

including weighing)

Product characteristics: Liquid. Covers percentage substance in the product up to 25%.

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers

Indoor industrial setting

removal efficiency of 90%

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

Justification

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

management supervision controls.

Total release for regional

Section 3: Exposure estimation

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Release from point source

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

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, ERC08t

Local concentration PEC aquatic (local+regional) Justification

Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	7.78x10-4	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	2.33x10-5	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.82x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.523	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.80x10-5	8.54x10-5	EUSES calculation
Marine water mg/l	1.80x10-6	8.51x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	8.57x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	8.54x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	5.29x10-7	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	1.06x10-6	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.49x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	5.33x10-9	5.37x10-9	EUSES calculation
Annual deposition mg/m²/d	4.408	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

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 e relevant for that use: No.

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

ERC08f

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 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 124/236

Contributing scenario controlling worker exposure for 0: Mixing or blending in batch (multistage and/or significant contact) Route of exposure Contributing scenarios Dose/Concentra Long term exposure, Systemic, Not applicable. O.0685714 Long term exposure, Systemic, Not applicable. O.3656 Inhalable	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Not applicable. 0.0685714 Long term exposure, Systemic, 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
Dermal Long term exposure, Systemic, Not applicable. 0.3656	estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Not evaluated. Not applicable. Combined	Not applicable.
Long term exposure, Local, Dermal Not applicable. Not applicable.	Not applicable.
Long term exposure, Local, Not applicable Not applicable. Inhalable	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. Dermal	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. Inhalable	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. Combined	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 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
Section 3.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 1: Transfer of substance or precontainers at non-dedicated facilities	eparation (charging/discharging) from/to vessels/large
Route of exposure Contributing scenarios Dose/Concentra	ation Justification
Long term exposure, Systemic, Not applicable. 0.0685714 Dermal	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Not applicable. 0.365575 Inhalable	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Not evaluated. Not applicable. Combined	Not applicable.
Long term exposure, Local, Dermal 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: $\ensuremath{\mathsf{No}}$.

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

ERC08f **125/236**

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.	0.73115	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 esti	mation		
		er of substance or preparation (charging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.034286	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
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

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

below this value

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.

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

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

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)

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

Long term exposure, Systemic,

Dermal

The ECETOC TRA tool has been used to 0.0685714

estimate workplace exposures unless otherwise indicated. The PROC with the

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

below this value

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

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

below this value

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

Combined

Dermal

Inhalable

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

Long term exposure, Local,

Inhalable

Not applicable

Not applicable.

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

has been derived.

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

Not applicable.

acute effects and therefore, no acute DNEL

has been derived.

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

acute effects and therefore, no acute DNEL

has been derived.

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

has been derived.

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

acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Not applicable. 0.73115 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 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. Not applicable. Health **Additional Good Practices** Not applicable.

Polyethyleneamines, HEPA-S140

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

Process Category: PROC05, PROC08a, PROC08b, PROC09 Substance supplied to that use in form of: In a mixture

Sector of end use: SU03

Subsequent service life relevant for that use: No.

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

ERC08t 127/236



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Polvethyleneamines. HEPA-S140 **Product name**

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

Section 2.1 Control of environment

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 Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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/Outdoor use industrial setting

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 Not available.

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:

Not available.

1.0x10-5

Not available.

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 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 128/236 Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

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

Treat air emission to provide a typical removal efficiency of

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

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

No wastewater treatment required.

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Not available.

Organisational measures to prevent/limit release from site:

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

Conditions and measures related to municipal sewage treatment

plant:

Assumed on-site sewage treatment plant flow

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.

Amounts used: 1300 Tonnes/year

Fraction of EU tonnage used in region 25%

Regional use tonnage Not available.

Fraction of Regional tonnage used locally Not available.

Annual site tonnage 326
Average Local Daily Tonnage (kg/day): 1087

Maximum daily site tonnage 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:

3.0x10-5

Indoor/Outdoor use industrial setting

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

or to 1.0x10-3

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

1.0x10-3

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

Not available.

only)

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

Not available.

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:

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

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

Treat air emission to provide a typical removal efficiency of

=53.1

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

Not available.

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

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: PRÓC05, 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 129/236

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. Amounts used: 4650 Tonnes/year

25% Fraction of EU tonnage used in region

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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 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

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Continuous release

220

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.

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 2.1 Control of environmental exposure

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

Operational conditions: Indoor use

Product characteristics: Not applicable.

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region 25%

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

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.

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 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:

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:

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 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:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

Indoor industrial setting

Not applicable.

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

removal efficiency of 90%

Not applicable.

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

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

management supervision controls.

Section 2.2 Control of worker exposure

Contributing scenario controlling worker exposure for 2: Spraying in industrial settings and applications

Product characteristics: Liquid. Covers concentrations up to 15%

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%

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 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:

Frequency and duration of use: Exposure duration per day: 1-4 hours per day

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

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 4: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at dedicated facilities

Product characteristics:

Amounts used:

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

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Liquid. Covers concentrations up to 15%

Not applicable.

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 5: 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:

Liquid. Covers concentrations up to 15%

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.

Polyethyleneamines, HEPA-S140

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

Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

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

Sector of end use: SU03

Subsequent service life relevant for that use: No.

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

ERC08f

Personal protection:

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

Section 2.2 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

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%

Indoor industrial setting

Not applicable.

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

Section 2.2 Control of worker exposure

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

Not applicable.

removal efficiency of 90%

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)

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

Other given operational conditions affecting workers Indoor industrial setting

exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

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

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

management supervision controls.

Section 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

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 134/236

	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
7.78x10-4	2.34	EUSES calculation
0	0.586	EUSES calculation
2.33x10-5	2.38	EUSES calculation
0	4.2	EUSES calculation
Value	Justification	
1.82x10-4	EUSES calculation	
0.523	EUSES calculation	
Local concentration	PEC aquatic (local+regional)	Justification
1.80x10-5	8.54x10-5	EUSES calculation
1.80x10-6	8.51x10-6	EUSES calculation
Not applicable	Not applicable	Not applicable.
Local concentration	PEC sediment (local+regional)	Justification
Not evaluated.	8.57x10-2	EUSES calculation
Not evaluated.	8.54x10-3	EUSES calculation
Local concentration	PEC soil (local+regional)	Justification
5.29x10-7	1.18x10-2	EUSES calculation
1.06x10-6	1.18x10-2	EUSES calculation
Not evaluated.	5.91x10-5	EUSES calculation
	(local exposure estimation) kg/day 7.78x10-4 0 2.33x10-5 0 Value 1.82x10-4 0.523 Local concentration 1.80x10-5 1.80x10-6 Not applicable Local concentration Not evaluated. Not evaluated. Local concentration 5.29x10-7 1.06x10-6	(local exposure estimation) kg/day exposure estimation kg/day 7.78x10-4 2.34 0 0.586 2.33x10-5 2.38 0 4.2 Value Justification 1.82x10-4 EUSES calculation 0.523 EUSES calculation Local concentration PEC aquatic (local+regional) 1.80x10-5 8.54x10-5 1.80x10-6 Not applicable Local concentration PEC sediment (local+regional) Not evaluated. 8.57x10-2 Not evaluated. 8.54x10-3 Local concentration PEC soil (local+regional) 5.29x10-7 1.18x10-2 1.06x10-6 1.18x10-2

Polyethyleneamines, HEPA-S140

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

Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

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

ERC08f

Local concentration PEC air (local+regional) **Justification** During emission mg/m³ 6.49x10-9 Not evaluated. **EUSES** calculation Annual average mg/m³ 5.33x10-9 5.37x10-9 **EUSES** calculation Annual deposition mg/m²/d 4.408 Not evaluated. **EUSES** calculation Local concentration PEC aquatic (local+regional) **Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.1 Environment - Exposure estimation

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

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

Section 3.1 Environment - Exposure estimation

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

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

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,

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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		
Cracciana arcragoa mg/ng ant	U	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	1.18x10-2 5.91x10-5	EUSES calculation EUSES calculation
	•		
	Not evaluated.	5.91x10-5	EUSES calculation
Groundwater mg/l	Not evaluated. Local concentration	5.91x10-5 PEC air (local+regional)	EUSES calculation Justification
Groundwater mg/l During emission mg/m³	Not evaluated. Local concentration 0	5.91x10-5 PEC air (local+regional) Not evaluated.	EUSES calculation Justification EUSES calculation
Groundwater mg/l During emission mg/m³ Annual average mg/m³	Not evaluated. Local concentration 0	5.91x10-5 PEC air (local+regional) Not evaluated. 3.57x10-11	EUSES calculation Justification EUSES calculation EUSES calculation

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.	0.0822	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.457	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not evaluated.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.

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 137/236

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. 0.914 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** Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.0822 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. 0.457 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. 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. Short term exposure, Systemic, 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. 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,

Inhalable

Not applicable.

0.914

0.1286

Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. The ECETOC TRA tool has been used to

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

Section 3.2 Workers - Exposure estimation

Short term exposure, Local, Dermal Not applicable.

Contributing scenario controlling worker exposure for 2: Spraying in industrial settings and applications

Route of exposure Long term exposure, Systemic, **Dermal**

Contributing scenarios

Not applicable.

Not applicable.

Dose/Concentration

The ECETOC TRA tool has been used to estimate workplace 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

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

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Section 3.2 Workers - Exposure esting the Contributing scenario controlling we containers at non-dedicated facilities.	orker exposure for 3: Transfe	er of substance or preparation (o	charging/discharging) from/to vessels/large
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
Short term exposure, Local, Dermal		Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNI 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, 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, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
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.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Systemic, Combined	Not evaluated.	Not evaluated.	Not applicable.
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

Contributing scenario controlling we containers at non-dedicated facilitie		er of substance or preparation (o	charging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0411	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.548	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not evaluated.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic,	Not applicable	Not applicable.	Since the substance is not classified for

Polyethyleneamines, HEPA-S140

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.

Process Category: PRÓC05, 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.

acute effects and therefore, no acute DNEL

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

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Since the substance is not classified for Short term exposure, Systemic, Not applicable Not applicable. acute effects and therefore, no acute DNEL Combined has been derived. 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, 1.097 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 4: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to 0.0822 Not applicable. **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.457 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not evaluated. Not evaluated. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Since the substance is not classified for Short term exposure, Systemic, Not applicable Not applicable. 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. 0.914 The ECETOC TRA tool has been used to estimate workplace exposures unless Inhalable otherwise indicated. The PROC with the

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

below this value

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

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

Subsequent service life relevant for that use: No.

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

Section 3.2 Workers - Exposure estil Contributing scenario controlling wo 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.	0.0822	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.457	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not evaluated.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute 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.	0.914	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 esting Contributing scenario controlling wo		ent of articles by dipping and po	puring
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0411	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

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0411	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.548	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not evaluated.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.

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,

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

Section 3.2 Workers - Exposure esti Contributing scenario controlling w pelletisation		tion of preparations or articles I	by tabletting, compression, extrusion,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0822	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.457	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not evaluated.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE

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

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

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

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

acute effects and therefore, no acute DNEL

has been derived.

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: PRÓC05, PROC06, PROC07, PROC08a, PROC08b, PROC09, PROC13, PROC14

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

Sector of end use: SU03

Subsequent service life relevant for that use: No.

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

ERC08f

Short term exposure, 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 4: Guidance to check compliance with the exposure scenario

Environment Not available.

Health Not available.

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

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 15% - Industrial Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b,

PROC09, PROC13, PROC14

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

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

ERC08f



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Polvethyleneamines. HEPA-S140 **Product name**

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 Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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:

Indoor/Outdoor use industrial setting

Release fraction to air from process (initial release prior to

1.0x10-5

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

Not available.

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

Release fraction to wastewater from wide dispersive use

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 144/236 Technical conditions and measures at process level (source) to prevent release:

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

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

Treat air emission to provide a typical removal efficiency of

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

to provide the required removal efficiency of

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

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

No wastewater treatment required.

Not available.

Not applicable.

Organisational measures to prevent/limit release from site:

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

Conditions and measures related to municipal sewage treatment

plant:

Assumed on-site sewage treatment plant flow

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: Amounts used:

Fraction of EU tonnage used in region

Regional use tonnage Fraction of Regional tonnage used locally

Annual site tonnage Average Local Daily Tonnage (kg/day): 1087

Maximum daily site tonnage Not available. Frequency and duration of use:

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

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

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

Not applicable.

1300 Tonnes/year

25%

Not available.

Not available.

326

Continuous release

300

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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not available

Section 2.1 Control of environmental exposure

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

Operational conditions: Indoor/Outdoor use

Product characteristics: Amounts used:

Fraction of EU tonnage used in region 25%

Not available. Regional use tonnage Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage Not available. Frequency and duration of use:

Emission Days (days/year) 220

Environment factors not influenced by risk management:

Local freshwater dilution factor 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

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not applicable.

4650 Tonnes/year

Continuous release

1000

1000

Indoor/Outdoor use industrial setting

1.0x10-5

0

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

Section 2.1 Control of environmental exposure

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

Operational conditions: Indoor use

Product characteristics: Not applicable.

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region 25%

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage Not available.

Frequency and duration of use:

Emission Days (days/year)

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor Local marine water dilution factor 1000

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM)

Release fraction to soil from process (initial release prior to

RMM)

Release fraction to wastewater from process (initial release

prior to RMM)

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

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

If discharging to domestic sewage treatment plant, provide

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

Conditions and measures related to municipal sewage treatment

plant:

Continuous release

220

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.

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 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

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 2.2 Control of worker exposure

Contributing scenario controlling worker exposure for 1: Spraying in industrial settings and applications

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.

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

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

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

Not applicable.

Personal protection:

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

management supervision controls.

Section 2.2 Control of worker exposure

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

Not applicable.

containers at non-dedicated facilities

Frequency and duration of use:

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used:

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 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:

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

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

containers at dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers

Indoor industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

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

Not applicable.

Organisational measures to prevent/limit releases,

Not applicable.

dispersion and exposure:

Personal protection:

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

management supervision controls.

Section 2.2 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

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 2.2 Control of worker exposure

Contributing scenario controlling worker exposure for 5: Roller application or brushing of adhesive and other coating

Product characteristics:

Liquid. Covers concentrations up to 2%

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers

Indoor industrial setting

exposure:

Technical conditions and measures at process level

Not applicable.

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

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

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

Not applicable.

dispersion and exposure: Personal protection:

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

management supervision controls.

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

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

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:

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

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

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)

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. 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.

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

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.

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

Section 3: Exposure estimation

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Waste water	Release from point source (local exposure estimation) kg/ day 0	Total release for regional exposure estimation kg/day 2.34	Justification EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0.0155	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	3.51x10-4	0.0122	EUSES calculation
Grassland averaged mg/kg dwt	7.06x10-4	0.0122	EUSES calculation
Groundwater mg/l	Not evaluated.	6.09x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	3.54x10-6	3.54x10-9	EUSES calculation
Annual deposition mg/m²/d	2.92x10-5	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	7.78x10-4	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	2.33x10-5	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.82x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.523	EUSES calculation	

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	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.

Total release for regional

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/	exposure estimation kg/day	
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0	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
Polyothylonoaminos HEPA-\$140		Identified use name: Use of et	hylenamines in onen r

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, ERC08t

Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.1 Environment - Exposure estimation

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

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

Section 3.2 Workers - Exposure estimation

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

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.05	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.

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 153/236

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

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 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.

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 154/236 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 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to 0.09 Not applicable. 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 estimate workplace exposures unless Inhalable otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not evaluated. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable. 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. Since the substance is not classified for Not applicable Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Combined acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, Dermal Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, Not applicable. 1.22 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 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

0.05

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

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

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 estil Contributing scenario controlling we including weighing)		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
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.

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic,

Inhalable

Not applicable

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

has been derived.

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19 Substance supplied to that use in form of: In a mixture

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, ERC08b, ERC08c, ERC08e,

ERC08f

Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3.2 Workers - Exposure esti Contributing scenario controlling we		application or brushing of adhes	sive and other coating
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

below this value

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.

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

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

ERC08f 157/236

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	3.2 Workers	- Exposure	estimation

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

Contributing scenarios	Dose/Concentration	Justification
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
Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Not applicable.	Not applicable.	Not applicable.
Not applicable.	Not applicable.	Not applicable.
Not applicable.	Not applicable.	Not applicable.
Not applicable.	Not applicable.	Not applicable.
Not applicable.	Not applicable.	Not applicable.
	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.	Not applicable. Not applicable. O.61 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

Short term exposure, Systemic,

Combined

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Local,

Inhalable

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

1.22

Not applicable.

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

below this value

Section 3.2 Workers - Exposure 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, Not applicable.

Dermal

0.09

below this value

Long term exposure, Systemic, Not applicable.

Inhalable

0.61

1.22

The ECETOC TRA tool has been used to

exposure estimates for other PROC are below this value

Long term exposure, Systemic, Not applicable.

Combined

Long term exposure, Local, Dermal

Long term exposure, Local,

Inhalable

Short term exposure, Systemic,

Dermal

Short term exposure, Systemic, Inhalable

Short term exposure, Systemic,

Combined

Short term exposure, Local,

Inhalable

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

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

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

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

Not applicable.

Not applicable. Not applicable.

Not applicable. Not applicable.

Not applicable. Not applicable.

Not applicable. Not applicable.

Not applicable. Not applicable.

Not applicable. Not applicable.

> The ECETOC TRA tool has been used to estimate workplace 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 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 159/236



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Polvethyleneamines. HEPA-S140 **Product name**

Section 1: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14,

PROC19

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

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

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

Section 2: Operational conditions and risk management measures

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use

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

Fraction of EU tonnage used in region 25%

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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:

Indoor/Outdoor use industrial setting

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

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use

Not available.

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 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 on-site conditions and measures to reduce or limit

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

discharges, air emissions and releases to soil:

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

to provide the required removal efficiency of

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

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

No wastewater treatment required.

Not available.

Not applicable.

Organisational measures to prevent/limit release from site:

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

Conditions and measures related to municipal sewage treatment

plant:

Assumed on-site sewage treatment plant flow

2000

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable. 1300 Tonnes/year Amounts used:

Fraction of EU tonnage used in region

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

Annual site tonnage 326 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage Not available. Frequency and duration of use:

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

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

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

25%

1087

Continuous release

300

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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not available

Section 2.1 Control of environmental exposure

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

Operational conditions: Indoor/Outdoor use

Product characteristics: Amounts used:

Fraction of EU tonnage used in region 25%

Not available. Regional use tonnage Fraction of Regional tonnage used locally

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

Maximum daily site tonnage 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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not applicable.

4650 Tonnes/year

Not available.

1160

Not available.

Continuous release

Indoor/Outdoor use industrial setting

1.0x10-5

0

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

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 Not available.

Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage Not available.

Frequency and duration of use: Continuous release

Emission Days (days/year) 220

Environment factors not influenced by risk management:

Local freshwater dilution factor 1000
Local marine water dilution factor 1000

Other given operational conditions affecting environmental 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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

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.

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 163/236

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

Not applicable.

(multistage and/or significant contact)

Product characteristics: Liquid. Covers concentrations up to 0.5%

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:

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

Indoor industrial setting and professional setting

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 2.2 Control of worker exposure

Contributing scenario controlling worker exposure for 1: Spraying in industrial settings and applications

Product characteristics:

Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

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

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:

Personal protection:

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

removal efficiency of 90%

Not applicable.

Not applicable.

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

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

management supervision controls.

Section 2.2 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: 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:

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 industrial setting

Indoor industrial setting and professional setting

Indoor professional setting

Not applicable.

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

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

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

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

ERC08f

Personal protection:

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

Section 2.2 Control of worker exposure

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

containers at dedicated facilities

Liquid. Covers concentrations up to 0.5% Product characteristics:

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers exposure:

Indoor industrial setting Indoor industrial setting and professional setting

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:

Not applicable.

Organisational measures to prevent/limit releases,

Not applicable.

dispersion and exposure:

Personal protection:

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

management supervision controls.

Section 2.2 Control of worker exposure

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

including weighing)

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

exposure:

Indoor industrial setting and professional setting Indoor professional setting

Technical conditions and measures at process level

Not applicable.

(source) to prevent release:

Not applicable.

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

Organisational measures to prevent/limit releases, 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 of adhesive and other coating

Product characteristics:

Liquid. Covers concentrations up to 0.5%

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers

Indoor industrial setting

exposure:

Indoor industrial setting and professional setting

Indoor professional setting

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

Not applicable.

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 to control dispersion from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Not applicable.

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

management supervision controls.

Section 2.2 Control of worker exposure

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

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 industrial setting

Indoor industrial setting and professional setting

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 2.2 Control of worker exposure

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

Not applicable.

pelletisation

Product characteristics: Liquid. Covers concentrations up to 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:

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:

Personal protection:

Not applicable. Not applicable.

Not applicable.

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

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

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

Contributing scenario controlling worker exposure for 8: Hand-mixing with intimate contact and only PPE available

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers Indoor industrial setting

exposure:

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 and professional setting

Total release for regional

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

Justification

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/	exposure estimation kg/day	
Wests	day	2.24	EUOEO - de la latia
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

Polyethyleneamines, HEPA-S140

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

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

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

Sector of end use: SU03, SU22

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

ERC08f

Annual deposition mg/m²/d 2.92x10-5 Not evaluated. **EUSES** calculation **Local concentration** PEC aquatic (local+regional) **Justification** Micro-organism mg/l Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

Not applicable.

	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/	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: 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

Not applicable.

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,

ERC08t

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
Delegation to the Land of the Color		Idea (first and a second like of a	

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

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

Section 3.2 Workers - Exposure estimation

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

(multistage and/or significant contact)

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

Long term exposure, Systemic,

Dermal

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

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

0.76

The ECETOC TRA tool has been used to

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

below this value Not applicable.

Not applicable.

Not applicable.

Long term exposure, Systemic,

Combined Long term exposure, Local, Dermal

Long term exposure, Local,

Inhalable

Short term exposure, Systemic, **Dermal**

Short term exposure, Systemic,

Inhalable

Short term exposure, Systemic,

Combined

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Local, Inhalable

Not applicable.

1.52

Not applicable. Not applicable.

Not applicable.

Not applicable.

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

below this value

Section 3.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Spraying in industrial settings and applications

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

Long term exposure, Systemic,

Dermal

Long term exposure, Systemic,

Inhalable

Not applicable.

0.11

0.30

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

below this value

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

highest exposure level is given since the

exposure estimates for other PROC are

below this value

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal

Long term exposure, Local, Inhalable

Not applicable.

Not applicable. Not applicable.

Polyethyleneamines, HEPA-S140

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

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

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

Sector of end use: SU03, SU22

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

ERC08f

Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Dermal** Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Not applicable. Not applicable. Short term exposure, Systemic, Not applicable. Combined Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, Not applicable. The ECETOC TRA tool has been used to 1.22 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Route of exposure **Contributing scenarios Dose/Concentration Justification** The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.14 **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, 0.76 The ECETOC TRA tool has been used to Not applicable. Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Dermal** Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Not applicable. Short term exposure, Local, Dermal Not applicable. Not applicable. Short term exposure, Local, The ECETOC TRA tool has been used to Not applicable. 1.52 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 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

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.	0.76	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 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.	0.14	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

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
minutoio			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 V	Norkers - I	Exposure	estimation
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Contributing scenario controlling worker exposure for 6: Treatment of articles by dipping and pouring

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	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.
	Not applicable.	Not applicable.	Not applicable.

Polyethyleneamines, HEPA-S140

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

Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

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

Short term exposure, Systemic, Combined

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

Inhalable

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 7: Production of preparations or articles by tabletting, compression, extrusion,

pelletisation

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

Long term exposure, Systemic,

Dermal

Not applicable.

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.

Not applicable.

Not applicable.

Long term exposure, Systemic,

Inhalable

Not applicable.

0.76

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

exposure estimates for other PROC are below this value

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

Combined

Long term exposure, Local, Dermal

Long term exposure, Local,

Inhalable

Short term exposure, Systemic,

Dermal

Short term exposure, Systemic,

Inhalable

Short term exposure, Systemic, Combined

Short term exposure, Local, Dermal

Short term exposure, Local, Inhalable

Not applicable. Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable. Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable. 1.52

Not applicable. Not applicable.

Not applicable.

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

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

below this value

Section 3.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 8: Hand-mixing with intimate contact and only PPE available

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

Long term exposure, Systemic,

Long term exposure, Systemic,

Dermal

Inhalable

Not applicable.

Not applicable.

0.14

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

The ECETOC TRA tool has been used to

estimate workplace 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, Not applicable. Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not evaluated. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Since the substance is not classified for Short term exposure, Systemic, Not applicable Not applicable. acute effects and therefore, no acute DNEL Inhalable has been derived. 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. 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. 1.52 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 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 175/236



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition UVCB

Product name Polvethyleneamines. HEPA-S140

Section 1: Title

Short title of the exposure scenario/List of use descriptors Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 25% - Professional

Process Category: PROC05, PROC08a

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

Sector of end use: SU22

Subsequent service life relevant for that use: No.

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

Section 2: Operational conditions and risk management measures

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used: 1860 Tonnes/year

Fraction of EU tonnage used in region 25%

Not available. Regional use tonnage Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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/Outdoor use industrial setting

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 Not available.

only)

Release fraction to wastewater from wide dispersive use Not available.

Technical conditions and measures at process level (source) to

prevent release:

Not available.

1.0x10-5

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,

ERC08t

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

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

Treat air emission to provide a typical removal efficiency of

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

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

No wastewater treatment required.

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Not available.

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 on-site sewage treatment plant flow

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 Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

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

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

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use

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

Technical on-site conditions and measures to reduce or limit

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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Not applicable.

Not available.

Not available.

Not available.

Indoor/Outdoor use professional setting

0.01

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.

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,

ERC08t

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. Amounts used: Tonnes/year

25% Fraction of EU tonnage used in region

Not available. Regional use tonnage Fraction of Regional tonnage used locally Not available.

1160 **Annual site tonnage** Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage Frequency and duration of use:

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.

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

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

5272

Not available.

Continuous release

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.

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,

ERC08t

Section 2.1 Control of environmental exposure

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

Operational conditions: Indoor use

Product characteristics: Not applicable.

1860 Tonnes/year Amounts used:

Fraction of EU tonnage used in region

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

exposure:

2114

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.

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

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, ERC08t

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:

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.

Avoid carrying out activities involving exposure for more than 15 minutes.

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. Wear appropriate respiratory protection. with a

Justification

minimum efficacy of 95%

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/

	day	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

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,

ERC08t

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	5.1x10-4	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.19x10-4	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.343	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.18x10-5	7.92x10-5	EUSES calculation
Marine water mg/l	1.18x10-6	7.89x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
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/ 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

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

Investiga est em

parations 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: $\ensuremath{\mathsf{No}}$.

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

ERC08f 182/236

Intermittent release. mg/l	Not applicable Local concentration	Not applicable PEC sediment (local+regional)	Not applicable. 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

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 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.	0.73115	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

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

below this value

arations containing EA up to 25% - Professional **Process Category:** PROC05, PROC08a

exposure estimates for other PROC are

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 **183/236** Section 3.2 Workers - Exposure estimation

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

containers at non-dedicated facilities

Contributing scenarios Route of exposure

Dose/Concentration

Justification

Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.0685714 estimate workplace exposures unless

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

below this value

Long term exposure, Systemic, Not applicable. 0.45697 The ECETOC TRA tool has been used to Inhalable

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

below this value

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

Combined

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

Long term exposure, Local,

Not applicable Inhalable

Not applicable.

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

has been derived.

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

acute effects and therefore, no acute DNEL

has been derived.

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

acute effects and therefore, no acute DNEL

has been derived.

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

has been derived.

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

acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Not applicable. 0.91393 The ECETOC TRA tool has been used to Inhalable

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

below this value

Section 4: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

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

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

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,

> ERC08t 184/236



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition UVCB

Product name Polvethyleneamines, 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 Not available. Fraction of Regional tonnage used locally Not available.

465 Annual site tonnage 1274 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage Not available. Frequency and duration of use: Continuous release

Emission Days (days/year) 365

Environment factors not influenced by risk management:

Local freshwater dilution factor 1000 Local marine water dilution factor 1000

Other given operational conditions affecting environmental

exposure:

Indoor/Outdoor use industrial setting

Release fraction to air from process (initial release prior to

1 1x10-5

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM)

Release fraction to air from wide dispersive use (regional

Not available.

Release fraction to soil from wide dispersive use (regional

Not available.

Release fraction to wastewater from wide dispersive use

Not available.

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

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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Conditions and measures related to municipal sewage treatment

Assumed on-site sewage treatment plant flow

No wastewater treatment required.

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.

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

Not available. Regional use tonnage Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Conditions and measures related to municipal sewage treatment olant:

Not applicable.

25%

Not available.

220

Indoor/Outdoor use industrial setting

1.1.10-5

Not available.

Not available.

Not available.

Not applicable.

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

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

No wastewater treatment required.

Not available.

Polyethyleneamines, HEPA-S140

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

Process Category: 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

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Professional

Section 2.2 Control of worker exposure

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

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 0.5%

Release from point source

(local exposure estimation) kg/

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,

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

Justification

management supervision controls.

Total release for regional

exposure estimation kg/day

Section 3: Exposure estimation

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Fuel additive.

Delication de manimum IIEDA CA40		Identified was named the of money	andinan anatololo
Micro-organism mg/l	Not applicable.	PEC aquatic (local+regional) Not applicable.	Not applicable.
Annual deposition mg/m²/d	1.46x10-8 Local concentration	Not evaluated.	EUSES calculation Justification
Annual average mg/m³	1.77x10-9	1.8x10-9	EUSES calculation
During emission mg/m³	1.77x10-9	Not evaluated.	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
Grassland averaged mg/kg dwt	3.53x10-7	0.0118	EUSES calculation
Agricultural soil averaged mg/kg dwt	1.76x10-7	0.0118	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
	Local concentration	PEC sediment (local+regional)	Justification
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
Marine water mg/l	0	6.71x10-6	EUSES calculation
Fresh water mg/l	0	6.74x10-5	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
	Value	Justification	
Soil (direct releases only)	0	4.2	EUSES calculation
air (direct + STP)	6.37x10-6	2.38	EUSES calculation
Surface water	0	0.586	EUSES calculation
Waste water	0	2.34	EUSES calculation
	day		

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 1: Wood preservative.

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	1.25x10-3	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	6.77x10-2	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	6.74x10-3	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	2.07x10-5	1.19x10-2	EUSES calculation
Grassland averaged mg/kg dwt	4.17x10-5	1.19x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.92x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.47x10-7	Not evaluated.	EUSES calculation
Annual average mg/m³	2.09x10-7	2.09x10-7	EUSES calculation
Annual deposition mg/m²/d	1.72x10-6	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 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.	0.027	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.

Polyethyleneamines, HEPA-S140

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

Process Category: PROC08a

Substance supplied to that use in form of: In a mixture Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable. Since the substance is not classified for Not applicable **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Since the substance is not classified for Not applicable Not applicable. Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Combined acute effects and therefore, no acute DNEL 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. The ECETOC TRA tool has been used to Short term exposure, Local, Not applicable. 1.52 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

EnvironmentNot available.HealthNot available.

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

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition UVCB

Product name Polvethyleneamines. 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 Not available. Fraction of Regional tonnage used locally Not available.

Annual site tonnage 465 1274 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage Not available. Frequency and duration of use: Continuous release

Emission Days (days/year) 365

Environment factors not influenced by risk management:

Local freshwater dilution factor 1000 Local marine water dilution factor 1000

Other given operational conditions affecting environmental exposure:

Indoor/Outdoor use industrial setting

Release fraction to air from process (initial release prior to

1 1x10-5

Release fraction to soil from process (initial release prior to

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

Release fraction to air from wide dispersive use (regional

Not available.

Release fraction to soil from wide dispersive use (regional

Not available.

Release fraction to wastewater from wide dispersive use

Not available.

Technical conditions and measures at process level (source) to

prevent release:

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

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

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

Treat air emission to provide a typical removal efficiency of

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

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

to provide the required removal efficiency of

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Not available.

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 on-site sewage treatment plant flow

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 Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage Not available.

Frequency and duration of use: Continuous release

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

Environment factors not influenced by risk management:

Local freshwater dilution factor 1000 Local marine water dilution factor 1000

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

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

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

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use

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

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

Treat air emission to provide a typical removal efficiency of

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

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.

Indoor/Outdoor use industrial setting

Not available.

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:

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 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.

Section 2.2 Control of worker exposure

Contributing scenario controlling worker exposure for 1: Roller application or brushing of adhesive and other coating

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers Indoor professional setting

exposure:
Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

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

removal efficiency of 90%

Not applicable.

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

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

management supervision controls.

Justification

Section 3: Exposure estimation

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Fuel additive.

Value

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	6.37x10-6	2.38	EUSES calculation
Soil (direct releases only)	0	2.38	EUSES calculation

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

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

Environmental Release Category: ERC01, ERC04, ERC10b

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 composition	DEC aquetic (lecal+regional)	Justification
	Local concentration	PEC aquatic (local+regional)	Justilication

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Release from point source

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

Total release for regional

Polyethyleneamines, HEPA-S140

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

Justification

EUSES calculation Annual deposition mg/m²/d 1.72x10-6 Not evaluated.

PEC aquatic (local+regional) Local concentration

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

Dermal

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

Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.110

estimate workplace 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, 0.305 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

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

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

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

acute effects and therefore, no acute DNEL

has been derived.

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

has been derived.

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

has been derived.

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

has been derived.

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

has been derived.

Short term exposure, Local, 0.61 The ECETOC TRA tool has been used to Not applicable. estimate workplace exposures unless Inhalable otherwise indicated. The PROC with the

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

below this value

Section 3.2 Workers - Exposure estimation

Inhalable

Contributing scenario controlling worker exposure for 1: Roller application or brushing of adhesive and other coating

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

Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.110

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

exposure estimates for other PROC are

below this value

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

> estimate workplace 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

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

Combined

Polyethyleneamines, HEPA-S140 Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Professional

> 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

Not applicable. Long term exposure, Local, Dermal Not evaluated. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL Inhalable 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. Since the substance is not classified for Not applicable acute effects and therefore, no acute DNEL Inhalable has been derived. Not applicable. Since the substance is not classified for Short term exposure, Systemic, Not applicable acute effects and therefore, no acute DNEL Combined has been derived. Since the substance is not classified for 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. 0.61 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

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.

exposure estimates for other PROC are

below this value



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition UVCB

Product name Polvethyleneamines, 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 Not available. Fraction of Regional tonnage used locally Not available.

465 Annual site tonnage 1274 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage Not available. Frequency and duration of use: Continuous release

Emission Days (days/year) 365

Environment factors not influenced by risk management:

Local freshwater dilution factor 1000 Local marine water dilution factor 1000

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior 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

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use

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

Not available.

1 1x10-5

Indoor/Outdoor use industrial setting

Not available.

Not available.

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 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

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%.

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Not available.

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 on-site sewage treatment plant flow

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:

25% Fraction of EU tonnage used in region

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage

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

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

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

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

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use

Technical conditions and measures at process level (source) to

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

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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Not applicable.

Not available.

220

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.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09,

PROC13, PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03, SU22 Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC04, ERC10b

Conditions and measures related to municipal sewage treatment plant:

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:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable. dispersion from source towards the worker:

Not applicable.

Not applicable.

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

Indoor industrial setting Indoor professional setting

management supervision controls.

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

Section 2.2 Control of worker exposure

Contributing scenario controlling worker exposure for 1: Calendering operations

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers Indoor industrial setting

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:

Not applicable.

Not applicable.

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

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

management supervision controls.

Section 2.2 Control of worker exposure

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

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers Indoor industrial setting exposure: Indoor professional setting

Technical conditions and measures at process level Not applicable.

(source) to prevent release:

Technical conditions and measures to control Use the following local exhaust ventilation types: Treat air emission to provide a typical removal efficiency of 90% dispersion from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 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 3: 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 concentrations up to 2%

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 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 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:

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 2%

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 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 2.2 Control of worker exposure

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

Product characteristics:

Amounts used: Not applicable.

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Liquid. Covers concentrations up to 2%

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

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

Indoor industrial setting 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% - 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 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

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.

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	day 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 cald	
	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

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,

Justification

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

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 **Justification Local concentration** PEC aquatic (local+regional) 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	
	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: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

Route of exposure Long term exposure, Systemic,

Dermal

Contributing scenarios

Not applicable.

Dose/Concentration

0.055

Justification

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

below this value

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 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

0.61 The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Not applicable. Not applicable. Long term exposure, Systemic, Not evaluated. Combined Long term exposure, Local, Dermal Not evaluated. Not applicable. Not applicable. Long term exposure, Local, Since the substance is not classified for Not applicable Not applicable. Inhalable acute effects and therefore, no acute DNEL has been derived. Since the substance is not classified for Short term exposure, Systemic, Not applicable. Not applicable **Dermal** acute effects and therefore, no acute DNEL has been derived. 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. Short term exposure, Local, Dermal Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, Not applicable. 1.22 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 1: Calendering operations Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, 0.055 The ECETOC TRA tool has been used to Not applicable. **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value 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 Long term exposure, Local, Dermal Not evaluated. Not applicable. Not applicable. Since the substance is not classified for Long term exposure, Local, Not applicable Not applicable. acute effects and therefore, no acute DNEL Inhalable has been derived. Short term exposure, Systemic, Not applicable. Not applicable Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for 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.

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, PROC13

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

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. 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 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.110 **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.305 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not evaluated. Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not evaluated. Not applicable. Not applicable. Since the substance is not classified for Long term exposure, Local, Not applicable Not applicable. acute effects and therefore, no acute DNEL Inhalable has been derived. Short term exposure, Systemic, Not applicable. Not applicable Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Combined acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, Dermal Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, Not applicable. 0.61 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3.2 Workers - Exposure estimation

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

containers at dedicated facilities

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

Long term exposure, Systemic, Not applicable.

Dermal

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

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, 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 estill Contributing scenario controlling weighing)		er of substance or preparation in	nto small containers (dedicated filling line,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.055	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

Not applicable.

Not applicable.

Not applicable.

Polyethyleneamines, HEPA-S140

Short term exposure, Systemic,

Short term exposure, Systemic,

Short term exposure, Systemic,

Dermal

Inhalable

Combined

Not applicable

Not applicable

Not applicable

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC16

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

has been derived.

has been derived.

has been derived.

has been derived.

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

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. 1.22 The ECETOC TRA tool has been used to estimate workplace exposures unless Inhalable otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 5: Treatment of articles by dipping and pouring Route of exposure **Contributing scenarios Dose/Concentration Justification** The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.110 **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.305 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Not applicable. Long term exposure, Systemic, Not evaluated. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not evaluated. Not applicable. Since the substance is not classified for Long term exposure, Local, Not applicable Not applicable. acute effects and therefore, no acute DNEL Inhalable has been derived. Short term exposure, Systemic, Not applicable. 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. Short term exposure, Systemic, Not applicable Since the substance is not classified for Combined acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, Dermal Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. The ECETOC TRA tool has been used to Short term exposure, Local, 0.61 Not applicable. estimate workplace exposures unless Inhalable otherwise indicated. The PROC with the

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

below triis value

Section 3.2 Workers - Exposure estimation

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

- cxpcctcu

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

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, PROC13.

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, Systemic, Not applicable. 0.61 The ECETOC TRA tool has been used to estimate workplace exposures unless

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

below this value

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

Combined

Long term exposure, Local, DermalNot 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

Inhalable

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

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

below this value

Section 4: Guidance to check compliance with the exposure scenario

EnvironmentNot available.HealthNot available.

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

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.

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 Polvethyleneamines, 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 Not available. Fraction of Regional tonnage used locally Not available.

465 Annual site tonnage 1274 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage Not available. Frequency and duration of use: Continuous release

Emission Days (days/year) 365

Environment factors not influenced by risk management:

Local freshwater dilution factor 1000 Local marine water dilution factor 1000

Other given operational conditions affecting environmental

exposure:

Indoor/Outdoor use industrial setting

Release fraction to air from process (initial release prior to

1 1x10-5

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM)

Release fraction to air from wide dispersive use (regional

Not available.

Release fraction to soil from wide dispersive use (regional

Not available.

Release fraction to wastewater from wide dispersive use

Not available.

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

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

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

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

Treat air emission to provide a typical removal efficiency of

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

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

No wastewater treatment required.

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Prevent discharge of undissolved substance to or recover from onsite

Organisational measures to prevent/limit release from site:

wastewater.

Not available.

Conditions and measures related to municipal sewage treatment

2000 Assumed on-site sewage treatment plant flow

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use

Product characteristics: Amounts used:

25% Fraction of EU tonnage used in region

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage Frequency and duration of use:

Emission Days (days/year)

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor Local marine water dilution factor 1000

Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

prior to RMM)

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

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use

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

Technical on-site conditions and measures to reduce or limit

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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Not applicable.

1860 Tonnes/year

Not available.

Continuous release

220

Indoor/Outdoor use industrial setting

1.1.10-5

Not available.

Not available.

Not available.

Not applicable.

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

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

No wastewater treatment required.

Not available.

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:

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 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: Calendering operations

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

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

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

Other 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 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers Indoor industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

Not applicable.

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 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:

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:

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.

Not applicable.

Not applicable.

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

management supervision controls.

Section 2.2 Control of worker exposure

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

including weighing)

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:

Personal protection:

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.

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 of adhesive and other coating

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: 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%

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 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 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:

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

aining. Wear chemical-resistant gloves (tested to EN3/4) 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 Indoor industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Not applicable.

Not applicable.

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

management supervision controls.

Section 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	

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

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 calculati	
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Local concentration 1.76x10-7	PEC soil (local+regional) 0.0118	Justification EUSES calculation
		, , , , , , , , , , , , , , , , , , , ,	
dwt	1.76x10-7	0.0118	EUSES calculation
dwt Grassland averaged mg/kg dwt	1.76x10-7 3.53x10-7	0.0118 0.0118	EUSES calculation EUSES calculation
dwt Grassland averaged mg/kg dwt	1.76x10-7 3.53x10-7 Not evaluated.	0.0118 0.0118 5.91x10-5	EUSES calculation EUSES calculation EUSES calculation
dwt Grassland averaged mg/kg dwt Groundwater mg/l	1.76x10-7 3.53x10-7 Not evaluated. Local concentration	0.0118 0.0118 5.91x10-5 PEC air (local+regional)	EUSES calculation EUSES calculation EUSES calculation Justification
dwt Grassland averaged mg/kg dwt Groundwater mg/l During emission mg/m³	1.76x10-7 3.53x10-7 Not evaluated. Local concentration 1.77x10-9	0.0118 0.0118 5.91x10-5 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	1.76x10-7 3.53x10-7 Not evaluated. Local concentration 1.77x10-9 1.77x10-9	0.0118 0.0118 5.91x10-5 PEC air (local+regional) Not evaluated. 1.8x10-9	EUSES calculation EUSES calculation EUSES calculation Justification EUSES calculation EUSES calculation

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Wood preservative.

day 0 0	2.34	EUSES calculation
·		
	0.586	EUSES calculation
1.25x10-3	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
2.07x10-5	1.19x10-2	EUSES calculation
4.17x10-5	1.19x10-2	EUSES calculation
Not evaluated.	5.92x10-5	EUSES calculation
Local concentration	PEC air (local+regional)	Justification
3.47x10-7	Not evaluated.	EUSES calculation
	Value 0 0 Local concentration 0 0 Not applicable Local concentration Not evaluated. Not evaluated. Local concentration 2.07x10-5 4.17x10-5 Not evaluated. Local concentration	Value Value Justification USES calculation USES calculation USES calculation USES calculation USES calculation PEC aquatic (local+regional) O 6.74x10-5 O 6.71x10-6 Not applicable Not applicable Local concentration Not evaluated. PEC sediment (local+regional) O 6.77x10-2 O 7x10-3 UCCAL concentration PEC soil (local+regional) 1.19x10-2 1.19x10-2 VOI evaluated. UCCAL concentration PEC soil (local+regional) 1.19x10-2 VOI evaluated. UCCAL concentration PEC aquatic (local+regional) 1.19x10-2 VOI evaluated. UCCAL concentration PEC aquatic (local+regional)

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 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 Annual average mg/m³ 2.09x10-7 **EUSES** calculation 2.09x10-7 Annual deposition mg/m²/d 1.72x10-6 Not evaluated. **EUSES** calculation Local concentration PEC aquatic (local+regional) **Justification**

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 **Dose/Concentration Contributing scenarios Justification**

Long term exposure, Systemic,

Dermal

Micro-organism mg/l

Not applicable.

Not applicable.

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

Not applicable.

Long term exposure, Systemic,

Inhalable

Not applicable.

0.76

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

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

below this value

Long term exposure, Systemic,

Combined

Not applicable.

Not applicable.

Not applicable.

Long term exposure, Local, Dermal

Long term exposure, Local,

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

Not applicable. Not applicable.

Inhalable

Short term exposure, Systemic,

Not applicable.

Not applicable.

Not applicable.

Dermal

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.

Short term exposure, Local, 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 3.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 1: Calendering operations

Route of exposure **Contributing scenarios**

Long term exposure, Systemic,

Dermal

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

Long term exposure, Systemic,

Inhalable

Inhalable

Not applicable.

0.76

0.027

exposure estimates for other PROC are below this value The ECETOC TRA tool has been used to

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

below this value

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal

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

Not applicable.

Not applicable. Not applicable.

Not applicable.

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, Systemic, Not applicable. Not applicable. Not applicable. **Dermal** Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Not applicable. Not applicable. Short term exposure, Systemic, Not applicable. Combined Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, The ECETOC TRA tool has been used to Not applicable. 1.52 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, 0.027 The ECETOC TRA tool has been used to Not applicable. 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. 0.76 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not evaluated. Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not evaluated. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable. 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. Since the substance is not classified for Not applicable Inhalable acute effects and therefore, no acute DNEL has been derived Since the substance is not classified for Short term exposure, Systemic, Not applicable Not applicable. 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, 1.52 Not applicable. The ECETOC TRA tool has been used to

Polyethyleneamines, HEPA-S140

Inhalable

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16

below this value

Substance supplied to that use in form of: In a mixture Sector of end use: \$1/03

Sector of end use: SU03

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

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

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

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, 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.
	Not applicable.	Not applicable.	Not applicable.
D / // / / / // // // // // // // // //			

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC16

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Short term exposure, Systemic, Combined

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Local,

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 3.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 5: Roller application or brushing of adhesive and other coating

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

Dermal

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

Long term exposure, Systemic,

Combined

Not evaluated.

Not applicable.

Not applicable.

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

Inhalable

Not applicable

Not applicable

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.

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.

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

has been derived.

Short term exposure, Systemic,

Combined

Not applicable.

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

has been derived.

Short term exposure, Local, Dermal Not applicable

Not applicable.

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

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

Section 3.2 Workers - Exposure estimation

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

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

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

0.76 The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Dermal** Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, Not applicable. 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 7: Using material as fuel sources, limited exposure to unburned product to be expected

expected			
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 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

Polyethyleneamines, HEPA-S140

Identified use name: Use of preparations containing ethylenamines in open processes with low exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16

below this value

Substance supplied to that use in form of: In a mixture Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC04, ERC10b

Section 4: Guidance to check compliance with the exposure scenario

EnvironmentNot available.HealthNot available.

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

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.

Polyethyleneamines, HEPA-S140

Identified use name: Use of 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

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 Polvethyleneamines, 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 o	f environmenta	l exposure
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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 Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage Not available. Frequency and duration of use: Continuous release

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

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor Local marine water dilution factor 1000

Other given operational conditions affecting environmental exposure:

Indoor/Outdoor use industrial setting

1.0x10-5

Not available.

Not available.

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 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

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

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

Polyethyleneamines, HEPA-S140

Identified use name: 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

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

to provide the required removal efficiency of

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Not available.

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

Assumed on-site sewage treatment plant flow

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use

Product characteristics:

Amounts used:

Fraction of EU tonnage used in region 25%

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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 exposure:

Release fraction to air from process (initial release prior to

RMM)

Release fraction to soil from process (initial release prior to

RMM)

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

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

only)

Release fraction to wastewater from wide dispersive use

Technical conditions and measures at process level (source) to

prevent release:

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

Treat air emission to provide a typical removal efficiency of

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

to provide the required removal efficiency of

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Not applicable.

372 Tonnes/year

93

Indoor/Outdoor use industrial setting

0.01

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.

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 2: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use

Product characteristics:

Amounts used: 4650 Tonnes/year

Fraction of EU tonnage used in region 25%

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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

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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment

plant:

Not applicable.

1160

220

Indoor/Outdoor use industrial setting

1.0x10-5

Not available.

Not available.

Not available.

Not applicable.

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

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

No wastewater treatment required.

Not available

Section 2.1 Control of environmental exposure

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

Operational conditions: Indoor use

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

25% Fraction of EU tonnage used in region

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

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

Maximum daily site tonnage 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 RMM)

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

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

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use

Fechnical 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 If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

1.0x10-5

Indoor industrial setting

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: Low energy manipulation of substances bound in materials and/or articles

Product characteristics: Solid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Not applicable. Human factors not influenced by risk management:

Other given operational conditions affecting workers exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

Indoor 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.

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 2.2 Control of worker exposure

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

articles

Product characteristics:

Amounts used: 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:

Solid. Covers concentrations up to 0.5%

Not applicable.

Not applicable.

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

Justification

management supervision controls.

Total release for regional

Section 3: Exposure estimation

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Release from point source

Surface water 0 0.586 EUSES of air (direct + STP) 0.0155 2.38 EUSES of air (direct + STP)	calculation calculation calculation calculation
air (direct + STP) 0.0155 2.38 EUSES of Soil (direct releases only) 0 4.2 EUSES of Value Justification Concentration in sewage (PECstp) 0 EUSES calculation	calculation
Soil (direct releases only) 0 4.2 EUSES of Value Justification Concentration in sewage (PECstp) 0 EUSES calculation	
Value Justification Concentration in sewage (PECstp) 0 EUSES calculation	calculation
Concentration in sewage (PECstp) 0 EUSES calculation	
	
Concentration in sewage sludge 0 EUSES calculation mg/kg dwt	
Local concentration PEC aquatic (local+regional) Justifica	ation
Fresh water mg/l 0 6.74x10-5 EUSES of	calculation
Marine water mg/l 0 6.71x10-6 EUSES of	calculation
Intermittent release. mg/l Not applicable Not applicable Not applicable	icable.
Local concentration PEC sediment (local+regional) Justifica	ation
Fresh water sediment mg/kg dwt Not evaluated. 6.77x10-2 EUSES of	calculation
Marine water sediment mg/kg dwt Not evaluated. 6.74x10-3 EUSES of	calculation
Local concentration PEC soil (local+regional) Justifica	ation
Agricultural soil averaged mg/kg 3.51x10-4 0.0122 EUSES of dwt	calculation
Grassland averaged mg/kg dwt 7.06x10-4 0.0122 EUSES of	calculation
Groundwater mg/I Not evaluated. 6.09x10-5 EUSES of	calculation
Local concentration PEC air (local+regional) Justifica	ation
During emission mg/m³ 4.31x10-6 Not evaluated. EUSES of	calculation
Annual average mg/m³ 3.54x10-6 3.54x10-9 EUSES of	calculation
Annual deposition mg/m²/d 2.92x10-5 Not evaluated. EUSES of	calculation
Local concentration PEC aquatic (local+regional) Justifica	ation

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

Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	7.78x10 ⁻⁴	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	2.33x10 ⁻⁵	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.82x10 ⁻⁴	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.523	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.80x10⁻⁵	8.54x10⁻⁵	EUSES calculation
Marine water mg/l	1.80x10 ⁻⁶	8.51x10 ⁻⁶	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	8.57x10 ⁻²	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	8.54x10 ⁻³	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	5.29x10 ⁻⁷	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	1.06x10 ⁻⁶	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.49x10 ⁻⁹	Not evaluated.	EUSES calculation
Annual average mg/m³	5.33x10 ⁻⁹	5.37x10 ⁻⁹	EUSES calculation
Annual deposition mg/m²/d	4.40x10 ⁻⁸	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

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

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: 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

Intermittent release. mg/l	Not applicable Local concentration	Not applicable PEC sediment (local+regional)	Not applicable. 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 esting 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 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.	0.12	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 estin Contributing scenario controlling we articles		nechanical) energy work-up of s	ubstances bound in materials and/or
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.06	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal		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

Not applicable. Not applicable.

Not applicable.

Short term exposure, Systemic,

Inhalable

Short term exposure, Systemic,

Combined

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Local,

Inhalable

Not applicable. Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable. The ECETOC TRA tool has been used to 0.12

estimate workplace 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** Health Not available.

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

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



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition UVCB

Product name Polvethyleneamines, 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%

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage Not available. Frequency and duration of use: Continuous release

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

Environment factors not influenced by risk management:

1000 Local freshwater dilution factor Local marine water dilution factor 1000

Other given operational conditions affecting environmental exposure:

Indoor/Outdoor use industrial setting

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)

Not available.

Release fraction to soil from wide dispersive use (regional

Not available.

Release fraction to wastewater from wide dispersive use

Not available.

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

Not applicable.

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

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

Treat air emission to provide a typical removal efficiency of

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

Polyethyleneamines, HEPA-S140

Identified use name: 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

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

If discharging to domestic sewage treatment plant, provide

Not available.

the required onsite wastewater removal efficiency of 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 on-site sewage treatment plant flow

2000

Section 2.1 Control of environmental exposure

Fraction of EU tonnage used in region

Contributing scenario controlling environmental exposure for 1: Lube oil use

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

372 Tonnes/year Amounts used:

Regional use tonnage

Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage 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.

exposure:

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

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

Release fraction to wastewater from process (initial release

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

Release fraction to soil from wide dispersive use (regional

only)

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

prevent release:

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

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

to provide the required removal efficiency of

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

25%

Not available.

93

365

Local marine water dilution factor Not available.

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

0.01

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.

Polyethyleneamines, HEPA-S140

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

Industrial

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

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

Section 2.1 Control of environmental exposure

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

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used: 4650 Tonnes/year

Fraction of EU tonnage used in region 25%

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

Maximum daily site tonnage Not available.

Frequency and duration of use: Continuous release

Emission Days (days/year) 220

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM)

Release fraction to soil from process (initial release prior to

RMM)

Release fraction to wastewater from process (initial release

prior to RMM)

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

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

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

25% Fraction of EU tonnage used in region

Regional use tonnage Not available. Fraction of Regional tonnage used locally Not available.

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

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

Maximum daily site tonnage 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

RMM)

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

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

Release fraction to air from wide dispersive use (regional

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use Not available. Fechnical 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

If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Indoor industrial setting

1.0x10-5

Not available.

Not available.

Not applicable.

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

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

No wastewater treatment required.

Not available.

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:

Other given operational conditions affecting workers exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

Indoor 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.

Polyethyleneamines, HEPA-S140

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

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

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

231/236

Industrial

Section 2.2 Control of worker exposure

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

articles

Product characteristics:

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

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Solid. Covers concentrations up to 2%

Not applicable.

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

Justification

management supervision controls.

Total release for regional

Section 3: Exposure estimation

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Release from point source

Surface water 0 0.586 EUSES of air (direct + STP) 0.0155 2.38 EUSES of air (direct + STP)	calculation calculation calculation calculation
air (direct + STP) 0.0155 2.38 EUSES of Soil (direct releases only) 0 4.2 EUSES of Value Justification Concentration in sewage (PECstp) 0 EUSES calculation	calculation
Soil (direct releases only) 0 4.2 EUSES of Value Justification Concentration in sewage (PECstp) 0 EUSES calculation	
Value Justification Concentration in sewage (PECstp) 0 EUSES calculation	calculation
Concentration in sewage (PECstp) 0 EUSES calculation	
	
Concentration in sewage sludge 0 EUSES calculation mg/kg dwt	
Local concentration PEC aquatic (local+regional) Justifica	ation
Fresh water mg/l 0 6.74x10-5 EUSES of	calculation
Marine water mg/l 0 6.71x10-6 EUSES of	calculation
Intermittent release. mg/l Not applicable Not applicable Not applicable	icable.
Local concentration PEC sediment (local+regional) Justifica	ation
Fresh water sediment mg/kg dwt Not evaluated. 6.77x10-2 EUSES of	calculation
Marine water sediment mg/kg dwt Not evaluated. 6.74x10-3 EUSES of	calculation
Local concentration PEC soil (local+regional) Justifica	ation
Agricultural soil averaged mg/kg 3.51x10-4 0.0122 EUSES of dwt	calculation
Grassland averaged mg/kg dwt 7.06x10-4 0.0122 EUSES of	calculation
Groundwater mg/I Not evaluated. 6.09x10-5 EUSES of	calculation
Local concentration PEC air (local+regional) Justifica	ation
During emission mg/m³ 4.31x10-6 Not evaluated. EUSES of	calculation
Annual average mg/m³ 3.54x10-6 3.54x10-9 EUSES of	calculation
Annual deposition mg/m²/d 2.92x10-5 Not evaluated. EUSES of	calculation
Local concentration PEC aquatic (local+regional) Justifica	ation

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

Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Lube oil use

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	7.78x10 ⁻⁴	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	2.33x10 ⁻⁵	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	1.82x10 ⁻⁴	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0.523	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.80x10⁻⁵	8.54x10⁻⁵	EUSES calculation
Marine water mg/l	1.80x10 ⁻⁶	8.51x10 ⁻⁶	EUSES calculation
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	8.57x10 ⁻²	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	8.54x10 ⁻³	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	5.29x10 ⁻⁷	1.18x10-2	EUSES calculation
Grassland averaged mg/kg dwt	1.06x10 ⁻⁶	1.18x10-2	EUSES calculation
Groundwater mg/l	Not evaluated.	5.91x10-5	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.49x10 ⁻⁹	Not evaluated.	EUSES calculation
Annual average mg/m³	5.33x10 ⁻⁹	5.37x10 ⁻⁹	EUSES calculation
Annual deposition mg/m²/d	4.40x10 ⁻⁸	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

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

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0	2.34	EUSES calculation
Surface water	0	0.586	EUSES calculation
air (direct + STP)	0	2.38	EUSES calculation
Soil (direct releases only)	0	4.2	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	6.74x10-5	EUSES calculation
Marine water mg/l	0	6.71x10-6	EUSES calculation

Polyethyleneamines, HEPA-S140

Identified use name: 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

Intermittent release. mg/l	Not applicable Local concentration	Not applicable PEC sediment (local+regional)	Not applicable. 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.

Total release for regional

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

Justification

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0003	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.02	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.03	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3.2 Workers - Exposure estil Contributing scenario controlling we articles		nechanical) energy work-up of s	ubstances bound in materials and/or
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0003	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are

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 estimate workplace exposures unless Inhalable otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for

Polyethyleneamines, HEPA-S140

Inhalable

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

has been derived.

Process Category: PROC21, PROC24

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, Systemic,

Dermal

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.

Short term exposure, Systemic,

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Systemic,

Combined

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. 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 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. Not applicable.

Health **Additional Good Practices**

Not applicable.

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

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