SAFETY DATA SHEET



Triethylenetetramine, TETA

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

1.1 Product identifier

Product name : Triethylenetetramine, TETA

 Index number
 : 612-059-00-5

 EC number
 : 292-588-2

REACH Registration number

Registration number	Legal entity
01-2119487919-13-0000	Delamine BV

CAS number : 90640-67-8 **Product description** : Not applicable

Product type : Liquid.

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

Product use : Adhesives, binding agents Dye. Pigments. Complexing agents Corrosion inhibitor.

Fixing agents Blowing agent. Fuel. Fuel additive. Heat transfer 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 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

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

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

Osc of preparations containing E7 up to 270 1 Tolessional

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

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 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

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 0.5% - Professional

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 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 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

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: Multi-constituent substance

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

Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412

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

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SECTION 2: Hazards identification

Xn; R21/22 C; R34 R43

R52/53

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.

Harmful 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.

Storage : Store locked up.

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

international regulations.

Hazardous ingredients

Amines, polyethylenepoly-, triethylenetetramine fraction

Supplemental label

elements

: Not applicable.

Annex XVII - Restrictions on the manufacture,

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

: Not applicable.

articles

Special packaging requirements

Containers to be fitted with child-resistant

: Not applicable.

fastenings

Tactile warning of danger : Not applicable.

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SECTION 2: Hazards identification

2.3 Other hazards

Substance meets the : No.

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 applicable.

not result in classification

SECTION 3: Composition/information on ingredients

Substance/mixture : Multi-constituent substance

			Classification		
Product/ingredient name	Identifiers	%	67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	Туре
mines, polyethylenepoly-, triethylenetetramine fraction	REACH #: 01-2119487919-13 EC: 292-588-2 CAS: 90640-67-8 Index: 612-059-00-5	100	Xn; R21/22 C; R34 R43 R52/53	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412	[*]
3, 6-diazaoctanethylenediamin	EC: 203-950-6 CAS: 112-24-3 Index: 612-059-00-5	50 - 100	Xn; R21 C; R34 R43 R52/53	Acute Tox. 4, H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412	[A]
N,N-bis(2-aminoethyl) ethylenediamine	EC: 223-857-4 CAS: 4097-89-6	0 - 20	T; R24 Xn; R22 C; R34	Acute Tox. 4, H302 Acute Tox. 3, H311 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 1, H370 (gastrointestinal tract and respiratory tract)	[A]
2-(2-aminoethylamino) ethanol	EC: 203-867-5 CAS: 111-41-1 Index: 603-194-00-0	<0.3	Repr. Cat. 2; R61 Repr. Cat. 3; R62 C; R34 R43, R64	Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1B, H317 Repr. 1B, H360FD (Fertility and Unborn child) Lact., H362 STOT SE 3, H335	[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.	

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

Type

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

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

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact

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

Inhalation

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

Skin contact

: Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion

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

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SECTION 4: First aid measures

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 : Marmful 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.

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 harmful 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.

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SECTION 5: Firefighting measures

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.

6.3 Methods and material for containment and cleaning up

Small spill

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

Large spill

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

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SECTION 6: Accidental release measures

6.4 Reference to other sections

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

SECTION 7: Handling and storage

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

7.1 Precautions for safe handling

Protective measures

: Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from acids. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene

: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

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

7.3 Specific end use(s)

Recommendations : No specific data.

Industrial sector specific : No specific data.

solutions

SECTION 8: Exposure controls/personal protection

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

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

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SECTION 8: Exposure controls/personal protection

Recommended monitoring procedures

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

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
mines, polyethylenepoly-,	DNEL	Short term	5380 mg/	Workers	Systemic
triethylenetetramine fraction		Inhalation	m³		
	DNEL	Long term Dermal	0.57 mg/	Workers	Systemic
			kg bw/day		
	DNEL	Long term	1 mg/m³	Workers	Systemic
		Inhalation			
	DNEL	Long term Dermal	0.028 mg/	Workers	Local
			cm²		
	DNEL	Short term Dermal	8 mg/kg bw/day	Consumers	Systemic
	DNEL	Short term	1600 mg/	Consumers	Systemic
		Inhalation	m³		
	DNEL	Short term Oral	20 mg/kg	Consumers	Systemic
			bw/day		
	DNEL	Short term Dermal	1 mg/cm ²	Consumers	Local
	DNEL	Long term Dermal	0.25 mg/	Consumers	Systemic
			kg bw/day		
	DNEL	Long term	0.29 mg/m ³	Consumers	Systemic
		Inhalation			
	DNEL	Long term Oral	0.41 mg/ kg bw/day	Consumers	Systemic
	DNEL	Long term Dermal	0.43 mg/ cm ²	Consumers	Local
2-(2-aminoethylamino)ethanol	DNEL	Long term	3.53 mg/m ³	Workers	Systemic
	DINCL	Inhalation	0.00 mg/m	VVOINGIS	Cysternic
	DNEL	Long term Dermal	8.33 mg/	Workers	Systemic
	DIVILL	Long term berma	kg bw/day	VVOIRCIS	- Cystellilo

PNECs

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SECTION 8: Exposure controls/personal protection

Compartment Detail	Value	Method Detail
Secondary Poisoning	0.18 mg/kg	Assessment Factors
Fresh water	0.19 mg/l	Assessment Factors
Marine	0.038 mg/l	Assessment Factors
Fresh water sediment	95.9 mg/kg dwt	-
Marine water sediment	19.2 mg/kg dwt	-
Soil	19.1 mg/kg dwt	-
Sewage Treatment	4.25 mg/l	Assessment Factors
Plant		
Fresh water	0.022 mg/l	Assessment Factors
Marine water	0.0022 mg/l	Assessment Factors
Fresh water sediment	1.3 mg/kg dwt	-
Marine water sediment	0 0	-
Soil	0 0	-
Sewage Treatment Plant	82.2 mg/l	Assessment Factors
	Secondary Poisoning Fresh water Marine Fresh water sediment Marine water sediment Soil Sewage Treatment Plant Fresh water Marine water Fresh water Marine water sediment Marine water sediment Soil Sewage Treatment	Secondary Poisoning Fresh water Marine Fresh water sediment Marine water sediment Soil Sewage Treatment Plant Fresh water Fresh water Marine water 0.19 mg/l 0.038 mg/l 95.9 mg/kg dwt 19.2 mg/kg dwt 19.1 mg/kg dwt 4.25 mg/l 0.022 mg/l 0.0022 mg/l 1.3 mg/kg dwt Marine water sediment Marine water sediment Soil 0.13 mg/kg dwt 0.246 mg/kg dwt 82.2 mg/l

8.2 Exposure controls

Appropriate engineering controls

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

Individual protection measures

Hygiene measures

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

Eye/face protection

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

Skin protection

Hand protection

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

Body protection

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

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SECTION 8: Exposure controls/personal protection

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.

Colour : Off-white. Clear.

Odour : Faint odour.

Odour threshold : Not available.

pH : 13.2 Melting point/freezing point : <-20°C Initial boiling point and boiling : 274.6°C

range

Flash point : Closed cup: 118°C

Evaporation rate : Not available.

Flammability (solid, gas) : Not applicable.

Burning time : Not applicable.

Burning rate : Not applicable.

Upper/lower flammability or : Not available.

explosive limits

Vapour pressure : <0.002 kPa [room temperature]

Vapour density : Not available.

Relative density : Not available.

Solubility(ies) : Not available.

Solubility in water : >1000 g/l

Partition coefficient: n-octanol/ : -2.65

water

Auto-ignition temperature : 325°C

Decomposition temperature : Not available.

Viscosity : Not available.

Explosive properties : Not applicable.

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SECTION 9: Physical and chemical properties

Oxidising properties : None.

9.2 Other information

Density : 0.971 g/cm³ [25°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

: Metal.

Chlorinated hydrocarbon.

Reactive or incompatible with the following materials:

acids

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
mines, polyethylenepoly-, triethylenetetramine fraction	LD50 Dermal	Rat	1465 mg/kg	-
2-(2-aminoethylamino) ethanol	LD50 Oral LD50 Dermal	Rat Rabbit	1716 mg/kg >2000 mg/kg	-
	LD50 Oral	Rat	2150 mg/kg	-

Conclusion/Summary: Oral Harmful if swallowed.

Dermal Harmful in contact with skin.

Inhalation No applicable toxicity data Cannot be classified.

Irritation/Corrosion

Conclusion/Summary

Skin : Corrosive to the skin.

Eyes : Corrosive to eyes.

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SECTION 11: Toxicological information

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-, triethylenetetramine fraction	skin	Guinea pig	Sensitising
2-(2-aminoethylamino) ethanol	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
mines, polyethylenepoly-, triethylenetetramine fraction	-	Experiment: In vivo	Negative
		Subject: Mammalian-Animal	
2-(2-aminoethylamino)	OECD 471 Bacterial	Experiment: In vitro	Negative
ethanol	Reverse Mutation Test		
		Subject: Bacteria	
	OECD 476 In vitro Mammalian Cell Gene Mutation Test	Experiment: In vivo	Negative
		Subject: Mammalian-Animal	

Conclusion/Summary

: No mutagenic effect.

Carcinogenicity

Conclusion/Summary

: skin No carcinogenic effect.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Developmental toxin	Species	Dose	Exposure
2-(2-aminoethylamino) ethanol	-	Positive	Positive	Rat	Oral	-

Conclusion/Summary

: Developmental Toxicity: Data inconclusive. Cannot be classified.

NOAEL Oral= 750 mg/kg bw/day NOAEL Dermal= 125 mg/kg bw/day

Developmental effects have been observed in an animal study with high doses of a related salt. The relevance of those effects are currently under investigation.

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
2-(2-aminoethylamino) ethanol	Negative - Oral	Rat	-	-

Conclusion/Summary

: Data inconclusive. Cannot be classified.

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SECTION 11: Toxicological information

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
N-bis(2-aminoethyl)ethylenediamine	Category 1	Not determined	gastrointestinal tract and respiratory tract
2-(2-aminoethylamino)ethanol	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure

: Routes of entry anticipated: Oral.

routes of exposure

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

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

effects

: No specific data.

Potential delayed effects

: No specific data.

Long term exposure

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Triethylenetetramine, TETA

SECTION 11: Toxicological information

Potential immediate

effects

: No specific data.

Potential delayed effects

: No specific data.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
mines, polyethylenepoly-, triethylenetetramine fraction	Sub-chronic LOAEL Oral	Rat	50 mg/kg	-
2-(2-aminoethylamino) ethanol	Sub-acute NOAEL Oral	Rat	250 mg/kg	28 days
	Sub-acute NOAEL Dermal	Rat	1000 mg/kg	28 days

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

Mutagenicity

: No known significant effects or critical hazards.

Teratogenicity

No known significant effects or critical hazards.

Developmental effects

No known significant effects or critical hazards.

Fertility effects

No known significant effects or critical hazards.No known significant effects or critical hazards.

Absorption

Slowly absorbed.

Metabolism

Rapidly metabolised.

Elimination

: Rapidly excreted.

Other information

: No specific data.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
mines, polyethylenepoly-, triethylenetetramine fraction	EC50 800 mg/l	Micro-organism	30 minutes
	NOEC 42.5 mg/l	Micro-organism	30 minutes
	Acute EC50 20 mg/l	Algae	72 hours
	Acute EC50 31.1 mg/l	Daphnia	48 hours
	Acute LC50 330 mg/l	Fish	96 hours
	Acute NOEC 1.34 mg/l	Algae	72 hours
	Chronic NOEC 1.9 mg/l	Daphnia	21 days
2-(2-aminoethylamino) ethanol	EC50 >1003 mg/l	Micro-organism	30 minutes
	Acute EC50 353.6 mg/l	Algae	72 hours
	Acute EC50 22 mg/l	Daphnia	48 hours
	Acute LC50 690 mg/l	Fish	96 hours
	Acute NOEC 10 mg/l	Daphnia	48 hours
	Chronic EC10 156 mg/l	Algae	72 hours

Conclusion/Summary

: AQUATIC TOXICITY (CHRONIC)
PNEC Intermittent release.= 0.2 mg/l

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Triethylenetetramine, TETA

SECTION 12: Ecological information

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
2-(2-aminoethylamino) ethanol	OECD 301F Ready Biodegradability - Manometric Respirometry Test	>60 % - 28 days	-	-

Conclusion/Summary

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

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
mines, polyethylenepoly-, triethylenetetramine fraction	-	-	Not readily
2-(2-aminoethylamino) ethanol	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
mines, polyethylenepoly-, triethylenetetramine fraction	-2.65	-	low
2-(2-aminoethylamino) ethanol	-1.46	2.1	low

12.4 Mobility in soil

Soil/water partition

coefficient (Koc)

: 4000

Mobility : No specific data.

12.5 Results of PBT and vPvB assessment

PBT : No.

vPvB : No.

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

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SECTION 13: Disposal considerations

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

13.1 Waste treatment methods

Product

Methods of disposal

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

Hazardous waste Packaging

Methods of disposal

: The 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.

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

Special precautions

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

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	UN2259	UN2259	UN2259	UN2259
14.2 UN proper shipping name	TRIETHYLENETETRAMINE	TRIETHYLENETETRAMINE	TRIETHYLENETETRAMINE	Triethylenetetramine
14.3 Transport hazard class(es)	8	8	8	8
14.4 Packing group	II	II	II	II
14.5 Environmental hazards	No.	Yes.	No.	No.
Additional information	Hazard identification number 80 Limited quantity 1 L Tunnel code	The product is only regulated as an environmentally hazardous substance when transported in tank vessels.	Emergency schedules (EmS) F-A, S-B	Passenger and Cargo Aircraft Quantity limitation: 1 L Packaging instructions: 851 Cargo Aircraft Only Quantity limitation: 30 L

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Triethylenetetramine, TETA

SECTION 14: Transport information

•	
(E)	Packaging instructions:
	855
	<u>Limited Quantities -</u>
	Passenger Aircraft
	Quantity limitation: 0.5
	L
	Packaging instructions: Y840

14.6 Special precautions for

user

: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in

the event of an accident or spillage.

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

: Not available.

SECTION 15: Regulatory information

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

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

Annex XIV - List of substances subject to authorisation

Substances of very high concern

None of the components are listed.

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

Other EU regulations

Europe inventory : All components are listed or exempted.

: Not applicable.

Product/ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
2-(2-aminoethylamino) ethanol	-	-	' '	Repr. 1B, H360F (Fertility)

Seveso Directive

This product is not controlled under the Seveso Directive.

15.2 Chemical Safety

Assessment

: Complete.

15.3 Registration status : Applicable.

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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 Chronic 3, H412	Expert judgment

Full text of abbreviated H statements

: H302 Harmful if swallowed. H311 Toxic in contact with skin. H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

Causes serious eye damage. H318 H335 May cause respiratory irritation.

H360FD May damage fertility. May damage the unborn child.

(Fertility and Unborn child)

H362 May cause harm to breast-fed children.

H370 Causes damage to organs. (gastrointestinal tract and respiratory tract) (gastrointestinal

tract and respiratory tract)

H412 Harmful to aquatic life with long lasting effects.

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SECTION 16: Other information

Full text of classifications [CLP/GHS]

: Acute Tox. 3, H311 ACUTE TOXICITY (dermal) - Category 3
Acute Tox. 4, H302 ACUTE TOXICITY (oral) - Category 4
Acute Tox. 4, H312 ACUTE TOXICITY (dermal) - Category 4
Aquatic Chronic 3, H412 LONG-TERM AQUATIC HAZARD - Category 3

Eye Dam. 1, H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
Lact., H362 TOXIC TO REPRODUCTION - Effects on or via lactation
TOXIC TO REPRODUCTION (Fertility and Unborn child) -

(Fertility and Unborn Category 1B

child)

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

Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1 Skin Sens. 1B, H317 SKIN SENSITIZATION - Category 1B

STOT SE 1, H370 SPECIFIC TARGET ORGAN TOXICITY (SINGLE

(gastrointestinal tract EXPOSURE) (gastrointestinal tract and respiratory tract) -

and respiratory tract) Category 1

STOT SE 3, H335 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

Full text of abbreviated R phrases

: R61- May cause harm to the unborn child.

R62- Possible risk of impaired fertility.

R24- Also toxic in contact with skin.

R21- Also harmful in contact with skin.

R22- Also harmful if swallowed.

R21/22- Also harmful in contact with skin and if swallowed.

R34- Causes burns.

R43- May cause sensitisation by skin contact. R64- May cause harm to breastfed babies.

R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the

aquatic environment.

Full text of classifications [DSD/DPD]

: Repr. Cat. 2 - Toxic to reproduction category 2 Repr. Cat. 3 - Toxic to reproduction category 3

T - Toxic C - Corrosive Xn - Harmful

Training advice

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

Date of issue/ Date of

revision

: 25/06/2015

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: 15/04/2014

Version

: 11

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 Multi-constituent substance **Product name** Triethylenetetramine, TETA

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: ERC08a, ERC08b, ERC08c, ERC08d, ERC08e, 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:

Operational conditions: Not determined

Product characteristics: Indoor/Outdoor use

Amounts used:

Fraction of EU tonnage used in region Not available.

10230 Regional use tonnage Fraction of Regional tonnage used locally 25% **Annual site tonnage** 2560 11636 Average Local Daily Tonnage (kg/day) 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 10 Local marine water dilution factor 100

Other given operational conditions affecting

environmental exposure:

Release fraction to air from process (initial release prior 0

to RMM)

Release fraction to soil from process (initial release 5.00x10-3

prior to RMM)

Release fraction to wastewater from process (initial

release prior to RMM)

0.01

Conditions and measures related to municipal sewage

treatment plant:

Estimated substance removal from wastewater via on-

site sewage treatment

Not available.

Total efficiency of removal from wastewater after on-

site and off-site (domestic treatment plant) RMMs

Not available.

Triethylenetetramine, TETA

Identified use name: Consumer uses of ethyleneamines

Sector of end use: SU21

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC08a, ERC08b, ERC08c, ERC08d,

ERC08e, ERC08f

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

Not available.

Not available.

Section 2.2 Control of consumer exposure

Contributing scenario controlling consumer exposure for 0: Use of coatings and adhesives

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:

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.0561	28	EUSES calculation
Surface water	0	0	EUSES calculation
air (direct + STP)	0	0	EUSES calculation
Soil (direct releases only)	0	14	Not applicable.

Triethylenetetramine, TETA

Identified use name: Consumer uses of ethyleneamines

Sector of end use: SU21

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC08a, ERC08b, ERC08c, ERC08d,

ERC08e, ERC08f

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

Value Justification Concentration in sewage (PECstp) 0.018 **EUSES** calculation mg/l Concentration in sewage sludge **EUSES** calculation 26.5 mg/kg dwt Local concentration PEC aquatic (local+regional) **Justification** Fresh water mg/l 1.74x10-3 3.17x10-3 **EUSES** calculation Marine water mg/l 2.78x10-4 4.20x10-4 **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. 1.60 **EUSES** calculation Marine water sediment mg/kg dwt Not evaluated. 0.212 **EUSES** calculation Local concentration **Justification** PEC soil (local+regional) 4.75x10-10 **EUSES** calculation Agricultural soil averaged mg/kg 0.114 dwt Grassland averaged mg/kg dwt 9.40x10-10 0.114 **EUSES** calculation Groundwater mg/l 1.13x10-3 **EUSES** calculation Not evaluated. Local concentration PEC air (local+regional) **Justification** During emission mg/m³ 2.22x10-11 Not evaluated. **EUSES** calculation Annual average mg/m³ 2.93x10-8 2.22x10-11 **EUSES** calculation Annual deposition mg/m²/d 4.01x10-11 **EUSES** calculation Not evaluated. **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: Use of coatings and adhesives

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

25%; 5%; 25%; 5%

60 kg

article::

Exposure estimation and reference to its source -

Consumers: 0: Use of coatings

and adhesives

Adhesives, sealants - 3; 3; 2; 2

Mixing and loading;

Adhesives, sealants -

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

Inhalation:

Mode of release: evaporation

Exposure estimation and reference to its source -Consumers: 1: Use of coatings and adhesives

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):

weight (g/mole):

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

Dermal:

Application methods: instant

Triethylenetetramine, TETA

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

Subsequent service life relevant for that use: No. Environmental Release Category: ERC08a, ERC08b, ERC08c, ERC08d,

ERC08e, ERC08f

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

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ConsExpo 4.1

Surface area (Skin contact

area) cm2:

Product amount (g):

Uptake fraction (Update

model):

Inhalation event (mg/m³):

2; 43; 2; 22

0.05; 0.1; 0.02; 1

11.2; 3.0; 11.5; 3.1

Inhalation mg/m³

Dermal External dose (mg/kg bw):

Dermal (Internal dose) mg/kg

(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

Dermal load (mg/cm2):

0.208; 0.08; 0.08; 1.67

bw/day:

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

Inhalation (mg/kg/day) Long

term exposure:

0.039; 0.188; 0.040; 0.191

0.002; 0.001; 5E-4; 0.001

Section 3.3 Exposure estimation- Consumers

Contributing scenario controlling consumer exposure for 3: Use of coatings and adhesives

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

Dermal

Long term exposure, Systemic, Inhalable

Not applicable.

Not applicable.

Long term exposure, Systemic,

Not applicable.

Not applicable.

Not applicable. Not applicable.

Combined

Long term exposure, Local, Dermal

Not applicable.

Not applicable.

Not applicable.

Long term exposure, Local, Inhalable

Not applicable.

Not applicable.

Not applicable.

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

Not applicable.

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

Dermal

Short term exposure, Systemic,

Inhalable

Short term exposure, Systemic, Not applicable.

Combined

Oral

Short term exposure, Local, Dermal Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Short term exposure, Local, Inhalable

Not applicable.

Not applicable.

Not applicable. Not applicable.

Short term exposure, Systemic,

Not applicable.

Not applicable.

Not applicable.

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

Environment Not available. Health Not available.

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

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

Triethylenetetramine, TETA

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

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC08a, ERC08b, ERC08c, ERC08d, ERC08e, ERC08f

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



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition Multi-constituent substance **Product name** Triethylenetetramine, TETA

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 environment	al exposure
---------------------	----------------	-------------

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region 10% 4650 Regional use tonnage Fraction of Regional tonnage used locally 25% **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)

Environment factors not influenced by risk management:

1000 River flow rate:>= 2.0x10 6 m3/d Local freshwater dilution factor

Local marine water dilution factor Not applicable.

Other given operational conditions affecting environmental

Indoor industrial setting

Release fraction to air from process (initial release prior to

1.1x10-3

Release fraction to soil from process (initial release prior to

1.0x10-4

Release fraction to wastewater from process (initial release

prior to RMM)

4.03x10-5

Release fraction to air from wide dispersive use (regional

Not available.

Release fraction to soil from wide dispersive use (regional

only) only)

Not available.

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

prevent release:

Not applicable.

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Triethylenetetramine, TETA

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

Not available.

=>37.4

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: Not applicable.

Amounts used:

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

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:

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:

10%

1000

Not applicable.

Indoor industrial setting

1.1x10-3

1.0x10-4

4.03x10-5

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%.

=>37.4

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

Triethylenetetramine, TETA

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.

Amounts used:

Not available. Fraction of EU tonnage used in region

2418 Regional use tonnage Fraction of Regional tonnage used locally 25% **Annual site tonnage** 604 Average Local Daily Tonnage (kg/day): 2684

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

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

Not available.

Indoor industrial setting

1.1x10-3

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%.

No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Manufacture of coatings, adhesives and inks (and powder products)

Operational conditions: Indoor use

Emission Days (days/year)

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region

Regional use tonnage 10230 Fraction of Regional tonnage used locally 25% 2560 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 11378

Maximum daily site tonnage

Frequency and duration of use:

Environment factors not influenced by risk management:

Local freshwater dilution factor 10 Local marine water dilution factor 100

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:

Assumed on-site sewage treatment plant flow

Not available.

225

Not available.

Continuous release

Indoor industrial setting

1.1x10-3

5.0x10-5

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%.

=>37.4

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

Process Category: PROC05, PROC08a, PROC08b, PROC09

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:

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.

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 concentrations up to 2%

Amounts used: Not applicable.

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

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

Indoor industrial setting

Not applicable.

Technical conditions and measures at process level

Other given operational conditions affecting workers

(source) to prevent release:

exposure:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

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

containers at dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers 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.

Triethylenetetramine, TETA

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:

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:

Frequency and duration of use:

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 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	0.625	73.1	EUSES calculation
Surface water	Not evaluated.	18.3	EUSES calculation
air (direct + STP)	17.1	47.3	EUSES calculation
Soil (direct releases only)	Not evaluated.	29.3	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.196	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	295	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.94x10-4	1.63x10-3	EUSES calculation
Marine water mg/l	1.94x10-3	2.08x10-3	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.	0.82	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	1.05	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0832	0.197	EUSES calculation
Grassland averaged mg/kg dwt	0.165	0.279	EUSES calculation
Groundwater mg/l	Not evaluated.	1.98x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.7x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	3.9x10-3	3.9x10-3	EUSES calculation
Annual deposition mg/m²/d	7.0x10-3	Not evaluated.	EUSES calculation

Triethylenetetramine, TETA

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 concentration PEC aquatic (local+regional) Justification

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

Section 3.1 Environment - Exposure estimation

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

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.625	73.1	EUSES calculation
Surface water	Not evaluated.	18.3	EUSES calculation
air (direct + STP)	17.1	47.3	EUSES calculation
Soil (direct releases only)	Not evaluated.	29.3	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.196	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	295	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.94x10-4	1.63x10-3	EUSES calculation
Marine water mg/l	1.94x10-3	2.08x10-3	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.	0.82	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	1.05	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0832	0.197	EUSES calculation
Grassland averaged mg/kg dwt	0.165	0.279	EUSES calculation
Groundwater mg/l	Not evaluated.	1.98x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.7x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	3.9x10-3	3.9x10-3	EUSES calculation
Annual deposition mg/m²/d	7.0x10-3	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	0.513	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	3.0	14	EUSES calculation
Soil (direct releases only)	Not evaluated.	1.27	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

Triethylenetetramine, TETA

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	1.43.x10-3	EUSES calculation
Marine water mg/l	0	1.43x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0108	0.125	EUSES calculation
Grassland averaged mg/kg dwt	0.0214	0.135	EUSES calculation
Groundwater mg/l	Not evaluated.	1.24x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	8.2x10-4	Not evaluated.	EUSES calculation
Annual average mg/m³	5.1x10-4	5.1x10-4	EUSES calculation
Annual deposition mg/m²/d	9.1x10-4	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 3: Manufacture of coatings, adhesives and inks (and powder products)

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.568	0.35	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	12.5	7.71	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.178	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	269	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.77x10-2	1.91x10-2	EUSES calculation
Marine water mg/l	1.77x10-3	1.91x10-3	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.	9.64	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.96	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0458	0.16	EUSES calculation
Grassland averaged mg/kg dwt	0.0907	0.20	EUSES calculation
Groundwater mg/l	Not evaluated.	1.6x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.5x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	2.1x10-3	5.1x10-4	EUSES calculation
Annual deposition mg/m²/d	3.9x10-3	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Triethylenetetramine, TETA

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

Section 3.2 Workers - Exposure esti		or blanding in betch processes	for formulation of properties and entire
(multistage and/or significant contact		or blending in batch processes	for formulation of preparations and articles
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.005	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 DNE has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3.2 Workers - Exposure estil Contributing scenario controlling we containers at non-dedicated facilitie	orker exposure for 1: Transfe	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.	0.005	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

Not applicable.

Not applicable.

Triethylenetetramine, TETA

Long term exposure, Systemic,

Long term exposure, Local, Dermal Not evaluated.

Combined

Not evaluated.

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

below this value

Not applicable.

Not applicable.

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

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. 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. 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. 0.61 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 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities Route of exposure **Contributing scenarios Dose/Concentration Justification** The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.005 **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. 0.61 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Not applicable. Long term exposure, Local, Dermal Not applicable. Not applicable. Long term exposure, Local, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Dermal** Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, Not applicable. 1.22 The ECETOC TRA tool has been used to

Inhalable

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

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, ERC02, ERC06a 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, The ECETOC TRA tool has been used to Not applicable. 0.005 estimate workplace exposures unless

otherwise indicated. 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

Not applicable.

1.22

Inhalable

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

below this value

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

Combined

Inhalable

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

Not applicable.

Short term exposure, Systemic,

Not applicable. **Dermal**

Not applicable.

Short term exposure, Systemic,

Not applicable.

Not applicable. Not applicable.

Inhalable

Not applicable.

Short term exposure, Systemic,

Not applicable. Not applicable.

Combined

Short term exposure, Local, Dermal Not applicable.

Not applicable. Not applicable.

Short term exposure, Local, Inhalable

Not applicable.

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

below this value

Section 4: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

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

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 Multi-constituent substance **Product name** Triethylenetetramine, TETA

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

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region 10% Regional use tonnage 4650 Fraction of Regional tonnage used locally 25% 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 River flow rate: >=2.0x10 6m3/d

Local marine water dilution factor Not applicable.

Other given operational conditions affecting environmental

exposure:

Indoor industrial setting

Release fraction to air from process (initial release prior to

1 1x10-3 1.0x10-4

4.03x10-5

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

Release fraction to wastewater from wide dispersive use

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

Not available. Not available.

Not applicable.

Triethylenetetramine, TETA

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)

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: Not applicable.

Amounts used:

10% Fraction of EU tonnage used in region Regional use tonnage 4650 Fraction of Regional tonnage used locally 25% 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 River flow rate: >=2.0x10 6m3/d Local freshwater dilution factor

Local marine water dilution factor

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:

300

Not applicable.

Indoor industrial setting

1.1x10-3

1.0x10-4

4.03x10-5

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%.

=>37.4

Not available.

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

Triethylenetetramine, TETA

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.

Amounts used:

Fraction of EU tonnage used in region Not available.

2418 Regional use tonnage 25% Fraction of Regional tonnage used locally **Annual site tonnage** 604 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage Frequency and duration of use: Continuous release

225 **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

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:

2684

Not available.

Not available.

Indoor industrial setting

1.1x10-3

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%.

Not applicable as there is no release to wastewater.

Not available.

Triethylenetetramine, TETA

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 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Manufacture of coatings, adhesives and inks (and powder products)

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

Regional use tonnage Fraction of Regional tonnage used locally 25% **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 11378

Maximum daily site tonnage

Frequency and duration of use: Continuous release

Emission Days (days/year) 225

Environment factors not influenced by risk management:

10 Local freshwater dilution factor Local marine water dilution factor 100

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:

Assumed on-site sewage treatment plant flow

10230

Not available.

Indoor industrial setting

1.1x10-3

5.0x10-5

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%.

=>37.4

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

Triethylenetetramine, TETA

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:

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:

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

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:

Amounts used:

Frequency and duration of use: Do not use for more than 4 hours

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.

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

Amounts used: Not applicable.

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

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

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. Wear appropriate respiratory protection. with a

minimum efficacy of 90%

Triethylenetetramine, TETA

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.

Local exhaust ventilation should be provided. with a minimum efficacy 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 use for more than 1 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.

Triethylenetetramine, TETA

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

Not applicable.

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:

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

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

Avoid carrying out operation for more than 4 hours.

Indoor industrial setting

Not applicable.

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

removal efficiency of 90%

Not applicable.

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

Section 2.2 Control of worker exposure

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

Product characteristics:

Amounts used:

Frequency and duration of use:

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

Not applicable.

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

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

Indoor industrial setting

Not applicable.

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

removal efficiency of 90%

Not applicable.

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

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%

Triethylenetetramine, TETA

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	0.625	73.1	EUSES calculation
Surface water	Not evaluated.	18.3	EUSES calculation
air (direct + STP)	17.1	47.3	EUSES calculation
Soil (direct releases only)	Not evaluated.	29.3	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.196	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	295	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.94x10-4	1.63x10-3	EUSES calculation
Marine water mg/l	1.94x10-3	2.08x10-3	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.	0.82	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	1.05	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0832	0.197	EUSES calculation
Grassland averaged mg/kg dwt	0.165	0.279	EUSES calculation
Groundwater mg/l	Not evaluated.	1.98x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.7x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	3.9x10-3	3.9x10-3	EUSES calculation
Annual deposition mg/m²/d	7.0x10-3	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

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 relevant for that use: No.

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	0.625	73.1	EUSES calculation
Surface water	Not evaluated.	18.3	EUSES calculation
air (direct + STP)	17.1	47.3	EUSES calculation
Soil (direct releases only)	Not evaluated.	29.3	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.196	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	295	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.94x10-4	1.63x10-3	EUSES calculation
Marine water mg/l	1.94x10-3	2.08x10-3	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.	0.82	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	1.05	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0832	0.197	EUSES calculation
Grassland averaged mg/kg dwt	0.165	0.279	EUSES calculation
Groundwater mg/l	Not evaluated.	1.98x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.7x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	3.9x10-3	3.9x10-3	EUSES calculation
Annual deposition mg/m²/d	7.0x10-3	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	0.513	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	3.0	14	EUSES calculation
Soil (direct releases only)	Not evaluated.	1.27	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	1.43.x10-3	EUSES calculation
Marine water mg/l	0	1.43x10-4	EUSES calculation

Triethylenetetramine, TETA

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 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

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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0108	0.125	EUSES calculation
Grassland averaged mg/kg dwt	0.0214	0.135	EUSES calculation
Groundwater mg/l	Not evaluated.	1.24x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	8.2x10-4	Not evaluated.	EUSES calculation
Annual average mg/m³	5.1x10-4	5.1x10-4	EUSES calculation
Annual deposition mg/m²/d	9.1x10-4	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 3: Manufacture of coatings, adhesives and inks (and powder products)

Total release for regional

Release from point source

Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.
	Local concentration	PEC aquatic (local+regional)	Justification
Annual deposition mg/m²/d	3.9x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	2.1x10-3	5.1x10-4	EUSES calculation
During emission mg/m³	3.5x10-3	Not evaluated.	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
Groundwater mg/l	Not evaluated.	1.6x10-3	EUSES calculation
Grassland averaged mg/kg dwt	0.0907	0.20	EUSES calculation
Agricultural soil averaged mg/kg dwt	0.0458	0.16	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Marine water sediment mg/kg dwt	Not evaluated.	0.96	EUSES calculation
Fresh water sediment mg/kg dwt	Not evaluated.	9.64	EUSES calculation
	Local concentration	PEC sediment (local+regional)	Justification
Intermittent release. mg/l	Not applicable	Not applicable	Not applicable.
Marine water mg/l	1.77x10-3	1.91x10-3	EUSES calculation
Fresh water mg/l	1.77x10-2	1.91x10-2	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Concentration in sewage sludge mg/kg dwt	269	EUSES calculation	
mg/l	260	ELISES coloulation	
Concentration in sewage (PECstp)	0.178	EUSES calculation	
	Value	Justification	
Soil (direct releases only)	Not evaluated.	0	TableR16.23 [REACH]
air (direct + STP)	12.5	7.71	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
Waste water	day 0.568	0.35	EUSES calculation
	(local exposure estimation) kg/	exposure estimation kg/day	

Triethylenetetramine, TETA

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

Justification

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.	0.007	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.06	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
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.	0.12	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

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

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.548	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
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.

Triethylenetetramine, TETA

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

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

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

Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Dermal** Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, Not applicable. The ECETOC TRA tool has been used to 0.55 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 2: Use in closed batch process (synthesis or formulation) Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.14 estimate workplace exposures unless **Dermal** otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value 0.30 The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value 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. The ECETOC TRA tool has been used to 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

Triethylenetetramine, TETA

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

below this value

Substance supplied to that use in form of: As such

exposure estimates for other PROC are

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 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	mation		
	orker exposure for 4: 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.	0.27	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.	0.30	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.

ong term exposure, Systemic,

Not applicable.

Long term exposure, Local,

Inhalable

Combined

Long term exposure, Local, Dermal Not applicable.

Not applicable

Not applicable. Not applicable.

Not applicable. Since the substance is not classified for

acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, Dermal

Not applicable

Not applicable.

Since the substance is not classified for

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

Short term exposure, Systemic, Inhalable

Not applicable

Not applicable

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.

Triethylenetetramine, TETA

Short term exposure, Systemic,

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. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. Short term exposure, Local, Not applicable. 0.60 The ECETOC TRA tool has been used to 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: 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. 0.27 Dermal estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value 0.37 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. 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. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL Combined has been derived. Short term exposure, Local, Dermal Not applicable. Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. The ECETOC TRA tool has been used to Short term exposure, Local, Not applicable. 0.74 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 6: 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

Triethylenetetramine, TETA

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.	0.548	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
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
Section 3.2 Workers - Exposure esti Contributing scenario controlling we including weighing)		er of substance or preparation in	nto small containers (dedicated filling line,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.30	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

Dermal

Not applicable. Not applicable

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

Short term exposure, Systemic,

Not applicable

Not applicable.

Not applicable.

has been derived.

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

has been derived.

Short term exposure, Systemic, 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 Combined

Not applicable.

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

has been derived.

Triethylenetetramine, TETA

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.

Since the substance is not classified for

acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, Not applicable. 0.62

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 8: Use a laboratory reagent

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

Long term exposure, Systemic, **Dermal**

Not applicable.

0.14

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

The ECETOC TRA tool has been used to

below this value

Long term exposure, Systemic,

Inhalable

Not applicable.

0.30

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

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

below this value Not applicable.

Not applicable.

Not applicable.

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.

0.62

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.

Triethylenetetramine, TETA

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



Professional

Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

definition of the substance of mixture

 Product definition
 Multi-constituent substance

 Product name
 Triethylenetetramine, TETA

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.

Amounts used:

Fraction of EU tonnage used in region 10%
Regional use tonnage 4650
Fraction of Regional tonnage used locally 25%
Annual site tonnage 4650
Average Local Daily Tonnage (kg/day): 15500

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 Not applicable.

Other given operational conditions affecting environmental

exposure:

Indoor industrial setting

Release fraction to air from process (initial release prior to

RMM,

1.1x10-3

Release fraction to soil from process (initial release prior to

RMM

1.0x10-4

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

4.03x10-5

Release fraction to air from wide dispersive use (regional

only)

Not available.

Release fraction to soil from wide dispersive use (regional

only)

Not available.

Release fraction to wastewater from wide dispersive use

Technical conditions and measures at process level (source) to

Not available.

Not applicable.

prevent release:

chnical on-site conditions and measures to reduce or limit

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

Triethylenetetramine, TETA 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.

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

Treat air emission to provide a typical removal efficiency of

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

to provide the required removal efficiency of

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Conditions and measures related to municipal sewage treatment

plant:

2000 Assumed on-site sewage treatment plant flow

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

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 Not applicable.

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

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow

10%

=>37.4

Not available.

Not available.

300

Indoor industrial setting

1.1x10-3

1.0x10-4

4.03x10-5

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%.

=>37.4

Not available.

2000

Triethylenetetramine, TETA

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 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Formulation of preparations

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region

Regional use tonnage Fraction of Regional tonnage used locally 25% 604 **Annual site tonnage** 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 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 Conditions and measures related to municipal sewage treatment

plant:

Not available.

2418

2684

Not available.

Continuous release

225

Indoor industrial setting

1.1x10-3

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%.

No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Manufacture of coatings, adhesives and inks (and powder products)

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

10230 Regional use tonnage Fraction of Regional tonnage used locally 25% 2560 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 11378

Triethylenetetramine, TETA

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

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

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

Environment factors not influenced by risk management:

Local freshwater dilution factor 10 Local marine water dilution factor 100

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

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow

Indoor industrial setting

1.1x10-3

5.0x10-5

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%.

=>37.4

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

2000

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers Indoor professional setting exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Not applicable.

Not applicable.

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

management supervision controls.

Triethylenetetramine, TETA

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 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	0.625	73.1	EUSES calculation
Surface water	Not evaluated.	18.3	EUSES calculation
air (direct + STP)	17.1	47.3	EUSES calculation
Soil (direct releases only)	Not evaluated.	29.3	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.196	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	295	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.94x10-4	1.63x10-3	EUSES calculation
Marine water mg/l	1.94x10-3	2.08x10-3	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.	0.82	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	1.05	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0832	0.197	EUSES calculation
Grassland averaged mg/kg dwt	0.165	0.279	EUSES calculation
Groundwater mg/l	Not evaluated.	1.98x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.7x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	3.9x10-3	3.9x10-3	EUSES calculation
Annual deposition mg/m²/d	7.0x10-3	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

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

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.625	73.1	EUSES calculation
	*		
Surface water	Not evaluated.	18.3	EUSES calculation
air (direct + STP)	17.1	47.3	EUSES calculation
Soil (direct releases only)	Not evaluated.	29.3	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.196	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	295	EUSES calculation	

Triethylenetetramine, TETA

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

	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.94x10-4	1.63x10-3	EUSES calculation
Marine water mg/l	1.94x10-3	2.08x10-3	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.	0.82	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	1.05	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0832	0.197	EUSES calculation
Grassland averaged mg/kg dwt	0.165	0.279	EUSES calculation
Groundwater mg/l	Not evaluated.	1.98x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.7x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	3.9x10-3	3.9x10-3	EUSES calculation
Annual deposition mg/m²/d	7.0x10-3	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

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Formulation of preparations

Release from point source

	uay		
Waste water	0	0.513	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	3.0	14	EUSES calculation
Soil (direct releases only)	Not evaluated.	1.27	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	1.43.x10-3	EUSES calculation
Marine water mg/l	0	1.43x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0108	0.125	EUSES calculation
Grassland averaged mg/kg dwt	0.0214	0.135	EUSES calculation
Groundwater mg/l	Not evaluated.	1.24x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	8.2x10-4	Not evaluated.	EUSES calculation
Annual average mg/m³	5.1x10-4	5.1x10-4	EUSES calculation
Annual deposition mg/m²/d	9.1x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Triethylenetetramine, TETA

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

Justification

Professional Process Category: PROC08a

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

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Manufacture of coatings, adhesives and inks (and powder products)

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.568	0.35	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	12.5	7.71	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.178	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	269	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.77x10-2	1.91x10-2	EUSES calculation
Marine water mg/l	1.77x10-3	1.91x10-3	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.	9.64	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.96	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0458	0.16	EUSES calculation
Grassland averaged mg/kg dwt	0.0907	0.20	EUSES calculation
Groundwater mg/l	Not evaluated.	1.6x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.5x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	2.1x10-3	5.1x10-4	EUSES calculation
Annual deposition mg/m²/d	3.9x10-3	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.2 Workers - Exposure estimation

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

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

Triethylenetetramine, TETA

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

. Professional

Process Category: PROC08a

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

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

Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL Combined has been derived. 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, 1.52 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 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.



Industrial

Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Product definition

Multi-constituent substance **Product name** Triethylenetetramine, TETA

Section 1: Title

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

preparations containing EA up to 0.5% - Industrial

Process Category: PROC05, PROC08a, PROC08b, PROC09

Substance supplied to that use in form of: As such

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Section 2: Operational conditions and risk management measures

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region 10% 4650 Regional use tonnage Fraction of Regional tonnage used locally 25% **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)

Environment factors not influenced by risk management:

Local freshwater dilution factor 1000 River flow rate: >= 2.0x10 6m3/d

Local marine water dilution factor Not applicable.

Other given operational conditions affecting environmental

Indoor industrial setting

Release fraction to air from process (initial release prior to

1.1x10-3

Release fraction to soil from process (initial release prior to

1.0x10-4

Release fraction to wastewater from process (initial release

4.03x10-5

Release fraction to air from wide dispersive use (regional

prior to RMM)

Not available.

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 applicable.

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Triethylenetetramine, TETA 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.

=>37.4

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: Not applicable.

Amounts used:

Fraction of EU tonnage used in region 10% Regional use tonnage 4650 25% Fraction of Regional tonnage used locally **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)

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

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 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:

Assumed on-site sewage treatment plant flow

300

1000 River flow rate: >= 2.0x10 6m3/d

Not applicable.

Indoor industrial setting

1.1x10-3

1.0x10-4

4.03x10-5

Not available.

Not available.

Not available.

Not available.

Not available.

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

Triethylenetetramine, TETA

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 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Formulation of preparations

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 2418 Fraction of Regional tonnage used locally 25% 604 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 2684

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

Emission Days (days/year) 225

Environment factors not influenced by risk management:

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

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

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 industrial setting

1.1x10-3

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.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Manufacture of coatings, adhesives and inks (and powder products)

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

Regional use tonnage 10230 Fraction of Regional tonnage used locally 2560 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 11378

Maximum daily site tonnage Not available.

Frequency and duration of use:

Emission Days (days/year) 225

Environment factors not influenced by risk management:

Local freshwater dilution factor 10 Local marine water dilution factor 100

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:

Assumed on-site sewage treatment plant flow

25%

Continuous release

Indoor industrial setting

1.1x10-3

5.0x10-5

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%.

=>37.4

Not available.

Prevent discharge of undissolved substance to or recover from onsite

wastewater.

2000

Triethylenetetramine, TETA

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%

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:

Not applicable.

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:

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.

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

Indoor industrial setting

Not applicable.

Not applicable.

Not applicable.

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

management supervision controls.

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.

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:

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

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

management supervision controls.

Triethylenetetramine, TETA

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 2.2 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:

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.

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 water	0.625	73.1	EUSES calculation
Surface water	Not evaluated.	18.3	EUSES calculation
air (direct + STP)	17.1	47.3	EUSES calculation
Soil (direct releases only)	Not evaluated.	29.3	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.196	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	295	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.94x10-4	1.63x10-3	EUSES calculation
Marine water mg/l	1.94x10-3	2.08x10-3	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.	0.82	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	1.05	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0832	0.197	EUSES calculation
Grassland averaged mg/kg dwt	0.165	0.279	EUSES calculation
Groundwater mg/l	Not evaluated.	1.98x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.7x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	3.9x10-3	3.9x10-3	EUSES calculation
Annual deposition mg/m²/d	7.0x10-3	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification

Triethylenetetramine, TETA

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

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	0.625	73.1	EUSES calculation
Surface water	Not evaluated.	18.3	EUSES calculation
air (direct + STP)	17.1	47.3	EUSES calculation
Soil (direct releases only)	Not evaluated.	29.3	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.196	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	295	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.94x10-4	1.63x10-3	EUSES calculation
Marine water mg/l	1.94x10-3	2.08x10-3	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.	0.82	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	1.05	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0832	0.197	EUSES calculation
Grassland averaged mg/kg dwt	0.165	0.279	EUSES calculation
Groundwater mg/l	Not evaluated.	1.98x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.7x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	3.9x10-3	3.9x10-3	EUSES calculation
Annual deposition mg/m²/d	7.0x10-3	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	0.513	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	3.0	14	EUSES calculation
Soil (direct releases only)	Not evaluated.	1.27	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	1.43 x10-3	FUSES calculation

Triethylenetetramine, TETA

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

Marine water mg/l	0	1.43x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0108	0.125	EUSES calculation
Grassland averaged mg/kg dwt	0.0214	0.135	EUSES calculation
Groundwater mg/l	Not evaluated.	1.24x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	8.2x10-4	Not evaluated.	EUSES calculation
Annual average mg/m³	5.1x10-4	5.1x10-4	EUSES calculation
Annual deposition mg/m²/d	9.1x10-4	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 3: Manufacture of coatings, adhesives and inks (and powder products)

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.568	0.35	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	12.5	7.71	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23 [REACH]
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.178	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	269	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.77x10-2	1.91x10-2	EUSES calculation
Marine water mg/l	1.77x10-3	1.91x10-3	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.	9.64	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.96	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0458	0.16	EUSES calculation
Grassland averaged mg/kg dwt	0.0907	0.20	EUSES calculation
Groundwater mg/l	Not evaluated.	1.6x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.5x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	2.1x10-3	5.1x10-4	EUSES calculation
Annual deposition mg/m²/d	3.9x10-3	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Triethylenetetramine, TETA

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

(multistage and/or significant contact 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 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 esti	mation		
	orker exposure for 1: Transfe	r of substance or preparation (c	charging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.001	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.	
Long term exposure, Systemic, Combined Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	below this value
Combined			below this value Not applicable.

Triethylenetetramine, TETA

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, Since the substance is not classified for Not applicable Not applicable. Inhalable acute effects and therefore, no acute DNEL has been derived. Not applicable Not applicable. Since the substance is not classified for Short term exposure, Systemic, 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. 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 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.001 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 Not applicable. Long term exposure, Systemic, Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Dermal** Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Combined Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, Not applicable. 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 3: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) Route of exposure **Contributing scenarios Dose/Concentration Justification** The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.001 **Dermal** estimate workplace exposures unless

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

below this value

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

Industrial

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

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Long term exposure, Systemic, Not applicable.

0.76

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

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

below this value Not applicable.

Long term exposure, Systemic, 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

Combined

Inhalable

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

Dermal

Short term exposure, Systemic,

Short term exposure, Local,

Short term exposure, Systemic, Not applicate Inhalable

Short term exposure, Local, Dermal Not applicable.

Not applicable.

Not applicable.

Not applicable.

nic, Not applicable. Not applicable. Not applicable.

Not applicable. Not applicable.

.....

Not applicable. Not applicable.

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

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

below this value

Section 4: Guidance to check compliance with the exposure scenario

EnvironmentNot available.HealthNot available.

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

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.



Annex to the extended Safety Data Sheet (eSDS)

Identification of the substance or mixture

Professional

Product definition Multi-constituent substance **Product name** Triethylenetetramine, TETA

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	ot environmen	tal exposure
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Contributing scenario controlling environmental exposure for 0: Manufacture of substances

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region 10% 4650 Regional use tonnage Fraction of Regional tonnage used locally 25% **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)

Environment factors not influenced by risk management:

1000 River flow rate: >=2.0x10 6m3/d Local freshwater dilution factor

Local marine water dilution factor Not applicable.

Other given operational conditions affecting environmental

Indoor industrial setting

Release fraction to air from process (initial release prior to

1.1x10-3

Release fraction to soil from process (initial release prior to

1.0x10-4

Release fraction to wastewater from process (initial release

4.03x10-5

Release fraction to air from wide dispersive use (regional

prior to RMM)

Not available.

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 applicable.

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Triethylenetetramine, TETA

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.

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

Treat air emission to provide a typical removal efficiency of

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

to provide the required removal efficiency of

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow

Not available.

2000

=>37.4

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

Maximum daily site tonnage Frequency and duration of use: Continuous release

Emission Days (days/year) 300

Environment factors not influenced by risk management:

1000 River flow rate: >=2.0x10 6m3/d 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

Conditions and measures related to municipal sewage treatment plant:

Assumed on-site sewage treatment plant flow

10%

Not available.

Not applicable.

Indoor industrial setting

1.1x10-3

1.0x10-4

4.03x10-5

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%.

=>37.4

Not available.

2000

Triethylenetetramine, TETA

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 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Formulation of preparations

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region

Regional use tonnage 2418 Fraction of Regional tonnage used locally 604 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 2684

Maximum daily site tonnage 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 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

Conditions and measures related to municipal sewage treatment plant:

Not available.

25%

Not available.

Continuous release

225

Not available.

Indoor industrial setting

1.1x10-3

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%.

No wastewater treatment required.

Not available

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Manufacture of coatings, adhesives and inks (and powder products)

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

10230 Regional use tonnage Fraction of Regional tonnage used locally 25% 2560 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 11378

Triethylenetetramine, TETA

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

Maximum daily site tonnage Not available.

Frequency and duration of use: Continuous release

Emission Days (days/year) 225

Environment factors not influenced by risk management:

Local freshwater dilution factor 10

Local marine water dilution factor 100

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM)

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

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

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

Release fraction to soil from wide dispersive use (regional

Release fraction to wastewater from wide dispersive use

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

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

.

Indoor industrial setting

1.1x10-3

5.0x10-5

Not available

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%.

=>37.4

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

2000

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers Indoor industrial setting exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

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.

Triethylenetetramine, TETA

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 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	0.625	73.1	EUSES calculation
Surface water	Not evaluated.	18.3	EUSES calculation
air (direct + STP)	17.1	47.3	EUSES calculation
Soil (direct releases only)	Not evaluated.	29.3	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.196	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	295	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.94x10-4	1.63x10-3	EUSES calculation
Marine water mg/l	1.94x10-3	2.08x10-3	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.	0.82	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	1.05	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0832	0.197	EUSES calculation
Grassland averaged mg/kg dwt	0.165	0.279	EUSES calculation
Groundwater mg/l	Not evaluated.	1.98x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.7x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	3.9x10-3	3.9x10-3	EUSES calculation
Annual deposition mg/m²/d	7.0x10-3	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

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

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.625	73.1	EUSES calculation
Surface water	Not evaluated.	18.3	EUSES calculation
air (direct + STP)	17.1	47.3	EUSES calculation
Soil (direct releases only)	Not evaluated.	29.3	EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.196	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	295	EUSES calculation	

Triethylenetetramine, TETA

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

	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.94x10-4	1.63x10-3	EUSES calculation
Marine water mg/l	1.94x10-3	2.08x10-3	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.	0.82	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	1.05	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0832	0.197	EUSES calculation
Grassland averaged mg/kg dwt	0.165	0.279	EUSES calculation
Groundwater mg/l	Not evaluated.	1.98x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.7x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	3.9x10-3	3.9x10-3	EUSES calculation
Annual deposition mg/m²/d	7.0x10-3	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

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Formulation of preparations

Release from point source

	day		
Waste water	0	0.513	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	3.0	14	EUSES calculation
Soil (direct releases only)	Not evaluated.	1.27	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	1.43.x10-3	EUSES calculation
Marine water mg/l	0	1.43x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0108	0.125	EUSES calculation
Grassland averaged mg/kg dwt	0.0214	0.135	EUSES calculation
Groundwater mg/l	Not evaluated.	1.24x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	8.2x10-4	Not evaluated.	EUSES calculation
Annual average mg/m³	5.1x10-4	5.1x10-4	EUSES calculation
Annual deposition mg/m²/d	9.1x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Triethylenetetramine, TETA

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

Justification

Professional Process Category: PROC08a

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

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC06a

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Manufacture of coatings, adhesives and inks (and powder products)

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.568	0.35	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	12.5	7.71	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.178	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	269	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.77x10-2	1.91x10-2	EUSES calculation
Marine water mg/l	1.77x10-3	1.91x10-3	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.	9.64	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.96	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.0458	0.16	EUSES calculation
Grassland averaged mg/kg dwt	0.0907	0.20	EUSES calculation
Groundwater mg/l	Not evaluated.	1.6x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.5x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	2.1x10-3	5.1x10-4	EUSES calculation
Annual deposition mg/m²/d	3.9x10-3	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

Contributing scenarios	Dose/Concentration	Justification
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
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
Not evaluated.	Not applicable.	Not applicable.
Not evaluated.	Not applicable.	Not applicable.
Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
	Not applicable. Not applicable. Not evaluated. Not evaluated.	Not applicable. Not applicable. 0.005 Not applicable. Not evaluated. Not applicable. Not applicable.

Triethylenetetramine, TETA

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 relevant for that use: No

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

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

acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local,

Inhalable

0.61 Not applicable.

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

below this value

Section 4: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

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

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



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition Multi-constituent substance **Product name** Triethylenetetramine. TETA

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, ERC02, ERC04, ERC10b

Section 2: Operational conditions and risk management measures

Section	on 2.1	Contro	l o	f env	ironmen	tal	exposure
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Contributing scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 4650 Fraction of Regional tonnage used locally 25% Annual site tonnage 1160 12.74 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 10 Local marine water dilution factor 100 None.

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to 1.1x10-3

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.

Not available.

Not available. 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, ERC02, ERC04, ERC10b

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Triethylenetetramine, TETA

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 plant:

Organisational measures to prevent/limit release from site:

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

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

No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

2418 Regional use tonnage Fraction of Regional tonnage used locally **Annual site tonnage** 604 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 10 Local marine water dilution factor 100

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%

2745

Not available.

220

None.

1.1x10-5

0.02

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%.

=>37.4

Not available.

Triethylenetetramine, TETA

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, ERC02, ERC04, ERC10b

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: Indoor professional setting

Technical conditions and measures at process level Not applicable.

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

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 1: Calendering operations

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers Indoor industrial setting exposure: Indoor professional setting

Technical conditions and measures at process level

Not applicable.

(source) to prevent release:

Technical conditions and measures to control

dispersion from source towards the worker:

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

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

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

management supervision controls.

Section 2.2 Control of worker exposure

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

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers Indoor industrial setting exposure: 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.

Triethylenetetramine, TETA

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, PROC016

PROC13, PROC16

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

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC04, ERC10b

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: 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 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.

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: Liquid. Covers concentrations up to 2%

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

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:

Liquid. Covers concentrations up to 2% 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

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.

Triethylenetetramine, TETA

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, ERC02, ERC04, ERC10b

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

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 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: Fuel additive.

Release from point source

(local exposure estimation) kg/

Triothy domestates mine. TETA		Identifications assessed to a figure	
Annual deposition mg/m²/d	8.78x10-7	Not evaluated.	EUSES calculation
Annual average mg/m³	4.87x10-7	5.16x10-7	EUSES calculation
During emission mg/m³	4.87x10-7	Not evaluated.	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
Groundwater mg/l	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	2.06x10-5	1.13x10-3	EUSES calculation
Agricultural soil averaged mg/kg dwt	1.04x10-5	0.114	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
Fresh water sediment mg/kg dwt	Not evaluated.	0.722	EUSES calculation
	Local concentration	PEC sediment (local+regional)	Justification
Intermittent release. mg/l	Not applicable.	Not applicable.	Not applicable.
Marine water mg/l	0	1.42x10-4	EUSES calculation
Fresh water mg/l	0	1.43x10-3	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
mg/l			
Concentration in sewage (PECstp)	0	EUSES calculation	
•	Value	Justification	
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
air (direct + STP)	1.75x10-3	3.5	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
Waste water	day O	0	EUSES calculation

Triethylenetetramine, TETA

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, ERC02, ERC04, ERC10b

Local concentration PEC aquatic (local+regional) Justification

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Wood preservative.

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	2.47	33.1	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	1.24x10-3	1.66x10-2	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.775	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	1.17x10-3	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0.077	0.078	EUSES calculation
Marine water mg/l	7.69x10-3	7.83x10-3	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.	39.5	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	3.95	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.44x10-6	0.114	EUSES calculation
Grassland averaged mg/kg dwt	8.79x10-6	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.44x10-7	Not evaluated.	EUSES calculation
Annual average mg/m³	2.07x10-7	2.36x10-7	EUSES calculation
Annual deposition mg/m²/d	3.75x10-7	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.2 Workers - Exposure estimation

Inhalable

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,	Not applicable.	0.055	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. 0.61 The ECETOC TRA tool has been used to

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

below this value

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

Combined

Triethylenetetramine, TETA

Identified use name: Use of preparations containing eth

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, ERC02, ERC04, ERC10b

Triethylenetetramine, Tl			Identifical	of preparations containing ethylenamines in open
Short term exposure, Lo Short term exposure, Lo Inhalable	cal,	Not applicable 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 estimate workplace 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, Sy Combined	stemic,	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Sylinhalable	stemic,	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Sys Dermal	stemic,	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Long term exposure, Loc Inhalable	cal,	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Long term exposure, Loc		Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Sys Combined	stemic,	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Sys 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, Sys 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
Route of exposure		Contributing scenarios	Dose/Concentration	Justification
Section 3.2 Workers - Ex Contributing scenario co		nation orker exposure for 1: Caler	ndering operations	
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
Short term exposure, Lo		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, Sys		Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Synhalable		Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Sy Dermal	stemic,	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Long term exposure, Loo Inhalable	cal,	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Long term exposure, Loc		Not evaluated.	Not applicable.	Not applicable.

Triethylenetetramine, TETA

dentified 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, ERC02, ERC04, ERC10b

containers at non-dedicated facilities		• • • • •	charging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.110	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.305	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3.2 Workers - Exposure estin			
containers at dedicated facilities	orker exposure for 3: Transfe	er of substance or preparation (c	charging/discharging) from/to vessels/large
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.055	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.
Triethylenetetramine, TETA		processes with low e exposure form - Use o Process Category: PRO	of preparations containing ethylenamines in open exposure potential and evaporation as most likely foreparations containing EA up to 2% - Industrial DC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC16
		Substan	nce supplied to that use in form of: In a mixture

Section 3.2 Workers - Exposure estimation

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Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC10b

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

Not applicable.

Not applicable.

Not applicable.

Not applicable.

1.22

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

Triethylenetetramine, TETA

Not applicable

Not applicable

Not applicable

Not applicable.

Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.

Since the substance is not classified for

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

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.

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

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, ERC02, ERC04, ERC10b

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.110	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.305	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DN 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 DN 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 DN 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 DN 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 DN has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3.2 Workers - Exposure esti	mation		
Contributing scenario controlling wo expected	orker exposure for 6: Using n	naterial as fuel sources, limited	exposure to unburned product to be
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.055	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
. , ,		Not applicable.	Not applicable.

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC10b 88/283

PROC13, PROC16

Sector of end use: SU03, SU22

Process Category: PROC05, PROC06, PROC08a, PROC08b, PROC09,

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

Short term exposure, Systemic,

Dermal

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Short term exposure, Systemic,

Inhalable

Inhalable

Short term exposure, Systemic,

Combined

Not applicable.

Not applicable.

Not applicable. Not applicable.

Short term exposure, Local, Dermal Not applicable.

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

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 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.

Triethylenetetramine, TETA

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, ERC02, ERC04, ERC10b



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition Multi-constituent substance **Product name** Triethylenetetramine. TETA

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, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC04, ERC10b

Section 2: Operational conditions and risk management measures

Contributing scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 4650 Fraction of Regional tonnage used locally 25% Annual site tonnage 1160 12.74 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 10 Local marine water dilution factor 100 None.

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to 1.1x10-3

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.

Not available.

Not available. Not applicable.

Triethylenetetramine, TETA

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, SU22

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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

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

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

No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage Fraction of Regional tonnage used locally **Annual site tonnage** 604 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 10 Local marine water dilution factor 100

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:

2418

25%

2745

Not available.

Continuous release

220

None.

1.1x10-5

0.02

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%.

=>37.4

Not available.

Triethylenetetramine, TETA

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, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC10b

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

Not applicable.

Other given operational conditions affecting workers Indoor industrial setting exposure: Indoor professional setting

Technical conditions and measures at process level Not applicable.

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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: Indoor professional setting Not applicable.

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

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

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

management supervision controls.

Section 2.2 Control of worker exposure

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

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers Indoor industrial setting Indoor professional setting exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

Not applicable.

Not applicable.

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

management supervision controls.

Triethylenetetramine, TETA

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, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC10b

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

containers at dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers Indoor industrial setting exposure:

Indoor professional setting Not applicable.

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

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.

Not applicable.

Section 2.2 Control of worker exposure

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

including weighing)

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

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

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

Not applicable.

Not applicable.

Other given operational conditions affecting workers Indoor industrial setting Indoor professional setting exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

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 professional setting

Technical conditions and measures at process level Not applicable.

(source) to prevent release:

Technical conditions and measures to control

dispersion from source towards the worker:

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

Personal protection:

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.

Triethylenetetramine, TETA

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, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC10b

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

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used:

Not applicable.

Frequency and duration of use:

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

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

Other given operational conditions affecting workers

exposure:

Indoor industrial setting Indoor professional setting

Technical conditions and measures at process level

(source) to prevent release:

Not applicable. Not applicable.

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

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

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

management supervision controls.

Section 2.2 Control of worker exposure

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

expected

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:

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

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.

Total release for regional

Section 3: Exposure estimation

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Fuel additive.

	(local exposure estimation) kg/day	exposure estimation kg/day	
Waste water	0	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	1.75x10-3	3.5	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	Value	Justification	
Concentration in sewage (PECstp)	0	EUSES calculation	

Release from point source

Concentration in sewage (PECstp) mg/l

Concentration in sewage sludge

EUSES calculation

mg/kg dwt

Triethylenetetramine, TETA

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, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC10b

Justification

	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	1.04x10-5	0.114	EUSES calculation
Grassland averaged mg/kg dwt	2.06x10-5	1.13x10-3	EUSES calculation
Groundwater mg/l	Not evaluated.	0.114	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.87x10-7	Not evaluated.	EUSES calculation
Annual average mg/m³	4.87x10-7	5.16x10-7	EUSES calculation
Annual deposition mg/m²/d	8.78x10-7	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

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Release from point source

Triethylenetetramine, TETA		Identified use name: Use of prepa	arations containing ethylena
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.
	Local concentration	PEC aquatic (local+regional)	Justification
Annual deposition mg/m²/d	3.75x10-7	Not evaluated.	EUSES calculation
Annual average mg/m³	2.07x10-7	2.36x10-7	EUSES calculation
During emission mg/m³	3.44x10-7	Not evaluated.	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
dwt Grassland averaged mg/kg dwt	8.79x10-6	0.114	EUSES calculation
Agricultural soil averaged mg/kg	4.44x10-6	0.114	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Marine water sediment mg/kg dwt	Not evaluated.	3.95	EUSES calculation
Fresh water sediment mg/kg dwt	Not evaluated.	39.5	EUSES calculation
	Local concentration	PEC sediment (local+regional)	Justification
Intermittent release. mg/l	Not applicable.	Not applicable.	Not applicable.
Marine water mg/l	7.69x10-3	7.83x10-3	EUSES calculation
Fresh water mg/l	0.077	0.078	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Concentration in sewage sludge mg/kg dwt	1.17x10-3	EUSES calculation	
Concentration in sewage (PECstp) mg/l	0.775	EUSES calculation	
	Value	Justification	
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
air (direct + STP)	1.24x10-3	1.66x10-2	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
Waste water	2.47	33.1	EUSES calculation
	day		

Triethylenetetramine, TETA

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, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC10b

Justification

Triethylenetetramine, TETA		processes with low e exposure form - Use of p	of preparations containing ethylenamines in open exposure potential and evaporation as most likely preparations containing EA up to 0.5% - Industria DC05, PROC06, PROC08a, PROC08b, PROC08
Tricklands and transit ====	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic Inhalable	, Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic Dermal	Not applicable.	Not applicable.	Not applicable.
Inhalable	тос арріїовые.	110ε αρριιοασίο.	ττοι αρμισασίο.
Long term exposure, Local, De Long term exposure, Local,	rmal Not applicable. Not applicable.	Not applicable. Not applicable.	Not applicable. Not applicable.
Combined			•
Long term exposure, Systemic	, Not applicable.	Not applicable.	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	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
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
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Section 3.2 Workers - Exposure Contributing scenario controlli	e estimation ng worker exposure for 1: Calende	ering operations	
			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, Inhalable	Not applicable.	1.52	The ECETOC TRA tool has been used to estimate workplace exposures unless
Short term exposure, Local, De		Not applicable.	Not applicable.
Short term exposure, Systemic Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, De		Not applicable.	Not applicable.
Long term exposure, Systemic Combined	, Not applicable.	Not applicable.	Not applicable.
Long term exposure, Systemic	, 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		0.027	estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Route of exposure	Contributing scenarios	Dose/Concentration	Justification The ECETOC TRA tool has been used to
	contact)		

PROC10, 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.

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, 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 2: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

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

Long term exposure, Systemic,

Dermal

Not applicable.

0.027

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

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

Long term exposure, Systemic,

Inhalable

Not applicable.

0.76

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

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

below this value Not applicable.

Long term exposure, Systemic,

Combined

Long term exposure, Local, Dermal

Long term exposure, Local,

Inhalable

Not evaluated.

Not evaluated.

Not applicable

Not applicable.

Not applicable.

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

acute effects and therefore, no acute DNEL

Since the substance is not classified for

has been derived.

Short term exposure, Systemic, Dermal

Short term exposure, Systemic,

Inhalable

Not applicable

Not applicable

Not applicable.

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

Since the substance is not classified for Not applicable.

acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic,

Short term exposure, Local,

Combined

Inhalable

Short term exposure, Local, Dermal 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.

The ECETOC TRA tool has been used to estimate workplace 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

0.027

1.52

containers at dedicated facilities

Route of exposure Long term exposure, Systemic,

Dermal

Contributing scenarios

Not applicable.

Dose/Concentration

Justification

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

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

below this value

Triethylenetetramine, TETA

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, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC10b

Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	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)

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.
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

Triethylenetetramine, TETA

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, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC10b

Contributing scenarios	Dose/Concentration	Justification
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.	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 evaluated.	Not applicable.	Not applicable.
Not evaluated.	Not applicable.	Not applicable.
Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute 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.	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
nation	ont of outinion by dinning and no	in
•		Justification
		The ECETOC TRA tool has been used to
нот аррисавіе.	0.027	estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Not applicable.	Not applicable.	Not applicable.
Not applicable.	Not applicable.	Not applicable.
Not applicable.	Not applicable.	Not applicable.
	processes with low e exposure form - Use of p	of preparations containing ethylenamines in open xposure potential and evaporation as most likely preparations containing EA up to 0.5% - Industrial DC05, PROC06, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC16
	Not applicable. Not applicable. Not evaluated. 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 evaluated. Not applicable. Not applicable.

Short term exposure, Systemic,

Dermal

Not applicable.

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.

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Local, Inhalable

Not applicable.

1.52

Not applicable. Not applicable.

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

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

below this value

Section 3.2 Workers - Exposure estimation

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

expected

Route of exposure

Not applicable.

Dose/Concentration

Justification

Long term exposure, Systemic,

Dermal

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

Long term exposure, Systemic,

Inhalable

Not applicable.

0.76

The ECETOC TRA tool has been used to

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

below this value

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

Not applicable.

Not applicable. Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

Not applicable. Not applicable.

Not applicable.

Not applicable.

1.52

Not applicable.

Not applicable.

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

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

below this value

Section 4: Guidance to check compliance with the exposure scenario

Environment Health

Not available. Not available.

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

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

Triethylenetetramine, TETA

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, SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC10b



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition Multi-constituent substance **Product name** Triethylenetetramine. TETA

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, ERC02, ERC04, ERC10b

Section 2: Operational conditions and risk management measures

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 4650 Fraction of Regional tonnage used locally 25% Annual site tonnage 1160 12.74 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 10 Local marine water dilution factor 100 None.

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to 1.1x10-3

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

Not available. Release fraction to wastewater from wide dispersive use

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

Not available.

Not available.

Not applicable.

Triethylenetetramine, TETA

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, ERC02, 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

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

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

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

No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage Fraction of Regional tonnage used locally 604 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 2745

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 10 Local marine water dilution factor 100

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:

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:

2418 25%

Not available.

220

None.

1.1x10-5

0.02

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%.

=>37.4

Not available.

Triethylenetetramine, TETA

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, ERC02, ERC04, ERC10b

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:

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 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 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:

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.

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

removal efficiency of 90%

Not applicable.

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

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

management supervision controls.

Total release for regional

EUSES calculation

Section 3: Exposure estimation

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Fuel additive.

n

0

	Value	Justification	
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
air (direct + STP)	1.75x10-3	3.5	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
Waste water	0	0	EUSES calculation
	(local exposure estimation) kg/ day	exposure estimation kg/day	

Release from point source

Concentration in sewage (PECstp) mg/l

Concentration in sewage sludge

mg/kg dwt

EUSES calculation

Triethylenetetramine, TETA

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, ERC02, ERC04, ERC10b

Justification

	Local concentration	DEC aquatia (local-regional)	luctification
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	1.04x10-5	0.114	EUSES calculation
Grassland averaged mg/kg dwt	2.06x10-5	1.13x10-3	EUSES calculation
Groundwater mg/l	Not evaluated.	0.114	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.87x10-7	Not evaluated.	EUSES calculation
Annual average mg/m³	4.87x10-7	5.16x10-7	EUSES calculation
Annual deposition mg/m²/d	8.78x10-7	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Total release for regional

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	Justinication
Waste water	day 2.47	33.1	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	1.24x10-3	1.66x10-2	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.775	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	1.17x10-3	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0.077	0.078	EUSES calculation
Marine water mg/l	7.69x10-3	7.83x10-3	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.	39.5	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	3.95	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.44x10-6	0.114	EUSES calculation
Grassland averaged mg/kg dwt	8.79x10-6	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.44x10-7	Not evaluated.	EUSES calculation
Annual average mg/m³	2.07x10-7	2.36x10-7	EUSES calculation
Annual deposition mg/m²/d	3.75x10-7	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Triethylenetetramine, TETA

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, ERC02, ERC04, ERC10b

Justification

ontributing scenarios of applicable. of applicable. of evaluated. of evaluated. of applicable of applicable	Dose/Concentration 0.110 0.305 Not applicable. Not applicable. Not applicable.	Justification The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Not applicable. Not applicable. Since the substance is not classified for any tape of the product of the prod
ot evaluated. ot evaluated. ot applicable	Not applicable. Not applicable.	estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Not applicable. Not applicable. Since the substance is not classified for
ot evaluated. ot applicable	Not applicable.	Not applicable. Since the substance is not classified for
ot applicable		Since the substance is not classified for
	Not applicable.	
ot applicable		acute effects and therefore, no acute DNE has been derived.
	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
ot applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
ot applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
ot applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
ot 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
tion er exposure for 1: Roller a	pplication or brushing of adhes	ive and other coating
		Justification
ot applicable.	0.110	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
ot applicable.	0.305	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
ot evaluated.	Not applicable.	Not applicable.
ot evaluated.	Not applicable.	Not applicable.
ot applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
tii e	on r exposure for 1: Roller a ntributing scenarios t applicable. t applicable. t evaluated. t evaluated.	t applicable t applicable. On r exposure for 1: Roller application or brushing of adhes ntributing scenarios t applicable. Dose/Concentration 0.110 t applicable. 0.305 t evaluated. Not applicable.

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, ERC02, ERC04, ERC10b
105/283

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

Not applicable.

Not applicable.

0.61

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.

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.

The ECETOC TRA tool has been used to

estimate workplace 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

Short term exposure, Systemic,

Short term exposure, Local,

Short term exposure, Local, Dermal Not applicable

Combined

Inhalable

Environment Not available. Health Not available.

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

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



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition Multi-constituent substance **Product name** Triethylenetetramine. TETA

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, ERC02, ERC04, ERC10b

Section 2: Operational conditions and risk management measures

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 0: Fuel additive.

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 2418 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 1160 12.74 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 10 Local marine water dilution factor 100 None.

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to 1.1x10-3

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

Technical conditions and measures at process level (source) to

prevent release:

Not available.

Not applicable.

Triethylenetetramine, TETA

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, ERC02, 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 plant:

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

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

No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Wood preservative.

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Not available. 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): 2745

Maximum daily site tonnage Frequency and duration of use: Continuous release

Emission Days (days/year) 220

Environment factors not influenced by risk management:

Local freshwater dilution factor 10 Local marine water dilution factor 100

Other given operational conditions affecting environmental exposure:

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

Release fraction to soil from process (initial release prior to

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

Release fraction to air from wide dispersive use (regional

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

Conditions and measures related to municipal sewage treatment plant:

2418

25% 604

Not available.

None.

1.1x10-5

0

0.02

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%.

=>37.4

Not available.

Triethylenetetramine, TETA

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, ERC02, ERC04, ERC10b

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

Not applicable.

Not applicable.

Not applicable.

Other given operational conditions affecting workers Indoor professional setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

Personal protection:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

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

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.

day

Release from point source

(local exposure estimation) kg/

Waste water	0	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	1.75x10-3	3.5	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	1.04x10-5	0.114	EUSES calculation
Grassland averaged mg/kg dwt	2.06x10-5	1.13x10-3	EUSES calculation
Groundwater mg/l	Not evaluated.	0.114	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	4.87x10-7	Not evaluated.	EUSES calculation
Annual average mg/m³	4.87x10-7	5.16x10-7	EUSES calculation
Annual deposition mg/m²/d	8.78x10-7	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification

Triethylenetetramine, TETA

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, ERC02, ERC04, ERC10b

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	2.47	33.1	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	1.24x10-3	1.66x10-2	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.775	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	1.17x10-3	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0.077	0.078	EUSES calculation
Marine water mg/l	7.69x10-3	7.83x10-3	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.	39.5	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	3.95	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.44x10-6	0.114	EUSES calculation
Grassland averaged mg/kg dwt	8.79x10-6	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.44x10-7	Not evaluated.	EUSES calculation
Annual average mg/m³	2.07x10-7	2.36x10-7	EUSES calculation
Annual deposition mg/m²/d	3.75x10-7	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.

Triethylenetetramine, TETA

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, ERC02, ERC04, ERC10b

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

EnvironmentNot available.HealthNot available.

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

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.

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

Environmental Release Category: ERC01, ERC02, ERC04, ERC10b



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

 Product definition
 Multi-constituent substance

 Product name
 Triethylenetetramine, TETA

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

1.10x10-3

Not available.

Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2: Operational conditions and risk management measures

Section 2.1 C	control o	f environmenta	il exposure
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Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 4650
Fraction of Regional tonnage used locally 25%
Annual site tonnage 1160
Average Local Daily Tonnage (kg/day): 3867

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 10

Local marine water dilution factor 100

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

DMM

, Dalaaa

Release fraction to soil from process (initial release prior to

RMM)

Release fraction to wastewater from process (initial release

prior to RMM)

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

only)

Release fraction to soil from wide dispersive use (regional

only)

Release fraction to wastewater from wide dispersive use Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05,

ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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.

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 1: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use

Product characteristics:

Amounts used:

Fraction of EU tonnage used in region

Regional use tonnage 10230 Fraction of Regional tonnage used locally 25% 2560 **Annual site tonnage** Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage Continuous release Frequency and duration of use:

Emission Days (days/year)

Environment factors not influenced by risk management:

10 Local freshwater dilution factor Local marine water dilution factor 100

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

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

Not applicable.

Not available.

11636

Not available.

220

None.

1.10x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05,

ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Epoxy curing agent in paint

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

Regional use tonnage Fraction of Regional tonnage used locally 25% **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 11636

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 10 Local marine water dilution factor 100

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:

10230

220

None.

1.1x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure Contributing scenario controlling environmental exposure for 3: Laboratory chemicals Operational conditions: Indoor use Product characteristics: Not applicable. Amounts used: Fraction of EU tonnage used in region Not available. Regional use tonnage 100 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 25.1 Average Local Daily Tonnage (kg/day): 1255 Maximum daily site tonnage Not available. Frequency and duration of use: Continuous release **Emission Days (days/year)** Environment factors not influenced by risk management: 10 Local freshwater dilution factor Local marine water dilution factor 100 Other given operational conditions affecting environmental None. exposure: Release fraction to air from process (initial release prior to 6.88x10-4 RMM) Release fraction to soil from process (initial release prior to 6.88x10-3 RMM) Release fraction to wastewater from process (initial release 1.38 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 Not applicable. prevent release: Technical on-site conditions and measures to reduce or limit Soil emission controls are not applicable as there is no direct release to soil. discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of No air emission controls required; required removal efficiency is 0%.

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

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:

=>37.4

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure Contributing scenario controlling environmental exposure for 4: Processing aid Operational conditions: Indoor use Product characteristics: Not applicable. Amounts used: Fraction of EU tonnage used in region Not available. Regional use tonnage 2418 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 604 Average Local Daily Tonnage (kg/day): 2745 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: 10 Local freshwater dilution factor Local marine water dilution factor 100 Other given operational conditions affecting environmental None. exposure: Release fraction to air from process (initial release prior to 1.1x10-3 RMM) Release fraction to soil from process (initial release prior to RMM) Release fraction to wastewater from process (initial release prior to RMM) Not available. Release fraction to air from wide dispersive use (regional Release fraction to soil from wide dispersive use (regional Not available. Release fraction to wastewater from wide dispersive use Not available. Technical conditions and measures at process level (source) to Not applicable. prevent release: Technical on-site conditions and measures to reduce or limit Soil emission controls are not applicable as there is no direct release to soil. discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of No air emission controls required; required removal efficiency is 0%. Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required.

to provide the required removal efficiency of

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.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives Operational conditions: Indoor use Product characteristics: Not applicable. Amounts used: Not available. Fraction of EU tonnage used in region Regional use tonnage 10230 Fraction of Regional tonnage used locally 25% 2560 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 7014 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: 10 Local freshwater dilution factor Local marine water dilution factor 100 Other given operational conditions affecting environmental None. exposure: Release fraction to air from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to 5.00x10-3 RMM) Release fraction to wastewater from process (initial release 0.01 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.

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.

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

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

=>37.4

Not available.

Not available.

Triethylenetetramine, TETA

Identified use name: 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.

Subsequent service life relevant for that use: No.
Environmental Release Category: ERC01, ERC02, ERC04, ERC05,
ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,
ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.2 Control of worker exposure

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

(multistage and/or significant contact)

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

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers

Indoor industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

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

Organisational measures to prevent/limit releases,

Not applicable.

Not applicable.

dispersion and exposure: Personal protection:

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

management supervision controls.

Section 2.2 Control of worker exposure

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

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

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

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers

Indoor industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

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

removal efficiency of 90%

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

Not applicable.

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

Frequency and duration of use:

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

Not applicable.

Amounts used:

Avoid carrying out operation for more than 1 hour.

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers

Indoor industrial setting

exposure:

Not applicable.

Technical conditions and measures at process level (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%

Organisational measures to prevent/limit releases,

dispersion from source towards the worker:

Not applicable.

dispersion and exposure:

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Personal protection:

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

Section 2.2 Control of worker exposure

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

including weighing)

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

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

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

removal efficiency of 90%

Not applicable.

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

Justification

management supervision controls.

Total release for regional

exposure estimation kg/day

Section 3: Exposure estimation

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Release from point source

(local exposure estimation) kg/

Titation of the section TETA		I de a titi e de come a come e la come e feri	
Groundwater mg/l	Not evaluated.	1.35x10-3	EUSES calculation
Grassland averaged mg/kg dwt	0.041	0.155	EUSES calculation
Agricultural soil averaged mg/kg dwt	0.021	0.135	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
Fresh water sediment mg/kg dwt	Not evaluated.	0.722	EUSES calculation
	Local concentration	PEC sediment (local+regional)	Justification
Intermittent release. mg/l	Not applicable.	Not applicable.	Not applicable.
Marine water mg/l	0	1.42x10-4	EUSES calculation
Fresh water mg/l	0	1.43x10-3	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)	Not evaluated.	0	Table R16.23[REACH]
air (direct + STP)	4.26	3.5	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
Waste water	0	0	EUSES calculation
	day		

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Local concentration PEC air (local+regional) **Justification** During emission mg/m³ 1.18x10-3 Not evaluated. **EUSES** calculation Annual average mg/m³ 9.74x10-4 9.74x10-4 **EUSES** calculation Annual deposition mg/m²/d **EUSES** calculation 1.76x10-4 Not evaluated. **Local concentration** PEC aquatic (local+regional) Justification Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	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: 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Value Justification Concentration in sewage (PECstp) **EUSES** calculation mg/l Concentration in sewage sludge **EUSES** calculation mg/kg dwt Local concentration PEC aquatic (local+regional) **Justification** Fresh water mg/l 1.43x10-3 **EUSES** calculation Marine water mg/l 1.42x10-4 **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. 0.722 **EUSES** calculation Marine water sediment mg/kg dwt Not evaluated. 0.072 **EUSES** calculation **Justification** Local concentration PEC soil (local+regional) Not evaluated. **EUSES** calculation Agricultural soil averaged mg/kg 0.114 dwt Grassland averaged mg/kg dwt Not evaluated. 0.114 **EUSES** calculation Groundwater mg/l Not evaluated. 1.13x10-3 **EUSES** calculation **Local concentration** PEC air (local+regional) **Justification** During emission mg/m³ Not evaluated. Not evaluated. **EUSES** calculation Annual average mg/m³ 2.93x10-8 Not evaluated. **EUSES** calculation Annual deposition mg/m²/d Not evaluated. **EUSES** calculation Not evaluated. **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: Laboratory chemicals

Release from point source

(local exposure estimation) kg/

Agricultural soil averaged mg/kg dwt	8.20x10 ⁻⁸	0.114	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Marine water sediment mg/kg dwt	Not evaluated.	0.860	EUSES calculation
Fresh water sediment mg/kg dwt	Not evaluated.	8.6	EUSES calculation
	Local concentration	PEC sediment (local+regional)	Justification
Intermittent release. mg/l	Not applicable.	Not applicable.	Not applicable.
Marine water mg/l	1.56x10-3	1.70x10-3	EUSES calculation
Fresh water mg/l	0.016	0.017	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Concentration in sewage sludge mg/kg dwt	237	EUSES calculation	
Concentration in sewage (PECstp) mg/l	0.157	EUSES calculation	
	Value	Justification	
Soil (direct releases only)	not evaluated.	0.00X1U-3	Local: Table R16.23[REACH] , Total release for regional exposure estimation: EUSES calculation
•	Not evaluated.	6.88x10-3	
air (direct + STP)	2.51x10-4	6.88x10-4	EUSES calculation
Waste water Surface water	0.502 Not evaluated.	1.38 0	EUSES calculation EUSES calculation
Marks water	day	4.20	

Total release for regional

exposure estimation kg/day

Triethylenetetramine, TETA

Identified use name: 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

Justification

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Grassland averaged mg/kg dwt 1.62x10⁻⁷ 0.114 **EUSES** calculation Groundwater mg/l Not evaluated. 1.13x10-3 **EUSES** calculation **Local concentration** PEC air (local+regional) **Justification** During emission mg/m³ 6.98x10⁻⁸ Not evaluated. **EUSES** calculation Annual average mg/m³ 3.82x10⁻⁹ 3.31x10⁻⁸ **EUSES** calculation Annual deposition mg/m²/d 6.92x10⁻⁹ Not evaluated. **EUSES** calculation PEC aquatic (local+regional) **Local concentration** Justification Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 4: Processing aid

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0.012	1.82	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.26x10-5	0.114	EUSES calculation
Grassland averaged mg/kg dwt	8.44x10-5	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	2.00x10-6	2.02x10-6	EUSES calculation
Annual deposition mg/m²/d	3.6x10-6	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	12.8	7.71	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.046	0.160	EUSES calculation
Grassland averaged mg/kg dwt	0.091	0.204	EUSES calculation
Groundwater mg/l	Not evaluated.	1.60x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.55x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	2.14x10-3	2.14x10-3	EUSES calculation
Annual deposition mg/m²/d	3.86x10-3	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)

, c,		
Contributing scenarios	Dose/Concentration	Justification
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
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
Not evaluated.	Not applicable.	Not applicable.
Not applicable.	Not applicable.	Not applicable.
	Contributing scenarios Not applicable. Not applicable.	Contributing scenarios Not applicable. Dose/Concentration 0.0685714 Not applicable. 0.3656 Not evaluated. Not applicable.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05,

ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Long term exposure, Local, Since the substance is not classified for Not applicable Not applicable. Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable. Since the substance is not classified for Not applicable **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. 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, The ECETOC TRA tool has been used to Not applicable. 0.73115 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Section 3.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 1: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **Dose/Concentration** Route of exposure **Contributing scenarios Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.0685714 **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. 0.365575 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not evaluated. Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL Inhalable has been derived. Short term exposure, Systemic, Not applicable. Not applicable Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL

Short term exposure, Systemic, Inhalable

Short term exposure, Systemic, Combined

Short term exposure, Local, Dermal Not applicable.

Not applicable

Not applicable

Not applicable.

Not applicable.

Not applicable.

has been derived.

Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.

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

has been derived. Since the substance is not classified for

acute effects and therefore, no acute DNEL

has been derived.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Short term exposure, Local, Inhalable

Not applicable.

0.73115

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

below this value

Section 3.2 Workers - Exposure estimation

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

containers at dedicated facilities Route of exposure

Long term exposure, Systemic,

Dermal

Contributing scenarios

Not applicable.

Dose/Concentration

0.034286

Justification

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

below this value

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 Not applicable.

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal

Long term exposure, Local,

Inhalable

Not applicable. Not applicable

Not evaluated.

Not applicable.

Not applicable.

Not applicable.

Not applicable.

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

has been derived.

Short term exposure, Systemic, Dermal

Not applicable

Not applicable.

Since the substance is not classified for

acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, Inhalable

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.

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

has been derived.

Short term exposure, Local, Dermal Not applicable.

Not applicable.

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

has been derived.

Short term exposure, Local,

Inhalable

Not applicable.

1.096725

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

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

below this value

Section 3.2 Workers - Exposure 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**

Contributing scenarios

Not applicable.

Dose/Concentration

0.0685714

Justification

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

exposure estimates for other PROC are below this value

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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. Not applicable. Long term exposure, Systemic, Not evaluated. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Since the substance is not classified for Not applicable. Not applicable **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. 0.73115 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 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.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition Multi-constituent substance **Product name** Triethylenetetramine, TETA

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: SU03

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.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 4650 Fraction of Regional tonnage used locally 25% 1160 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 3867

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:

Local freshwater dilution factor 10 Local marine water dilution factor 100

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

1.10x10-3

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%.

Triethylenetetramine, TETA

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: SU03

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

plant:

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use

Product characteristics:

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage Fraction of Regional tonnage used locally 25% **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 11636

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 Local marine water dilution factor 100 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.

10230

10

None.

1.10x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

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

Process Category: PROC21, PROC24

Sector of end use: SU03

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

128/283

Industrial

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Epoxy curing agent in paint

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

Regional use tonnage Fraction of Regional tonnage used locally 25% 2560 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 11636

Maximum daily site tonnage 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 100 None.

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

Conditions and measures related to municipal sewage treatment

plant:

10230

Not available.

Continuous release

220

10

1.1x10-3

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%.

No wastewater treatment required.

Organisational measures to prevent/limit release from site:

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 4650 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 1160 3867 Average Local Daily Tonnage (kg/day):

Triethylenetetramine, TETA

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: SU03

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

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

Environment factors not influenced by risk management:

10 Local freshwater dilution factor Local marine water dilution factor 100

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 1.10x10-3

Not available.

Not available.

Not applicable.

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

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

Not available.

=>37.4

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 4: Processing aid

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

plant:

Fraction of EU tonnage used in region Not available.

2418 Regional use tonnage 25% Fraction of Regional tonnage used locally 604 Annual site tonnage Average Local Daily Tonnage (kg/day): 2745

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 10 Local marine water dilution factor 100 None. Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM)

exposure:

1.1x10-3

Triethylenetetramine, TETA

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: SU03

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

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

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.

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 5: Use of coatings and adhesives

Operational conditions: Indoor use

Product characteristics:

Amounts used:

Fraction of EU tonnage used in region

Regional use tonnage Fraction of Regional tonnage used locally **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 7014

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

Emission Days (days/year)

Environment factors not influenced by risk management:

10 Local freshwater dilution factor Local marine water dilution factor 100

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

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

Not applicable.

Not available.

10230

25%

Continuous release

365

None.

n

5.00x10-3

0.01

Not available.

Not available.

Not available.

prevent release:

Not applicable.

Triethylenetetramine, TETA

prior to RMM)

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: SU03

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

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:

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.

Section 2.2 Control of worker exposure

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

Product characteristics: Solid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Not applicable.

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

Other given operational conditions affecting workers Indoor professional setting

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: High (mechanical) energy work-up of substances bound in materials and/or articles

Product characteristics:

Solid. Covers concentrations up to 0.5%

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

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

Other 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.

Indoor professional 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.

Triethylenetetramine, TETA

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: SU03 Subsequent service life relevant for that use: No.

Environmental Release Category: ERC11a

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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	4.26	3.5	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.021	0.135	EUSES calculation
Grassland averaged mg/kg dwt	0.041	0.155	EUSES calculation
Groundwater mg/l	Not evaluated.	1.35x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	1.18x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	9.74x10-4	9.74x10-4	EUSES calculation
Annual deposition mg/m²/d	1.76x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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

Triethylenetetramine, TETA

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: SU03

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

Fresh water mg/l	0	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	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: 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Triethylenetetramine, TETA

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: SU03

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

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.502	1.38	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	2.51x10-4	6.88x10-4	EUSES calculation
Soil (direct releases only)	0	6.88x10-3	Local: Table R16.23 [REACH], Total release for regional exposure estimation: EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.157	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	237	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0.016	0.017	EUSES calculation
Marine water mg/l	1.56x10-3	1.70x10-3	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.	8.6	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.860	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	8.20x10-8	0.114	EUSES calculation
Grassland averaged mg/kg dwt	1.62x10-7	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.98x10-8	Not evaluated.	EUSES calculation
Annual average mg/m³	3.82x10-9	3.31x10-8	EUSES calculation
Annual deposition mg/m²/d	6.92x10-9	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 4: Processing aid

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0.012	1.82	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation

Triethylenetetramine, TETA

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: SU03

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

Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.26x10-5	0.114	EUSES calculation
Grassland averaged mg/kg dwt	8.44x10-5	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	2.00x10-6	2.02x10-6	EUSES calculation
Annual deposition mg/m²/d	3.6x10-6	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 5: Use of coatings and adhesives

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	0	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	12.8	7.71	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.046	0.160	EUSES calculation
Grassland averaged mg/kg dwt	0.091	0.204	EUSES calculation
Groundwater mg/l	Not evaluated.	1.60x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.55x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	2.14x10-3	2.14x10-3	EUSES calculation
Annual deposition mg/m²/d	3.86x10-3	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Triethylenetetramine, TETA

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

Justification

Process Category: PROC21, PROC24 Sector of end use: SU03

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC11a 136/283

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		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.
	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable Short term exposure, Systemic,	тот аррисавіс.	. Tot application	

unbound ethylenamines - Use of preparations containing EA up to 0.5% Industrial
Process Category: PROC21, PROC24
Sector of end use: SU03

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, Not applicable.

Combined

Short term exposure, Local, Dermal Not applicable.

Short term exposure, Local, Not applicable.

Inhalable

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.

Not applicable.

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

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



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition Multi-constituent substance **Product name** Triethylenetetramine, TETA

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: SU03

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
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Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 4650 Fraction of Regional tonnage used locally 25% 1160 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 3867

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:

Local freshwater dilution factor 10 Local marine water dilution factor 100

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

1.10x10-3

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%.

Triethylenetetramine, TETA

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: SU03

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 plant:

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use

Product characteristics:

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 10230 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 11636

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 10 Local marine water dilution factor 100 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.

None.

1.10x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

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: SU03

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: Epoxy curing agent in paint

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

Regional use tonnage Fraction of Regional tonnage used locally 25% 2560 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 11636

Maximum daily site tonnage 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 100 Other given operational conditions affecting environmental None.

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:

10230

Not available.

Continuous release

220

10

1.1x10-3

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%.

No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 100 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 25.1 1255 Average Local Daily Tonnage (kg/day):

Triethylenetetramine, TETA

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: SU03

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

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

Environment factors not influenced by risk management:

10 Local freshwater dilution factor Local marine water dilution factor 100 None.

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:

6.88x10-4

6.88x10-3

1.38

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%.

=>37.4

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 4: Processing aid

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

2418 Regional use tonnage 25% Fraction of Regional tonnage used locally 604 Annual site tonnage Average Local Daily Tonnage (kg/day): 2745

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 10 Local marine water dilution factor 100 None. Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM)

exposure:

1.1x10-3

Triethylenetetramine, TETA

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: SU03

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

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)

prevent release:

Not available.

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

Not available.

Technical on-site conditions and measures to reduce or limit

Not applicable.

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

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

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

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

No wastewater treatment required.

to provide the required removal efficiency of

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 plant:

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

10230 Regional use tonnage Fraction of Regional tonnage used locally 25% **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 7014

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

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

Environment factors not influenced by risk management:

Local freshwater dilution factor 10 Local marine water dilution factor 100 None.

Other given operational conditions affecting environmental exposure:

0

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM)

5.00x10-3

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

0.01

Release fraction to air from wide dispersive use (regional

Not available.

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

Not applicable.

prevent release:

Triethylenetetramine, TETA

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: SU03

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

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

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 plant:

Section 2.2 Control of worker exposure

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

Product characteristics: Solid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Not applicable.

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

Other given operational conditions affecting workers Indoor professional setting

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: High (mechanical) energy work-up of substances bound in materials and/or

articles

Product characteristics: Solid. Covers concentrations up to 2%

Amounts used: Not applicable.

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

Other given operational conditions affecting workers 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.

Indoor professional 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.

Triethylenetetramine, TETA

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: SU03

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

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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	4.26	3.5	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23 [REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.021	0.135	EUSES calculation
Grassland averaged mg/kg dwt	0.041	0.155	EUSES calculation
Groundwater mg/l	Not evaluated.	1.35x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	1.18x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	9.74x10-4	9.74x10-4	EUSES calculation
Annual deposition mg/m²/d	1.76x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23 [REACH]
	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

Triethylenetetramine, TETA

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: SU03

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

Fresh water mg/l	0	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	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: 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23 [REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Triethylenetetramine, TETA

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: SU03

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

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.502	1.38	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	2.51x10-4	6.88x10-4	EUSES calculation
Soil (direct releases only)	0	6.88x10-3	Local : Table R16.23 [REACH] , Total release for regional exposure estimation : EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.157	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	237	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0.016	0.017	EUSES calculation
Marine water mg/l	1.56x10-3	1.70x10-3	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.	8.6	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.860	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	8.20x10-8	0.114	EUSES calculation
Grassland averaged mg/kg dwt	1.62x10-7	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.98x10-8	Not evaluated.	EUSES calculation
Annual average mg/m³	3.82x10-9	3.31x10-8	EUSES calculation
Annual deposition mg/m²/d	6.92x10-9	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 4: Processing aid

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0.012	1.82	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23 [REACH]
	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	1.43x10-3	EUSES calculation

Triethylenetetramine, TETA

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: SU03

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

Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.26x10-5	0.114	EUSES calculation
Grassland averaged mg/kg dwt	8.44x10-5	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	2.00x10-6	2.02x10-6	EUSES calculation
Annual deposition mg/m²/d	3.6x10-6	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 5: Use of coatings and adhesives

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	0	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	12.8	7.71	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23 [REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.046	0.160	EUSES calculation
Grassland averaged mg/kg dwt	0.091	0.204	EUSES calculation
Groundwater mg/l	Not evaluated.	1.60x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.55x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	2.14x10-3	2.14x10-3	EUSES calculation
Annual deposition mg/m²/d	3.86x10-3	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

Triethylenetetramine, TETA

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

Justification

Process Category: PROC21, PROC24 Sector of end use: SU03

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

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 estin Contributing scenario controlling we articles		echanical) 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 below this value
Long term exposure Systemic	Not applicable	0.02	The ECETOC TRA tool has been used to

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

exposure estimates for other PROC are below this value

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

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

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.

Triethylenetetramine, TETA 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

highest exposure level is given since the

Sector of end use: SU03

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

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.

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

has been derived.

Short term exposure, Systemic,

Short term exposure, Systemic,

Combined

Inhalable

Not applicable

Not applicable

Not applicable.

0.03

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.

The ECETOC TRA tool has been used to

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

below this value

Section 4: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

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

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



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition Multi-constituent substance **Product name** Triethylenetetramine, TETA

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 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.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 4650 Fraction of Regional tonnage used locally 25% 1160 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 3867

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:

Local freshwater dilution factor 10 Local marine water dilution factor 100

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

1.10x10-3

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%.

Triethylenetetramine, TETA

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:

Conditions and measures related to municipal sewage treatment

plant:

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage Fraction of Regional tonnage used locally 25% **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 11636

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 Local marine water dilution factor 100 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:

10230

10

None.

1.10x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

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: Epoxy curing agent in paint

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

Regional use tonnage 10230 Fraction of Regional tonnage used locally 25% 2560 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 11636

Maximum daily site tonnage

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 100 Other given operational conditions affecting environmental 220

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.

Continuous release

220

10

1.1x10-3

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%.

No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 100 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 25.1 1255 Average Local Daily Tonnage (kg/day):

Triethylenetetramine, TETA

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

Emission Days (days/year) 20

Environment factors not influenced by risk management:

Local freshwater dilution factor 10

Local marine water dilution factor 100

er given operational conditions affecting environmental None.

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:

6.88x10-4

6 00,40 2

6.88x10-3

1.38

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%.

=>37.4

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 4: Processing aid

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 2418
Fraction of Regional tonnage used locally 25%
Annual site tonnage 604
Average Local Daily Tonnage (kg/day): 2745

Maximum daily site tonnageNot available.Frequency and duration of use:Continuous release

Emission Days (days/year) 220

Environment factors not influenced by risk management:

Local freshwater dilution factor 10

Local marine water dilution factor 100

Other given operational conditions affecting environmental None.

exposure:

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

1.1x10-3

Triethylenetetramine, TETA

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

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

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.

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 5: Use of coatings and adhesives

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

10230 Regional use tonnage Fraction of Regional tonnage used locally 25% **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 7014

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

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

Environment factors not influenced by risk management:

Local freshwater dilution factor 10 Local marine water dilution factor 100 None.

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:

5.00x10-3

0.01

0

Not available.

Not available.

Not available.

Not applicable.

Triethylenetetramine, TETA

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

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:

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.

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:

Not applicable.

Indoor professional setting

Not applicable.

Not applicable.

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

management supervision controls.

Section 2.2 Control of worker exposure

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

Product characteristics: Solid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use: Not applicable. Default breathing volume Light work 10 m³/d Default Body weight: Workers: 70 kg

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

exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

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

management supervision controls.

Indoor professional setting

Not applicable.

Not applicable.

Triethylenetetramine, TETA

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 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	4.26	3.5	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.021	0.135	EUSES calculation
Grassland averaged mg/kg dwt	0.041	0.155	EUSES calculation
Groundwater mg/l	Not evaluated.	1.35x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	1.18x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	9.74x10-4	9.74x10-4	EUSES calculation
Annual deposition mg/m²/d	1.76x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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

Triethylenetetramine, TETA

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

Fresh water mg/l	0	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	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: 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Triethylenetetramine, TETA

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

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.502	1.38	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	2.51x10-4	6.88x10-4	EUSES calculation
Soil (direct releases only)	0	6.88x10-3	Local : Table R16.23, Total release for regional exposure estimation : EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.157	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	237	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0.016	0.017	EUSES calculation
Marine water mg/l	1.56x10-3	1.70x10-3	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.	8.6	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.860	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	8.20x10-8	0.114	EUSES calculation
Grassland averaged mg/kg dwt	1.62x10-7	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.98x10-8	Not evaluated.	EUSES calculation
Annual average mg/m³	3.82x10-9	3.31x10-8	EUSES calculation
Annual deposition mg/m²/d	6.92x10-9	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 4: Processing aid

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0.012	1.82	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	EUSES calculation

Triethylenetetramine, TETA

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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.26x10-5	0.114	EUSES calculation
Grassland averaged mg/kg dwt	8.44x10-5	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	2.00x10-6	2.02x10-6	EUSES calculation
Annual deposition mg/m²/d	3.6x10-6	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 5: Use of coatings and adhesives

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	0.056	28	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	0	EUSES calculation
Soil (direct releases only)	0	14	Table R16.23[REACH]
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.018	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	26.5	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.74x10-3	3.17x10-3	EUSES calculation
Marine water mg/l	2.78x10-4	4.2x10-4	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.	1.60	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.212	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.75x10-10	0.114	EUSES calculation
Grassland averaged mg/kg dwt	9.4x10-10	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	2.22x10-11	Not evaluated.	EUSES calculation
Annual average mg/m³	2.22x10-11	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	4.01x10-11	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Total release for regional

Justification

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 Contributing scenario controlling warticles		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.
	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable Short term exposure, Systemic,			

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.

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 Multi-constituent substance **Product name** Triethylenetetramine, TETA

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	f environmental	exposure
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Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 4650 Fraction of Regional tonnage used locally 25% 1160 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 3867

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:

Local freshwater dilution factor 10 Local marine water dilution factor 100

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

1.10x10-3

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%.

Triethylenetetramine, TETA

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:

Conditions and measures related to municipal sewage treatment plant:

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage Fraction of Regional tonnage used locally 25% **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 11636

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

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

Environment factors not influenced by risk management:

Local freshwater dilution factor 10 Local marine water dilution factor 100 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:

10230

Continuous release

None.

1.10x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

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: Epoxy curing agent in paint

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

Regional use tonnage Fraction of Regional tonnage used locally 25% 2560 **Annual site tonnage** 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 Local marine water dilution factor 100 Other given operational conditions affecting environmental None.

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:

10230

11636

Not available.

Continuous release

220

10

1.1x10-3

Not available.

Not available.

Not available.

Not applicable.

Not available.

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

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

No wastewater treatment required.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 100 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 25.1 1255 Average Local Daily Tonnage (kg/day):

Triethylenetetramine, TETA

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

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

Environment factors not influenced by risk management:

10 Local freshwater dilution factor Local marine water dilution factor 100 None.

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:

6.88x10-4

6.88x10-3

1.38

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%.

=>37.4

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 4: Processing aid

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

2418 Regional use tonnage 25% Fraction of Regional tonnage used locally 604 Annual site tonnage Average Local Daily Tonnage (kg/day): 2745

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 10 Local marine water dilution factor 100 None. Other given operational conditions affecting environmental

Release fraction to air from process (initial release prior to

RMM)

exposure:

1.1x10-3

Triethylenetetramine, TETA

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

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.

Not available.

Release fraction to soil from wide dispersive use (regional

only)

Release fraction to wastewater from wide dispersive use Not available.

Technical conditions and measures at process level (source) to

prevent release:

Not applicable.

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

Treat air emission to provide a typical removal efficiency of

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

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

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

No wastewater treatment required.

to provide the required removal efficiency of

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 plant:

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

10230 Regional use tonnage Fraction of Regional tonnage used locally 25% **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 7014

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

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

Environment factors not influenced by risk management:

10 Local freshwater dilution factor Local marine water dilution factor 100 None.

Other given operational conditions affecting environmental

exposure:

0

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to

RMM)

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

Release fraction to air from wide dispersive use (regional

Not available.

5.00x10-3

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

Not applicable.

prevent release:

Triethylenetetramine, TETA

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

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:

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.

Section 2.2 Control of worker exposure

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

Product characteristics: Solid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Not applicable.

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

Other given operational conditions affecting workers 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.

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: High (mechanical) energy work-up of substances bound in materials and/or articles

Product characteristics:

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:

Solid. Covers concentrations up to 2%

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.

Triethylenetetramine, TETA

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 3.1	Environment	- Exposure	estimation
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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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	4.26	3.5	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23 [REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.021	0.135	EUSES calculation
Grassland averaged mg/kg dwt	0.041	0.155	EUSES calculation
Groundwater mg/l	Not evaluated.	1.35x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	1.18x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	9.74x10-4	9.74x10-4	EUSES calculation
Annual deposition mg/m²/d	1.76x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23 [REACH]
	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

Triethylenetetramine, TETA

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

Fresh water mg/l	0	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	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: 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23 [REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Triethylenetetramine, TETA

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

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.502	1.38	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	2.51x10-4	6.88x10-4	EUSES calculation
Soil (direct releases only)	0	6.88x10-3	Local : Table R16.23 , Total release for regional exposure estimation : EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.157	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	237	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0.016	0.017	EUSES calculation
Marine water mg/l	1.56x10-3	1.70x10-3	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.	8.6	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.860	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	8.20x10-8	0.114	EUSES calculation
Grassland averaged mg/kg dwt	1.62x10-7	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.98x10-8	Not evaluated.	EUSES calculation
Annual average mg/m³	3.82x10-9	3.31x10-8	EUSES calculation
Annual deposition mg/m²/d	6.92x10-9	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 4: Processing aid

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0.012	1.82	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23 [REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	EUSES calculation

Triethylenetetramine, TETA

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

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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.26x10-5	0.114	EUSES calculation
Grassland averaged mg/kg dwt	8.44x10-5	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	2.00x10-6	2.02x10-6	EUSES calculation
Annual deposition mg/m²/d	3.6x10-6	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 5: Use of coatings and adhesives

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	0.056	28	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	0	EUSES calculation
Soil (direct releases only)	0	14	Table R16.23 [REACH]
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.018	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	26.5	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.74x10-3	3.17x10-3	EUSES calculation
Marine water mg/l	2.78x10-4	4.2x10-4	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.	1.60	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.212	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.75x10-10	0.114	EUSES calculation
Grassland averaged mg/kg dwt	9.4x10-10	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	2.22x10-11	Not evaluated.	EUSES calculation
Annual average mg/m³	2.22x10-11	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	4.01x10-11	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Total release for regional

Justification

Contributing scenario controlling we	orker exposure for 0: Low en	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.	0.0003	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		echanical) 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

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

Triethylenetetramine, TETA

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

has been derived.

Process Category: PROC21, PROC24

Sector of end use: SU22

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

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

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,

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, 0.03 Not applicable.

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 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 definitionMulti-constituent substanceProduct nameTriethylenetetramine, TETA

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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 4650
Fraction of Regional tonnage used locally 25%
Annual site tonnage 1160
Average Local Daily Tonnage (kg/day): 3867

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 10

Local marine water dilution factor 100

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

1.10x10-3

Not available.

Not available.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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.

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 1: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage Fraction of Regional tonnage used locally 25% 2560 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 11636

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

Emission Days (days/year) 220

Environment factors not influenced by risk management:

10 Local freshwater dilution factor Local marine water dilution factor 100

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

10230

None.

1.10x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Organisational measures to prevent/limit release from site:

Conditions and measures related to municipal sewage treatment plant:

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Epoxy curing agent in paint

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 25% 2560 Annual site tonnage Average Local Daily Tonnage (kg/day): 11636

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 10 Local marine water dilution factor 100

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

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) If discharging to domestic sewage treatment plant, provide

to provide the required removal efficiency of

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.

10230

Not available.

None.

1.1x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure Contributing scenario controlling environmental exposure for 3: Laboratory chemicals Operational conditions: Indoor use Product characteristics: Not applicable. Amounts used: Not available. Fraction of EU tonnage used in region Regional use tonnage 100 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 25.1 Average Local Daily Tonnage (kg/day): 1255 Maximum daily site tonnage Not available. Frequency and duration of use: Continuous release **Emission Days (days/year)** 20 Environment factors not influenced by risk management: 10 Local freshwater dilution factor Local marine water dilution factor 100 Other given operational conditions affecting environmental None. exposure: Release fraction to air from process (initial release prior to 6.88x10-4 RMM) Release fraction to soil from process (initial release prior to 6.88x10-3 RMM) Release fraction to wastewater from process (initial release 1.38 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 Not applicable. prevent release: Soil emission controls are not applicable as there is no direct release to soil. discharges, air emissions and releases to soil:

Technical on-site conditions and measures to reduce or limit

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:

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

=>37.4

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure Contributing scenario controlling environmental exposure for 4: Processing aid Operational conditions: Indoor use Product characteristics: Not applicable. Amounts used: Not available. Fraction of EU tonnage used in region Regional use tonnage 2418 Fraction of Regional tonnage used locally 25% 604 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 2745 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 10 Local marine water dilution factor 100 Other given operational conditions affecting environmental None. exposure: Release fraction to air from process (initial release prior to 1.1x10-3 RMM) Release fraction to soil from process (initial release prior to RMM) Release fraction to wastewater from process (initial release prior to RMM) Not available. Release fraction to air from wide dispersive use (regional Release fraction to soil from wide dispersive use (regional Not available. Release fraction to wastewater from wide dispersive use Not available. Technical conditions and measures at process level (source) to Not applicable. prevent release: Technical on-site conditions and measures to reduce or limit Soil emission controls are not applicable as there is no direct release to soil. discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of No air emission controls required; required removal efficiency is 0%. Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required. to provide the required removal efficiency of 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:

Conditions and measures related to municipal sewage treatment

plant:

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives Operational conditions: Indoor use Product characteristics: Not applicable. Amounts used: Not available. Fraction of EU tonnage used in region Regional use tonnage 10230 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 7014 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: 10 Local freshwater dilution factor Local marine water dilution factor 100 Other given operational conditions affecting environmental None. exposure: Release fraction to air from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to 5.00x10-3 RMM) Release fraction to wastewater from process (initial release 0.01 prior to RMM) Release fraction to air from wide dispersive use (regional Not available.

only)

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

Release fraction to wastewater from wide dispersive use

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

Technical on-site conditions and measures to reduce or limit

discharges, air emissions and releases to soil:

Treat air emission to provide a typical removal efficiency of

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

to provide the required removal efficiency of

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.

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%.

=>37.4

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.2 Control of worker exposure

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

(multistage and/or significant contact)

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers

Indoor industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

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

Organisational measures to prevent/limit releases,

Not applicable.

Not applicable.

dispersion and exposure:

Personal protection:

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

management supervision controls.

Section 2.2 Control of worker exposure

Contributing scenario controlling worker exposure for 1: Calendering operations

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers

Indoor industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

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

removal efficiency of 90%

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

Not applicable.

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: Spraying in industrial settings and applications

Product characteristics:

Liquid. Covers concentrations up to 15%

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers exposure:

Indoor industrial setting

Not applicable.

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

Organisational measures to prevent/limit releases,

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

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

Not applicable.

dispersion and exposure:

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Personal protection:

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

Section 2.2 Control of worker exposure

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

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used: Not applicable.

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

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:

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

containers at dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used: Not applicable.

Frequency and duration of use:

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.

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: 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:

Liquid. Covers concentrations up to 15%

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.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

Not applicable.

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

Section 2.2 Control of worker exposure

Contributing scenario controlling worker exposure for 6: Treatment of articles by dipping and pouring Liquid. Covers concentrations up to 15%

Product characteristics:

Not applicable.

Amounts used:

Exposure duration per day: 1-4 hours

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

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

Other given operational conditions affecting workers

Indoor industrial setting

exposure:

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

Not applicable.

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

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

Organisational measures to prevent/limit releases,

Not applicable.

dispersion and exposure: Personal protection:

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

management supervision controls.

Section 2.2 Control of worker exposure

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

pelletisation

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used:

Not applicable.

Frequency and duration of use:

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

Not applicable.

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

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

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

Not applicable.

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

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

management supervision controls.

Personal protection:

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

> ERC08e, ERC08f, ERC11a, ERC12a, ERC12b 183/283

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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	4.26	3.5	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.021	0.135	EUSES calculation
Grassland averaged mg/kg dwt	0.041	0.155	EUSES calculation
Groundwater mg/l	Not evaluated.	1.35x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	1.18x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	9.74x10-4	9.74x10-4	EUSES calculation
Annual deposition mg/m²/d	1.76x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0	EUSES calculation	

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	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: Epoxy curing agent in paint

Release from point source

(local exposure estimation) kg/day	exposure estimation kg/day	
0	0	EUSES calculation
Not evaluated.	0	EUSES calculation
0	3.1	EUSES calculation
Not evaluated.	0	Table R16.23[REACH]
Value	Justification	
0	EUSES calculation	
0	EUSES calculation	
Local concentration	PEC aquatic (local+regional)	Justification
0	1.43x10-3	EUSES calculation
0	1.42x10-4	EUSES calculation
Not applicable.	Not applicable.	Not applicable.
Local concentration	PEC sediment (local+regional)	Justification
Not evaluated.	0.722	EUSES calculation
Not evaluated.	0.072	EUSES calculation
Local concentration	PEC soil (local+regional)	Justification
Not evaluated.	0.114	EUSES calculation
Not evaluated.	0.114	EUSES calculation
Not evaluated.	1.13x10-3	EUSES calculation
Local concentration	PEC air (local+regional)	Justification
Not evaluated.	Not evaluated.	EUSES calculation
	Not evaluated. Not evaluated. Value	day00Not evaluated.03.1Not evaluated.0Ustification0Uses Calculation0EUSES calculation0EUSES calculation0EUSES calculation01.43x10-301.42x10-4Not applicable.Not applicable.Local concentrationPEC sediment (local+regional)Not evaluated.0.722Not evaluated.0.072Local concentrationPEC soil (local+regional)Not evaluated.0.114Not evaluated.0.114Local concentrationPEC air (local+regional)

Triethylenetetramine, TETA

Identified use name: 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

Justification

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, ERC02, ERC04, ERC05,

ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Annual average mg/m³ Not evaluated. 2.93x10-8 EUSES calculation
Annual deposition mg/m²/d Not evaluated. Not evaluated. EUSES calculation

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 3: Laboratory chemicals

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.502	1.38	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	2.51x10-4	6.88x10-4	EUSES calculation
Soil (direct releases only)	Not evaluated.	6.88x10-3	Local: Table R16.23[REACH], Total release for regional exposure estimation: EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.157	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	237	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0.016	0.017	EUSES calculation
Marine water mg/l	1.56x10-3	1.70x10-3	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.	8.6	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.860	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	8.20x10-8	0.114	EUSES calculation
Grassland averaged mg/kg dwt	1.62x10-7	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.98x10-8	Not evaluated.	EUSES calculation
Annual average mg/m³	3.82x10-9	3.31x10-8	EUSES calculation
Annual deposition mg/m²/d	6.92x10-9	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 4: Processing aid

	Release from point source (local exposure estimation) kg/	Total release for regional exposure estimation kg/day	Justification
Waste water	day 0	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0.012	1.82	EUSES calculation

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.26x10-5	0.114	EUSES calculation
Grassland averaged mg/kg dwt	8.44x10-5	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	2.00x10-6	2.02x10-6	EUSES calculation
Annual deposition mg/m²/d	3.6x10-6	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	12.8	7.71	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg	0.046	0.160	EUSES calculation

Triethylenetetramine, TETA

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

preparations containing EA up to 15% - Industrial Process Category: PROC05, PROC06, PROC07, PROC08a, PROC08b, PROC012, PROC014, PROC014

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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Grassland averaged mg/kg dwt 0.091 0.204 **EUSES** calculation Groundwater mg/l Not evaluated. 1.60x10-3 **EUSES** calculation PEC air (local+regional) Local concentration **Justification** During emission mg/m³ 3.55x10-3 Not evaluated. **EUSES** calculation Annual average mg/m³ 2.14x10-3 **EUSES** calculation 2.14x10-3 Annual deposition mg/m²/d 3.86x10-3 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)

Long term exposure, Systemic,

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

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

exposure estimates for other PROC are below this value

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

Not applicable.

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, 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.

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

acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Local, 0.914 The ECETOC TRA tool has been used to Not applicable. estimate workplace exposures unless Inhalable

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

The ECETOC TRA tool has been used to

below this value

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05,

ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 3.2 Workers - Exposure estin Contributing scenario controlling we		ering operations	
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.0822	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.457	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not 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 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 DNE has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.914	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3.2 Workers - Exposure estil Contributing scenario controlling we		o in industrial settings and app	lications
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.1286	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure. Systemic.	Not applicable.	0.457	The ECETOC TRA tool has been used to

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.1286	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.457	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable. Since the substance is not classified for Not applicable Dermal acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for Combined acute effects and therefore, no acute DNEL has been derived. 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 highest exposure level is given since the exposure estimates for other PROC are below this value Section 3.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 3: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to 0.0411 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. 0.548 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 Long term exposure, Systemic, Not evaluated. Not applicable. Not applicable. Combined Long term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Long term exposure, Local, Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL Inhalable has been derived. Short term exposure, Systemic, Not applicable. Not applicable Since the substance is not classified for **Dermal** acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable. 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.

Not applicable.

Triethylenetetramine, TETA

Short term exposure, Local, Dermal Not applicable.

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

has been derived.

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

PROC09, PROC13, PROC14

Since the substance is not classified for

acute effects and therefore, no acute DNEL

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

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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

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 Long term exposure, Systemic, Dermal

Not applicable.

Contributing scenarios

Dose/Concentration

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

Long term exposure, Systemic, Inhalable

Not applicable.

0.457

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, Combined

Long term exposure, Local, Dermal

Long term exposure, Local, Inhalable

Not evaluated.

Not applicable.

Not applicable.

Not applicable. Not applicable.

Not applicable.

Not applicable

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

icule effects and therefore, no ac

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

Combined

Not applicable

Not applicable.

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

has been derived.

Short term exposure, Local, Dermal Not applicable.

Not applicable.

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

has been derived.

Short term exposure, Local, Inhalable

Not applicable.

0.914

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

below this value

Justification

Section 3.2 Workers - Exposure estimation

Contributing scenario controlling worker exposure for 5: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Route of exposure

Dermal

Contributing scenarios

Not applicable.

Dose/Concentration 0.0822

The ECETOC TRA tool has been used to

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

below this value

Triethylenetetramine, TETA

Long term exposure, Systemic,

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Long term exposure, Systemic, Not applicable. 0.457 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not evaluated. Not 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. Short term exposure, Systemic, Not applicable. Since the substance is not classified for Not applicable Inhalable acute effects and therefore, no acute DNEL has been derived. Short term exposure, Systemic, Not applicable Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL Combined has been derived. Short term exposure, Local, Dermal Not applicable. Not applicable. Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived. 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 6: Treatment of articles by dipping and pouring Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, The ECETOC TRA tool has been used to Not applicable. 0.0411 **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value 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 Long term exposure, Systemic, Not applicable. Not applicable. Not evaluated. Combined Long term exposure, Local, Dermal Not applicable. 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

Not applicable.

Triethylenetetramine, TETA

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 15% - Industrial

has been derived.

has been derived.

Since the substance is not classified for

acute effects and therefore, no acute DNEL

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

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

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. 1.097 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: Production of preparations or articles by tabletting, compression, extrusion, pelletisation Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, Not applicable. 0.0822 The ECETOC TRA tool has been used to estimate workplace exposures unless **Dermal** otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, Not applicable. 0.457 The ECETOC TRA tool has been used to Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value 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 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, Since the substance is not classified for 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. 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

Triethylenetetramine, TETA

Identified use name: 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

below this value

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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

exposure estimates for other PROC are

Section 4: Guidance to check compliance with the exposure scenario

EnvironmentNot available.HealthNot available.

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

EnvironmentNot applicable.HealthNot applicable.Additional Good PracticesNot applicable.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition Multi-constituent substance **Product name** Triethylenetetramine, TETA

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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2: Operational conditions and risk management measures

Section 2.1 Contr	ol of environm	ental exposure
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Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

4650 Regional use tonnage Fraction of Regional tonnage used locally 25% **Annual site tonnage** 1160 Average Local Daily Tonnage (kg/day): 3867

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:

10 Local freshwater dilution factor Local marine water dilution factor 100

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 Not available.

Release fraction to soil from wide dispersive use (regional

only)

Not available.

1 10x10-3

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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 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 1: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use

Product characteristics:

Amounts used:

Not available. 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):

Maximum daily site tonnage

Frequency and duration of use:

Emission Days (days/year)

Environment factors not influenced by risk management:

Local freshwater dilution factor 10 Local marine water dilution factor 100 None.

Other given operational conditions affecting environmental exposure:

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

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

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

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

Not applicable.

10230

25%

2560

11636

Not available.

Continuous release

220

1.10x10-3

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%.

No wastewater treatment required.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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: Epoxy curing agent in paint

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 25% **Annual site tonnage** 2560 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:

10 Local freshwater dilution factor Local marine water dilution factor 100 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.

10230

11636

Not available.

220

None.

1.1x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure Contributing scenario controlling environmental exposure for 3: Laboratory chemicals Operational conditions: Indoor use Product characteristics: Not applicable. Amounts used: Not available. Fraction of EU tonnage used in region Regional use tonnage 100 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 25.1 Average Local Daily Tonnage (kg/day): 1255 Maximum daily site tonnage Not available. Frequency and duration of use: Continuous release **Emission Days (days/year)** 20 Environment factors not influenced by risk management: 10 Local freshwater dilution factor Local marine water dilution factor 100 Other given operational conditions affecting environmental None. exposure: Release fraction to air from process (initial release prior to 6.88x10-4 RMM) Release fraction to soil from process (initial release prior to 6.88x10-3 RMM) Release fraction to wastewater from process (initial release 1.38 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 Not applicable. prevent release: Technical on-site conditions and measures to reduce or limit Soil emission controls are not applicable as there is no direct release to soil. discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of No air emission controls required; required removal efficiency is 0%.

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

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:

=>37.4

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure Contributing scenario controlling environmental exposure for 4: Processing aid Operational conditions: Indoor use Product characteristics: Not applicable. Amounts used: Not available. Fraction of EU tonnage used in region Regional use tonnage 2418 Fraction of Regional tonnage used locally 25% 604 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 2745 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 10 Local marine water dilution factor 100 Other given operational conditions affecting environmental None. exposure: Release fraction to air from process (initial release prior to 1.1x10-3 RMM) Release fraction to soil from process (initial release prior to RMM) Release fraction to wastewater from process (initial release prior to RMM) Not available. Release fraction to air from wide dispersive use (regional Release fraction to soil from wide dispersive use (regional Not available. Release fraction to wastewater from wide dispersive use Not available. Technical conditions and measures at process level (source) to Not applicable. prevent release: Technical on-site conditions and measures to reduce or limit Soil emission controls are not applicable as there is no direct release to soil. discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of No air emission controls required; required removal efficiency is 0%. Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required. to provide the required removal efficiency of 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:

Conditions and measures related to municipal sewage treatment plant:

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05,

ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives Operational conditions: Indoor use Product characteristics: Not applicable. Amounts used: Fraction of EU tonnage used in region Not available. Regional use tonnage 10230 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 7014 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: 10 Local freshwater dilution factor Local marine water dilution factor 100 Other given operational conditions affecting environmental None. exposure: Release fraction to air from process (initial release prior to RMM) Release fraction to soil from process (initial release prior to 5.00x10-3 RMM) Release fraction to wastewater from process (initial release 0.01 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:

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.

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

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

••

=>37.4

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05,

ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.2 Control of worker exposure

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

(multistage and/or significant contact)

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

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,

Not applicable.

dispersion and exposure:

Personal protection:

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

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

management supervision controls.

Section 2.2 Control of worker exposure

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

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

Indoor industrial setting

exposure:

Technical conditions and measures at process level Not applicable.

(source) to prevent release:

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

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

Organisational measures to prevent/limit releases,

nemoval emolency e

dispersion and exposure:

Not applicable.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Personal protection:

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

Section 2.2 Control of worker exposure

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

containers at dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

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

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

Not applicable.

Not applicable.

Indoor industrial setting

Technical conditions and measures at process level

Other given operational conditions affecting workers

(source) to prevent release:

exposure:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Not applicable.

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.

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

Human factors not influenced by risk management:

Other given operational conditions affecting workers

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

Indoor industrial setting

Not applicable.

Not applicable.

Not applicable.

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

management supervision controls.

Section 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:

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:

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%

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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 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:

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

Organisational measures to prevent/limit releases,

Technical conditions and measures to control

dispersion from source towards the worker:

Not applicable.

Not applicable.

dispersion and exposure: Personal protection:

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

management supervision controls.

Section 2.2 Control of worker exposure

Contributing scenario controlling worker exposure for 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:

Not applicable.

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

Not applicable.

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

Not applicable.

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

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

management supervision controls.

Personal protection:

Section 2.2 Control of worker exposure

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

Product characteristics:

Liquid. Covers concentrations up to 2%

Amounts used:

Not applicable.

Frequency and duration of use:

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

Human factors not influenced by risk management:

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

Other given operational conditions affecting workers exposure:

Indoor industrial setting

Not applicable.

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

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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

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

Personal protection:

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

Not applicable.

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

Section 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	4.26	3.5	EUSES calculation
Soil (direct releases only)	0	0	TableR16.23 [REACH]
	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	Not evaluated.	1.43x10-3	EUSES calculation
Marine water mg/l	Not evaluated.	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.021	0.135	EUSES calculation
Grassland averaged mg/kg dwt	0.041	0.155	EUSES calculation
Groundwater mg/l	Not evaluated.	1.35x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	1.18x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	9.74x10-4	9.74x10-4	EUSES calculation
Annual deposition mg/m²/d	1.76x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	Not evaluated.	1.43x10-3	EUSES calculation
Marine water mg/l	Not evaluated.	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	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: 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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

Triethylenetetramine, TETA

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC14, PROC19

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

Subsequent service life relevant for that use: No.

Subsequent service life relevant for that use: No.
Environmental Release Category: ERC01, ERC02, ERC04, ERC05,
ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,
ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Fresh water mg/l	Not evaluated.	1.43x10-3	EUSES calculation
Marine water mg/l	Not evaluated.	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	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: Laboratory chemicals

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.502	1.38	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	2.51x10-4	6.88x10-4	EUSES calculation
Soil (direct releases only)	0	6.88x10-3	Local : Table R16.23[REACH] , Total release for regional exposure estimation : EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.157	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	237	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0.016	0.017	EUSES calculation
Marine water mg/l	1.56x10-3	1.70x10-3	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.	8.6	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.860	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	8.20x10-8	0.114	EUSES calculation
Grassland averaged mg/kg dwt	1.62x10-7	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.98x10-8	Not evaluated.	EUSES calculation
Annual average mg/m³	3.82x10-9	3.31x10-8	EUSES calculation

Triethylenetetramine, TETA

Identified use name: 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

bstance 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Annual deposition mg/m²/d 6.92x10-9 Not evaluated. **EUSES** calculation

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

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 4: Processing aid

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0.012	1.82	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	Not evaluated.	1.43x10-3	EUSES calculation
Marine water mg/l	Not evaluated.	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.26x10-5	0.114	EUSES calculation
Grassland averaged mg/kg dwt	8.44x10-5	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	2.00x10-6	2.02x10-6	EUSES calculation
Annual deposition mg/m²/d	3.6x10-6	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives

Release from point source

	(local exposure estimation) kg/	exposure estimation kg/day	
Waste water	0	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	12.8	7.71	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	Value	Justification	

Total release for regional

EUSES calculation

Concentration in sewage (PECstp)

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Concentration in sewage sludge mg/kg dwt	0	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	Not evaluated.	1.43x10-3	EUSES calculation
Marine water mg/l	Not evaluated.	1.42x10-4	EUSES calculation
Intermittent release. mg/l	Not applicable.	Not applicable.	Not applicable.
Fresh water sediment mg/kg dwt Marine water sediment mg/kg dwt	Local concentration Not evaluated. Not evaluated.	PEC sediment (local+regional) 0.722 0.072	Justification EUSES calculation EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.046	0.160	EUSES calculation
Grassland averaged mg/kg dwt	0.091	0.204	EUSES calculation
Groundwater mg/l	Not evaluated.	1.60x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.55x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	2.14x10-3	2.14x10-3	EUSES calculation
Annual deposition mg/m²/d	3.86x10-3	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.05	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNI 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 DNI 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 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 DNI has been derived.

Not applicable.

Triethylenetetramine, TETA

Short term exposure, Local, Dermal Not applicable

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

has been derived.

preparations containing EA up to 2% - Industrial **Process Category:** PROC05, PROC07, PROC08a, PROC08b, PROC09,

PROC10, PROC13, PROC14, PROC19

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

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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Short term exposure, Local, Inhalable

Not applicable.

1.22

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

Section 3.2 Workers - Exposure estimation

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

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

Long term exposure, Systemic,

Dermal

Not applicable.

0.09

Justification

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

exposure estimates for other PROC are below this value

Long term exposure, Systemic,

Inhalable

Not applicable.

0.61

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

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

below this value Not applicable.

Long term exposure, Systemic,

Combined

Long term exposure, Local, Dermal

Long term exposure, Local,

Inhalable

Not evaluated.

Not applicable

Not applicable

Not applicable.

Not applicable

Not applicable.

Not applicable.

Not applicable. Not applicable.

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

has been derived.

Short term exposure, Systemic, **Dermal**

Short term exposure, Systemic,

Inhalable

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, Systemic,

Short term exposure, Local,

Combined

Inhalable

Not applicable

Not applicable.

Not applicable.

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

has been derived.

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

0.09

1.22

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

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Section 3.2 Workers - Exposure est Contributing scenario controlling v containers at dedicated facilities		er of substance or preparation (c	charging/discharging) from/to vessels/large
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
Short term exposure, Local, Derma Short term exposure, Local,	Not applicable Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNE has been derived. The ECETOC TRA tool has been used to
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, Derma		Not applicable.	Not applicable.
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
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, The ECETOC TRA tool has been used to Not applicable. 0.05

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

> estimate workplace exposures unless otherwise indicated. 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, 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, Not applicable Not applicable. Since the substance is not classified for Inhalable

acute effects and therefore, no acute DNEL

has been derived.

Triethylenetetramine, TETA

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 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, ERC02, ERC04, ERC05,

ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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	mation		
		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.	0.05	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	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

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 2% - Industrial **Process Category:** PROC05, PROC07, PROC08a, PROC08b, PROC09,

below this value

PROC10, PROC13, PROC14, PROC19

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

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

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Contributing scenario controlling wo			or and other country
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 DNEI has been derived.
Short term exposure, Local, Inhalable	Not applicable.	1.22	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3.2 Workers - Exposure esting Contributing scenario controlling wo		ent of articles by dipping and po	purina
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,	Not applicable.	0.61	The ECETOC TRA tool has been used to

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.09	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal Short term exposure, Local, Inhalable	Not applicable. Not applicable.	Not applicable. 1.22	Not applicable. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3.2 Workers - Exposure esti			
Contributing scenario controlling we pelletisation	orker exposure for 7: Product	ion of preparations or articles	by tabletting, compression, extrusion,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.05	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal Short term exposure, Local, Inhalable	Not applicable. Not applicable.	Not applicable. 1.22	Not applicable. The ECETOC TRA tool has been used to estimate workplace exposures unless

Identified use name: 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

below this value

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

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

Sector of end use: SU03

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.09	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.61	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal Short term exposure, Local, Inhalable	Not applicable. Not applicable.	Not applicable. 1.22	Not applicable. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

Section 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.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b



Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

 Product definition
 Multi-constituent substance

 Product name
 Triethylenetetramine, TETA

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

1 10x10-3

Sector of end use: SU03, SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2: Operational conditions and risk management measures

Section 2.1 Control of environmen

Contributing scenario controlling environmental exposure for 0: Ashless dispersant

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 4650
Fraction of Regional tonnage used locally 25%
Annual site tonnage 1160
Average Local Daily Tonnage (kg/day): 3867

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 10

Local marine water dilution factor 100

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM)

D. I.

Release fraction to soil from process (initial release prior to

· Civilini)

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 Not available.

only)

Triethylenetetramine, TETA

Identified use name: 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

PROCTO, PROCTS, PROCT4, PROCTS

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, ERC02, ERC04, ERC05,

ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Release fraction to wastewater from wide dispersive use

Technical conditions and measures at process level (source) to

Not available. Not applicable.

prevent release:

Technical on-site conditions and measures to reduce or limit

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

discharges, air emissions and releases to soil:

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

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

to provide the required removal efficiency of

No wastewater treatment required.

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 Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

plant:

Not available. Fraction of EU tonnage used in region

10230 Regional use tonnage Fraction of Regional tonnage used locally **Annual site tonnage** Average Local Daily Tonnage (kg/day): 11636

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 10 Local marine water dilution factor 100 Other given operational conditions affecting environmental None.

exposure:

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

Release fraction to soil from process (initial release prior to

Release fraction to wastewater from process (initial release

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

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

25%

2560

Continuous release

220

1.10x10-3

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%.

No wastewater treatment required.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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: Epoxy curing agent in paint

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 25% **Annual site tonnage** 11636 Average Local Daily Tonnage (kg/day):

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 100

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.

10230

2560

10

None.

1.1x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05,

ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure Contributing scenario controlling environmental exposure for 3: Laboratory chemicals Operational conditions: Indoor use Product characteristics: Not applicable. Amounts used: Not available. Fraction of EU tonnage used in region Regional use tonnage 100 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 25.1 Average Local Daily Tonnage (kg/day): 1255 Maximum daily site tonnage Not available. Frequency and duration of use: Continuous release **Emission Days (days/year)** 20 Environment factors not influenced by risk management: 10 Local freshwater dilution factor Local marine water dilution factor 100 Other given operational conditions affecting environmental None. exposure: Release fraction to air from process (initial release prior to 6.88x10-4 RMM) Release fraction to soil from process (initial release prior to 6.88x10-3 RMM) Release fraction to wastewater from process (initial release 1.38 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 Not applicable. prevent release: Technical on-site conditions and measures to reduce or limit Soil emission controls are not applicable as there is no direct release to soil. discharges, air emissions and releases to soil:

narges, 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:

=>37.4

Not available.

Triethylenetetramine, TETA

Identified use name: 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

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

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

Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure Contributing scenario controlling environmental exposure for 4: Processing aid Operational conditions: Indoor use Product characteristics: Not applicable. Amounts used: Not available. Fraction of EU tonnage used in region Regional use tonnage 2418 Fraction of Regional tonnage used locally 25% 604 **Annual site tonnage** Average Local Daily Tonnage (kg/day): 2745 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 10 Local marine water dilution factor 100 Other given operational conditions affecting environmental None. exposure: Release fraction to air from process (initial release prior to 1.1x10-3 RMM) Release fraction to soil from process (initial release prior to RMM) Release fraction to wastewater from process (initial release prior to RMM) Not available. Release fraction to air from wide dispersive use (regional Release fraction to soil from wide dispersive use (regional Not available. Release fraction to wastewater from wide dispersive use Not available. Technical conditions and measures at process level (source) to Not applicable. prevent release: Technical on-site conditions and measures to reduce or limit Soil emission controls are not applicable as there is no direct release to soil. discharges, air emissions and releases to soil: Treat air emission to provide a typical removal efficiency of No air emission controls required; required removal efficiency is 0%. Treat on-site wastewater (prior to receiving water discharge) No wastewater treatment required. to provide the required removal efficiency of If discharging to domestic sewage treatment plant, provide Not available.

the required onsite wastewater removal efficiency of

Conditions and measures related to municipal sewage treatment plant:

Organisational measures to prevent/limit release from site:

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives Operational conditions: Indoor use Product characteristics: Not applicable. Amounts used: Fraction of EU tonnage used in region Not available. Regional use tonnage 10230 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 7014 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 10

Local marine water dilution factor 100

r given operational conditions affecting environmental None.

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:

5.00x10-3

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%.

=>37.4

Not available.

Triethylenetetramine, TETA

Identified use name: 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

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

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

Not applicable.

Not applicable.

Not applicable.

Other given operational conditions affecting workers Indoor industrial setting

Indoor industrial setting and professional setting exposure:

Indoor professional setting

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

management supervision controls.

Section 2.2 Control of worker exposure

Contributing scenario controlling worker exposure for 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: Covers daily exposures up to 8 hours (unless stated differently)

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

Not applicable.

Other given operational conditions affecting workers Indoor industrial setting

exposure:

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

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

removal efficiency of 90%

Not applicable.

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

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

management supervision controls.

Section 2.2 Control of worker exposure

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

containers at non-dedicated facilities

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

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

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

Other given operational conditions affecting workers Indoor industrial setting

Indoor industrial setting and professional setting exposure:

Indoor professional setting

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.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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 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 4: Transfer of substance or preparation into small containers (dedicated filling line,

including weighing)

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

Frequency and duration of use:

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:

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

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

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.

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:

Other given operational conditions affecting workers

exposure:

Indoor industrial setting

Indoor industrial setting and professional setting

Indoor professional setting

Technical conditions and measures at process level

(source) to prevent release:

Not applicable.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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:

Not applicable.

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%

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,

pelletisation

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

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.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.2 Control of worker exposure

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

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

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

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

Not applicable.

Not applicable.

Not applicable.

Other given operational conditions affecting workers Indoor industrial setting

Indoor industrial setting and professional setting exposure:

Indoor professional setting

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

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

Personal protection:

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	
0	0	EUSES calculation
Not evaluated.	0	EUSES calculation
4.26	3.5	EUSES calculation
Not evaluated.	0	Table R16.23[REACH]
Value	Justification	
0	EUSES calculation	
0	EUSES calculation	
Local concentration	PEC aquatic (local+regional)	Justification
0	1.43x10-3	EUSES calculation
0	1.42x10-4	EUSES calculation
Not applicable.	Not applicable.	Not applicable.
Local concentration	PEC sediment (local+regional)	Justification
Not evaluated.	0.722	EUSES calculation
Not evaluated.	0.072	EUSES calculation
Local concentration	PEC soil (local+regional)	Justification
0.021	0.135	EUSES calculation
0.041	0.155	EUSES calculation
Not evaluated.	1.35x10-3	EUSES calculation
Local concentration	PEC air (local+regional)	Justification
1.18x10-3	Not evaluated.	EUSES calculation
	day 0 Not evaluated. 4.26 Not evaluated. Value 0 0 Local concentration 0 Not applicable. Local concentration Not evaluated. Not evaluated. Local concentration 0.021 0.041 Not evaluated. Local concentration	00Not evaluated.04.263.5Not evaluated.0ValueJustification0EUSES calculation0EUSES calculationLocal concentrationPEC aquatic (local+regional)01.43x10-301.42x10-4Not applicable.Not applicable.Local concentrationPEC sediment (local+regional)Not evaluated.0.722Not evaluated.0.072Local concentrationPEC soil (local+regional)0.0210.1350.0410.155Not evaluated.1.35x10-3Local concentrationPEC air (local+regional)

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Annual average mg/m³ 9.74x10-4 9.74x10-4 EUSES calculation
Annual deposition mg/m²/d 1.76x10-4 Not evaluated. EUSES calculation

Local concentration PEC aquatic (local+regional) Justification

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	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: 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	Value	Justification	

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Local concentration Not evaluated.	PEC soil (local+regional) 0.114	Justification EUSES calculation
dwt	Not evaluated.	0.114	EUSES calculation
dwt Grassland averaged mg/kg dwt	Not evaluated. Not evaluated.	0.114 0.114	EUSES calculation EUSES calculation
dwt Grassland averaged mg/kg dwt	Not evaluated. Not evaluated. Not evaluated.	0.114 0.114 1.13x10-3	EUSES calculation EUSES calculation EUSES calculation
dwt Grassland averaged mg/kg dwt Groundwater mg/l	Not evaluated. Not evaluated. Not evaluated. Local concentration	0.114 0.114 1.13x10-3 PEC air (local+regional)	EUSES calculation EUSES calculation EUSES calculation Justification
dwt Grassland averaged mg/kg dwt Groundwater mg/l During emission mg/m³	Not evaluated. Not evaluated. Not evaluated. Local concentration Not evaluated.	0.114 0.114 1.13x10-3 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	Not evaluated. Not evaluated. Not evaluated. Local concentration Not evaluated. Not evaluated.	0.114 0.114 1.13x10-3 PEC air (local+regional) Not evaluated. 2.93x10-8	EUSES calculation EUSES calculation EUSES calculation Justification EUSES calculation EUSES calculation

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.502	1.38	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	2.51x10-4	6.88x10-4	EUSES calculation
Soil (direct releases only)	Not evaluated.	6.88x10-3	Local : Table R16.23[REACH] , Total release for regional exposure estimation : EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.157	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	237	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0.016	0.017	EUSES calculation
Marine water mg/l	1.56x10-3	1.70x10-3	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.	8.6	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.860	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	8.20x10-8	0.114	EUSES calculation
mg/kg dwt Fresh water mg/l Marine water mg/l Intermittent release. mg/l Fresh water sediment mg/kg dwt Marine water sediment mg/kg dwt Agricultural soil averaged mg/kg	0.016 1.56x10-3 Not applicable. Local concentration Not evaluated. Not evaluated. Local concentration	0.017 1.70x10-3 Not applicable. PEC sediment (local+regional) 8.6 0.860 PEC soil (local+regional)	EUSES calculation EUSES calculation Not applicable. Justification EUSES calculation EUSES calculation Justification

Triethylenetetramine, TETA

Identified use name: 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

Instification

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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Grassland averaged mg/kg dwt 1.62x10-7 0.114 **EUSES** calculation Groundwater mg/l Not evaluated. 1.13x10-3 **EUSES** calculation **Local concentration** PEC air (local+regional) **Justification** Not evaluated. During emission mg/m³ 6.98x10-8 **EUSES** calculation Annual average mg/m³ 3.82x10-9 3.31x10-8 **EUSES** calculation Annual deposition mg/m²/d 6.92x10-9 Not evaluated. **EUSES** calculation **Local concentration** PEC aquatic (local+regional) Justification Not applicable. Micro-organism mg/l Not applicable. Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 4: Processing aid

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0.012	1.82	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.26x10-5	0.114	EUSES calculation
Grassland averaged mg/kg dwt	8.44x10-5	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	2.00x10-6	2.02x10-6	EUSES calculation
Annual deposition mg/m²/d	3.6x10-6	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b **227/283**

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	12.8	7.71	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.046	0.160	EUSES calculation
Grassland averaged mg/kg dwt	0.091	0.204	EUSES calculation
Groundwater mg/l	Not evaluated.	1.60x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.55x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	2.14x10-3	2.14x10-3	EUSES calculation
Annual deposition mg/m²/d	3.86x10-3	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.	0.14	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.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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 esti Contributing scenario controlling we		ng in industrial settings and app	lications
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.11	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.30	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.

1.22

Triethylenetetramine, TETA

Short term exposure, Local,

Inhalable

Not applicable.

Identified use name: Use of ethylenamines in open processes with high exposure potential and evaporation as most likely exposure form - Use of preparations containing EA up to 0.5% - Industrial Process Category: PROC05, PROC07, PROC08a, PROC08b, PROC09,

below this value

PROC10, PROC13, PROC14, PROC19

The ECETOC TRA tool has been used to

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

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

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

		r of substance or preparation (d	charging/discharging) from/to vessels/large
containers at non-dedicated facilitie		DecelConsentention	lundisi andi an
Route of exposure Long term exposure, Systemic, Dermal	Contributing scenarios Not applicable.	Dose/Concentration 0.14	Justification The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal Short term exposure, Local, Inhalable	Not applicable. Not applicable.	Not applicable. 1.52	Not applicable. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3.2 Workers - Exposure estil Contributing scenario controlling we containers at dedicated facilities		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.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the

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.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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 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, The ECETOC TRA tool has been used to Not applicable. 0.14 **Dermal** estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value Long term exposure, Systemic, 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. Not applicable. Not applicable. Long term exposure, Local, Not applicable. Inhalable Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. **Dermal** Short term exposure, Systemic, Not applicable. Not applicable. Not applicable. Inhalable Not applicable. Short term exposure, Systemic, Not applicable. Not applicable. Combined Short term exposure, Local, Dermal Not applicable. Not applicable. Not applicable. Short term exposure, Local, Not applicable. The ECETOC TRA tool has been used to 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 5: Roller application or brushing of adhesive and other coating

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

Long term exposure, Systemic,

Dermal

Not applicable. 0.14 **Justification**

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

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

below this value

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

0.76 The ECETOC TRA tool has been used to Long term exposure, Systemic, 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 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 6: 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 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..76 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.

1.52

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.

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

Triethylenetetramine, TETA

Short term exposure, Local,

Inhalable

Short term exposure, Local, Dermal

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 3.2 Workers - Exposure esti Contributing scenario controlling was pelletisation		tion of preparations or articles l	by tabletting, compression, extrusion,
Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Dermal	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Inhalable	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Short term exposure, Local, Dermal Short term exposure, Local, Inhalable	Not applicable. Not applicable.	Not applicable. 1.52	Not applicable. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Section 3.2 Workers - Exposure esti Contributing scenario controlling w		siving with intimate contact and	only DDE available
		_	
Route of exposure Long term exposure, Systemic, Dermal	Contributing scenarios Not applicable.	Dose/Concentration 0.14	Justification The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Inhalable	Not applicable.	0.76	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value
Long term exposure, Systemic, Combined	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Dermal	Not evaluated.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DN has been derived.

Not applicable.

Triethylenetetramine, TETA

Dermal

Short term exposure, Systemic,

Not applicable

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

has been derived.

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

PROC10, PROC13, PROC14, PROC19

Since the substance is not classified for

acute effects and therefore, no acute DNEL

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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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. 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.

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. 1.52 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

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.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition Multi-constituent substance **Product name** Triethylenetetramine, TETA

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

1.10x10-3

Sector of end use: SU22

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 4650 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 1160 3867 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 10 Local marine water dilution factor 100

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 Not available.

Release fraction to soil from wide dispersive use (regional

Not available.

Release fraction to wastewater from wide dispersive use Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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 plant:

Not applicable.

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

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

No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

only)

Fraction of EU tonnage used in region

Regional use tonnage Fraction of Regional tonnage used locally 25% 2560 Annual site tonnage Average Local Daily Tonnage (kg/day): 11636

Maximum daily site tonnage Frequency and duration of use:

Emission Days (days/year)

Environment factors not influenced by risk management:

Local freshwater dilution factor 10 Local marine water dilution factor 100

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:

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 plant:

Not available.

10230

Not available.

Continuous release

220

None.

1.10x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Epoxy curing agent in paint

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 10230 Fraction of Regional tonnage used locally 25% 2560 Annual site tonnage 11636 Average Local Daily Tonnage (kg/day):

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:

10 Local freshwater dilution factor Local marine water dilution factor 100 None.

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:

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 plant:

1.1x10-3

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.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 100
Fraction of Regional tonnage used locally 25%
Annual site tonnage 25.1
Average Local Daily Tonnage (kg/day): 1255

Maximum daily site tonnage Not available.

Frequency and duration of use: Continuous release

6.88x10-4

6.88x10-3

Not available.

Not available.

Not available.

Not applicable.

=>37.4

Not available.

1.38

Emission Days (days/year) 20

Environment factors not influenced by risk management:

Local freshwater dilution factor 10

Local marine water dilution factor 100

r given operational conditions affecting environmental None.

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:

narges, 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 plant:

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 4: Processing aid

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 2418
Fraction of Regional tonnage used locally 25%
Annual site tonnage 604

Triethylenetetramine, TETA

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

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

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

preparations containing EA up to 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

2745 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage Not available.

Continuous release Frequency and duration of use:

Emission Days (days/year) 220

Environment factors not influenced by risk management:

Local freshwater dilution factor 10 Local marine water dilution factor 100

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Conditions and measures related to municipal sewage treatment

plant:

None.

1.1x10-3

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%.

No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

Regional use tonnage 10230 25% Fraction of Regional tonnage used locally **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 7014

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 10 Local marine water dilution factor 100 None. Other given operational conditions affecting environmental

exposure:

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to 5.00x10-3 RMM)

Release fraction to wastewater from process (initial release 0.01 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.

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 plant:

Not available.

Not available.

Not applicable.

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

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

Not available.

Section 2.2 Control of worker exposure

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

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

Amounts used: Not applicable.

Frequency and duration of use: Exposure duration per day: 15 min. to < 1 hour

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

Other given operational conditions affecting workers Indoor professional setting exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Not applicable.

Not applicable.

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

minimum efficacy of 95%

Section 2.2 Control of worker exposure

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

Product characteristics: Liquid. Covers concentrations up to 25%

Amounts used: Not applicable.

Frequency and duration of use: Avoid carrying out operation for more than 15 minutes.

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

Other given operational conditions affecting workers Indoor professional setting exposure:

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

Not applicable.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05,

ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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

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

Personal protection:

Not applicable.

Not applicable.

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

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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	4.26	3.5	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.021	0.135	EUSES calculation
Grassland averaged mg/kg dwt	0.041	0.155	EUSES calculation
Groundwater mg/l	Not evaluated.	1.35x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	1.18x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	9.74x10-4	9.74x10-4	EUSES calculation
Annual deposition mg/m²/d	1.76x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	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: Epoxy curing agent in paint

Release from point source

	(local exposure estimation) kg/day	exposure estimation kg/day	
Waste water	0	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation

Total release for regional

Triethylenetetramine, TETA

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

Justification

Process Category: PROC05, PROC08a

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

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	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: Laboratory chemicals

Release from point source

Triethylenetetramine, TETA Identified use name: Use of ethylenamines			hylenamines in open processes with
	Local concentration	PEC aquatic (local+regional)	Justification
Annual deposition mg/m²/d	6.92x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	3.82x10-9	3.31x10-8	EUSES calculation
During emission mg/m³	6.98x10-8	Not evaluated.	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
Grassland averaged mg/kg dwt	1.62x10-7	0.114	EUSES calculation
Agricultural soil averaged mg/kg dwt	8.20x10-8	0.114	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Marine water sediment mg/kg dwt	Not evaluated.	0.860	EUSES calculation
Fresh water sediment mg/kg dwt	Not evaluated.	8.6	EUSES calculation
	Local concentration	PEC sediment (local+regional)	Justification
Intermittent release. mg/l	Not applicable.	Not applicable.	Not applicable.
Marine water mg/l	1.56x10-3	1.70x10-3	EUSES calculation
Fresh water mg/l	0.016	0.017	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Concentration in sewage sludge mg/kg dwt	237	EUSES calculation	
Concentration in sewage (PECstp) mg/l	0.157	EUSES calculation	
	Value	Justification	
Soil (direct releases only)	0	6.88x10-3	Local : Table R16.23[REACH] , Total release for regional exposure estimation : EUSES calculation
air (direct + STP)	2.51x10-4	6.88x10-4	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
Waste water	0.502	1.38	EUSES calculation
	day	onposition and angle any	

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

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

Justification

Process Category: PROC05, PROC08a

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

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 4: Processing aid

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0.012	1.82	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.26x10-5	0.114	EUSES calculation
Grassland averaged mg/kg dwt	8.44x10-5	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	2.00x10-6	2.02x10-6	EUSES calculation
Annual deposition mg/m²/d	3.6x10-6	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.056	28	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	0	EUSES calculation
Soil (direct releases only)	Not evaluated.	14	Table R16.23[REACH]
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.018	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	26.5	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

1.74x10 ⁻³	3.17x10 ⁻³	EUSES calculation
2.78x10 ⁻⁴	4.2x10 ⁻⁴	EUSES calculation
Not applicable.	Not applicable.	Not applicable.
Local concentration	PEC sediment (local+regional)	Justification
Not evaluated.	1.60	EUSES calculation
Not evaluated.	0.212	EUSES calculation
Local concentration	PEC soil (local+regional)	Justification
4.75x10 ⁻¹⁰	0.114	EUSES calculation
9.4x10 ⁻¹⁰	0.114	EUSES calculation
Not evaluated.	1.13x10 ⁻³	EUSES calculation
Local concentration	PEC air (local+regional)	Justification
2.22x10 ⁻¹¹	Not evaluated.	EUSES calculation
2.22x10 ⁻¹¹	2.93x10 ⁻⁸	EUSES calculation
4.01x10 ⁻¹¹	Not evaluated.	EUSES calculation
Local concentration	PEC aquatic (local+regional)	Justification
Not applicable.	Not applicable.	Not applicable.
	2.78x10 ⁻⁴ Not applicable. Local concentration Not evaluated. Not evaluated. Local concentration 4.75x10 ⁻¹⁰ 9.4x10 ⁻¹⁰ Not evaluated. Local concentration 2.22x10 ⁻¹¹ 2.22x10 ⁻¹¹ 4.01x10 ⁻¹¹ Local concentration	2.78x10 ⁻⁴ Not applicable. Local concentration Not evaluated. Not evaluated. Local concentration PEC sediment (local+regional) 1.60 Not evaluated. Local concentration 4.75x10 ⁻¹⁰ PEC soil (local+regional) 0.114 9.4x10 ⁻¹⁰ 0.114 Not evaluated. 1.13x10 ⁻³ Local concentration 2.22x10 ⁻¹¹ Not evaluated. 2.29x10 ⁻¹¹ 2.22x10 ⁻¹¹ 2.93x10 ⁻⁸ Not evaluated. Local concentration PEC aquatic (local+regional)

Section 3.2	Workers -	Evnosuro	actimation

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

Triethylenetetramine, TETA

Identified use name: 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

has been derived.

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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Short term exposure, Local, Inhalable

Not applicable.

0.73115

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

Section 3.2 Workers - Exposure estimation

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

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

Long term exposure, Systemic,

Dermal

Not applicable.

0.0685714

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

below this value

Long term exposure, Systemic,

Inhalable

Not applicable.

0.45697

The ECETOC TRA tool has been used to

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

below this value Not applicable.

Long term exposure, Systemic, Combined

Long term exposure, Local, Dermal

Long term exposure, Local,

Inhalable

Not applicable. Not applicable

Not evaluated.

Not applicable.

Not applicable. Not applicable. Not applicable.

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

has been derived.

Short term exposure, Systemic, **Dermal**

Not applicable

Not applicable.

Since the substance is not classified for

acute effects and therefore, no acute DNEL

has been derived.

Short term exposure, Systemic, Inhalable

Short term exposure, Systemic,

Not applicable

Not applicable

Not applicable.

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

has been derived.

Combined

Not applicable.

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

has been derived

Short term exposure, Local, Dermal Not applicable.

Not applicable.

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

has been derived.

Short term exposure, Local,

Inhalable

Not applicable.

0.91393

The ECETOC TRA tool has been used to estimate workplace 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.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

 Product definition
 Multi-constituent substance

 Product name
 Triethylenetetramine, TETA

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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 4650
Fraction of Regional tonnage used locally 25%
Annual site tonnage 1160
Average Local Daily Tonnage (kg/day): 3867

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 10

Local marine water dilution factor 100

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

onlv)

Release fraction to soil from wide dispersive use (regional

only)

Release fraction to wastewater from wide dispersive use

Not available.

1.10x10-3

Not available.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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 plant:

Not applicable.

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

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

No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage Fraction of Regional tonnage used locally 25% 2560 Annual site tonnage Average Local Daily Tonnage (kg/day): 11636

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 Local marine water dilution factor 100

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

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

Conditions and measures related to municipal sewage treatment plant:

10230

Not available.

Continuous release

10

None.

1.10x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Epoxy curing agent in paint

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 10230 Fraction of Regional tonnage used locally 25% 2560 Annual site tonnage 11636 Average Local Daily Tonnage (kg/day):

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:

10 Local freshwater dilution factor Local marine water dilution factor 100

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:

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 plant:

None.

1.1x10-3

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%. No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 100 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 25.1 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 Local marine water dilution factor 100 Other given operational conditions affecting environmental None.

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)

the required onsite wastewater removal efficiency of

1255

Not available.

Continuous release

10

6.88x10-4

6.88x10-3

1.38

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%.

=>37.4

to provide the required removal efficiency of

If discharging to domestic sewage treatment plant, provide

Conditions and measures related to municipal sewage treatment plant:

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 4: Processing aid

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

2418 Regional use tonnage Fraction of Regional tonnage used locally 25% **Annual site tonnage** 604

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

2745 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage Not available.

Continuous release Frequency and duration of use:

Emission Days (days/year) 220

Environment factors not influenced by risk management:

Local freshwater dilution factor 10 Local marine water dilution factor 100

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Conditions and measures related to municipal sewage treatment plant:

None.

1.1x10-3

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%.

No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

Regional use tonnage 10230 25% Fraction of Regional tonnage used locally **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 7014

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 10 Local marine water dilution factor 100 None. Other given operational conditions affecting environmental

exposure:

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to 5.00x10-3

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 plant:

0.01

Not available.

Not available.

Not available.

Not applicable.

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

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

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

Other given operational conditions affecting workers Indoor professional setting exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

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

removal efficiency of 90%

Not applicable.

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

management supervision controls.

Section 2.2 Control of worker exposure

Contributing scenario controlling worker exposure for 1: Roller application or brushing of adhesive and other coating

Product characteristics: Liquid. Covers concentrations up to 15%

Amounts used: Not applicable.

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

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

Indoor professional setting

Not applicable.

Not applicable.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05,

ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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

dispersion and exposu

Not applicable.

Personal protection:

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

Section 2.2 Control of worker exposure

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

Product characteristics: Liquid. Covers concentrations up to 10%

Amounts used: Not applicable.

Frequency and duration of use: Exposure duration per day: 15 min. to < 1 hour

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

Other given operational conditions affecting workers Indoor professional setting

Technical conditions and measures at process level

(source) to prevent release:

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

exposure:

Not applicable.

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

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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	4.26	3.5	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table:R16.23 [REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg	0.021	0.135	EUSES calculation

Triethylenetetramine, TETA

dwt

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Grassland averaged mg/kg dwt 0.041 0.155 **EUSES** calculation Groundwater mg/l Not evaluated. 1.35x10-3 **EUSES** calculation **Local concentration** PEC air (local+regional) **Justification** During emission mg/m³ Not evaluated. 1.18x10-3 **EUSES** calculation Annual average mg/m³ 9.74x10-4 9.74x10-4 **EUSES** calculation Annual deposition mg/m²/d **EUSES** calculation 1.76x10-4 Not evaluated. **Local concentration** PEC aquatic (local+regional) **Justification** Micro-organism mg/l Not applicable. Not applicable. Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 2: Epoxy curing agent in paint

Release from point source

	(local exposure estimation) kg/day	exposure estimation kg/day	
Waste water	0	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Total release for regional

Justification

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.502	1.38	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	2.51x10-4	6.88x10-4	EUSES calculation
Soil (direct releases only)	Not evaluated.	6.88x10-3	Local: Table R16.23[REACH], Total release for regional exposure estimation: EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.157	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	237	EUSES calculation	

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0.016	0.017	EUSES calculation
Marine water mg/l	1.56x10-3	1.70x10-3	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.	8.60	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.860	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	8.20x10-8	0.114	EUSES calculation
Grassland averaged mg/kg dwt	1.62x10-7	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.98x10-8	Not evaluated.	EUSES calculation
Annual average mg/m³	3.82x10-9	3.31x10-8	EUSES calculation
Annual deposition mg/m²/d	6.92x10-9	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 4: Processing aid

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0.012	1.82	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.26x10-5	0.114	EUSES calculation
Grassland averaged mg/kg dwt	8.44x10-5	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	2.00x10-6	2.02x10-6	EUSES calculation
Annual deposition mg/m²/d	3.6x10-6	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.056	28	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	0	EUSES calculation
Soil (direct releases only)	Not evaluated.	0	Local : TableR16.23
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.18	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	26.5	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.74x10 ⁻⁴	3.17x10 ⁻³	EUSES calculation
Marine water mg/l	2.78x10 ⁻⁴	4.2x10 ⁻⁴	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.	1.60	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.212	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.75x10 ⁻¹⁰	0.114	EUSES calculation
Grassland averaged mg/kg dwt	9.4x10 ⁻¹⁰	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10 ⁻³	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	2.22x10 ⁻¹¹	Not evaluated.	EUSES calculation
Annual average mg/m³	2.22x10 ⁻¹¹	2.93x10 ⁻⁸	EUSES calculation
Annual deposition mg/m²/d	4.01x10 ⁻¹¹	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

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

The ECETOC TRA tool has been used to Long term exposure, Systemic, Not applicable. 0.0411 Dermal estimate workplace exposures unless

otherwise indicated. The PROC with the highest exposure level is given since the

exposure estimates for other PROC are

below this value

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

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

below this value

Not applicable.

Long term exposure, Systemic, Combined

Inhalable

Not evaluated.

Not applicable.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Long term exposure, Local, Dermal	Not applicable.	Not applicable.	Not applicable.
Long term exposure, Local, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Dermal	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Inhalable	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Systemic, Combined	Not applicable	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Dermal	Not applicable.	Not applicable.	Since the substance is not classified for acute effects and therefore, no acute DNEL has been derived.
Short term exposure, Local, Inhalable	Not applicable.	0.914	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

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

Triethylenetetramine, TETA

Identified use name: 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

has been derived.

acute effects and therefore, no acute DNEL

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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 estimation

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

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

Long term exposure, Systemic,

Dermal

Not applicable.

0.214

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

exposure estimates for other PROC are

below this value

Long term exposure, Systemic,

Inhalable

Not applicable.

0.121

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

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

below this value Not applicable.

Long term exposure, Systemic,

Combined

Long term exposure, Local, Dermal

Long term exposure, Local,

Inhalable

Not applicable.

Not applicable

Not applicable

Not applicable

Not applicable.

Not evaluated.

Not applicable

Not applicable.

Not applicable. Not applicable. Not applicable.

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

has been derived.

Short term exposure, Systemic, **Dermal**

Short term exposure, Systemic,

Short term exposure, Systemic,

Short term exposure, Local,

Inhalable

Combined

Inhalable

Not applicable.

0.243

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.

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.

The ECETOC TRA tool has been used to

estimate workplace 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.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

 Product definition
 Multi-constituent substance

 Product name
 Triethylenetetramine, TETA

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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 4650
Fraction of Regional tonnage used locally 25%
Annual site tonnage 1160
Average Local Daily Tonnage (kg/day): 3867

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 10

Local marine water dilution factor 100

Other given operational conditions affecting environmental exposure:

Release fraction to air from process (initial release prior to

RMM)

Release fraction to soil from process (initial release prior to

RMM)

Release fraction to wastewater from process (initial release

prior to RMM)

Release fraction to air from wide dispersive use (regional

only)

Release fraction to soil from wide dispersive use (regional

only)

Release fraction to wastewater from wide dispersive use

Not available.

1.10x10-3

Not available.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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 plant:

Not applicable.

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

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

No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: Use as an epoxy curing agent

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 10230 Fraction of Regional tonnage used locally 25% 2560 Annual site tonnage Average Local Daily Tonnage (kg/day): 11636

Maximum daily site tonnage Frequency and duration of use:

Emission Days (days/year)

Environment factors not influenced by risk management:

Local freshwater dilution factor 10 Local marine water dilution factor 100

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Conditions and measures related to municipal sewage treatment plant:

Not available.

Continuous release

220

None.

1.10x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Epoxy curing agent in paint

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 10230 Fraction of Regional tonnage used locally 25% 2560 Annual site tonnage 11636 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:

10 Local freshwater dilution factor Local marine water dilution factor 100

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:

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 plant:

220

None.

1.1x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 100 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 25.1 Average Local Daily Tonnage (kg/day): 1255

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

6.88x10-4

Not available.

Not available.

Not available.

Not applicable.

=>37.4

Not available.

1.38

Emission Days (days/year)

Environment factors not influenced by risk management:

10 Local freshwater dilution factor Local marine water dilution factor 100 None.

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 6.88x10-3

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

Conditions and measures related to municipal sewage treatment plant:

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 4: Processing aid

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

2418 Regional use tonnage Fraction of Regional tonnage used locally 25% **Annual site tonnage** 604

Triethylenetetramine, TETA

Identified use name: 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

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

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

Process Category: PROC08a, 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

2745 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage Not available.

Continuous release 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

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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Conditions and measures related to municipal sewage treatment plant:

10

100 None.

1.1x10-3

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%.

No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

Regional use tonnage 10230 25% Fraction of Regional tonnage used locally **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 7014

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 10 Local marine water dilution factor 100 None. Other given operational conditions affecting environmental

exposure:

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to 5.00x10-3 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 plant:

0.01

Not available.

Not available.

Not available.

Not applicable.

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

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

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)

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 professional setting exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

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

Not applicable.

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

management supervision controls.

Section 2.2 Control of worker exposure

Contributing scenario controlling worker exposure for 1: Spraying outside industrial settings and/or applications

Product characteristics: Liquid. Covers concentrations up to 2%

Amounts used: Not applicable.

Frequency and duration of use: Avoid carrying out activities involving exposure for more than 4 hours.

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

Other given operational conditions affecting workers exposure:

Technical conditions and measures at process level

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

dispersion from source towards the worker:

Not applicable.

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

removal efficiency of 90%

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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: Ashless dispersant

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	4.26	3.5	EUSES calculation
Soil (direct releases only)	0	Not evaluated.	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.021	0.135	EUSES calculation
Grassland averaged mg/kg dwt	0.041	0.155	EUSES calculation
Groundwater mg/l	Not evaluated.	1.35x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	1.18x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	9.74x10-4	9.74x10-4	EUSES calculation
Annual deposition mg/m²/d	1.76x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	Not evaluated.	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	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: 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	Not evaluated.	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	EUSES calculation

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b 267/283

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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

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

Total release for regional

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

day

Release from point source

Triethylenetetramine, TETA		Identified use name: Use of et	thylenamines in open processes with
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.
	Local concentration	PEC aquatic (local+regional)	Justification
Annual deposition mg/m²/d	6.92x10-9	Not evaluated.	EUSES calculation
Annual average mg/m³	3.82x10-9	3.31x10-8	EUSES calculation
During emission mg/m³	6.98x10-8	Not evaluated.	EUSES calculation
_	Local concentration	PEC air (local+regional)	Justification
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
dwt Grassland averaged mg/kg dwt	1.62x10-7	0.114	EUSES calculation
Agricultural soil averaged mg/kg	8.20x10-8	0.114	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Marine water sediment mg/kg dwt	Not evaluated.	0.860	EUSES calculation
Fresh water sediment mg/kg dwt	Not evaluated.	8.60	EUSES calculation
	Local concentration	PEC sediment (local+regional)	Justification
Intermittent release. mg/l	Not applicable.	Not applicable.	Not applicable.
Marine water mg/l	1.56x10-3	1.70x10-3	EUSES calculation
Fresh water mg/l	0.016	0.017	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Concentration in sewage sludge mg/kg dwt	237	EUSES calculation	
mg/l			
Concentration in sewage (PECstp)	0.157	EUSES calculation	
	Value	Justification	exposure estimation : EUSES calculation
Soil (direct releases only)	U	0.00010-3	Local : Table R16.23[REACH] , Total release for regional
air (direct + STP)	2.51x10-4 0	6.88x10-4 6.88x10-3	EUSES calculation
Surface water	Not evaluated.	0 6.88x10-4	EUSES calculation
Waste water	0.502	1.38	EUSES calculation
	day	4.00	E110E0 1 1 "

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

Justification

Process Category: PROC08a, PROC11

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

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 4: Processing aid

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0.012	1.82	EUSES calculation
Soil (direct releases only)	0	Not evaluated.	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	EUSES calculation
Intermittent release. mg/l	Not applicable.	Not applicable.	Not applicable.
ı	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.26x10-5	0.114	EUSES calculation
Grassland averaged mg/kg dwt	8.44x10-5	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	2.00x10-6	2.02x10-6	EUSES calculation
Annual deposition mg/m²/d	3.6x10-6	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives

	Release from point source (local exposure estimation) kg/ day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.056	28	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	0	EUSES calculation
Soil (direct releases only)	Not evaluated.	14	Local : TableR16.23
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.018	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	26.5	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	1.74x10-3	3.17x10-3	EUSES calculation
Marine water mg/l	2.78x10-4	4.2x10-4	EUSES calculation

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC08, ERC

ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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.	1.60	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.212	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.75x10-10	0.114	EUSES calculation
Grassland averaged mg/kg dwt	9.4x10-10	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	2.22x10-11	Not evaluated.	EUSES calculation
Annual average mg/m³	2.22x10-11	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	4.01x10-11	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.	0.09	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.
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

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 3.2 Workers - Exposure estimation Contributing scenario controlling worker exposure for 1: Spraying outside industrial settings and/or applications Route of exposure **Contributing scenarios Dose/Concentration Justification** Long term exposure, Systemic, 0.21 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. 0.15 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. 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. 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. 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. Not applicable. The ECETOC TRA tool has been used to Short term exposure, Local, 0.30 Inhalable estimate workplace exposures unless otherwise indicated. The PROC with the highest exposure level is given since the exposure estimates for other PROC are below this value

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.

Triethylenetetramine, TETA

Identified use name: 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

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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b



Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition Multi-constituent substance **Product name** Triethylenetetramine, TETA

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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 4650 Fraction of Regional tonnage used locally 25% Annual site tonnage 1160 3867 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 10 Local marine water dilution factor 100

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

Not available.

1.10x10-3

Not available.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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 plant:

Not applicable.

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

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

No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 1: 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 10230 Fraction of Regional tonnage used locally 25% 2560 Annual site tonnage Average Local Daily Tonnage (kg/day): 11636

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 10 Local marine water dilution factor 100

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

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 plant:

Not available.

Not available.

220

None.

1.10x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

prevent release:

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 2: Epoxy curing agent in paint

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 10230 Fraction of Regional tonnage used locally 25% 2560 Annual site tonnage 11636 Average Local Daily Tonnage (kg/day):

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:

10 Local freshwater dilution factor Local marine water dilution factor 100

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:

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 plant:

None.

1.1x10-3

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%.

No wastewater treatment required.

Not available.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05,

ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Fraction of EU tonnage used in region Not available.

Regional use tonnage 100 Fraction of Regional tonnage used locally 25% **Annual site tonnage** 25.1 Average Local Daily Tonnage (kg/day): 1255

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

6.88x10-4

Not available.

Not available.

Not available.

Not applicable.

=>37.4

Not available.

1.38

Emission Days (days/year)

Environment factors not influenced by risk management:

10 Local freshwater dilution factor Local marine water dilution factor 100 None.

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 6.88x10-3

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

Conditions and measures related to municipal sewage treatment plant:

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 4: Processing aid

Operational conditions: Indoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

2418 Regional use tonnage Fraction of Regional tonnage used locally 25% **Annual site tonnage** 604

Triethylenetetramine, TETA

Identified use name: 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

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

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

Process Category: PROC08a, 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

2745 Average Local Daily Tonnage (kg/day):

Maximum daily site tonnage Not available.

Continuous release Frequency and duration of use:

Emission Days (days/year)

Environment factors not influenced by risk management:

Local freshwater dilution factor 10 Local marine water dilution factor 100

None. 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

If discharging to domestic sewage treatment plant, provide

the required onsite wastewater removal efficiency of

Conditions and measures related to municipal sewage treatment plant:

220

1.1x10-3

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%. No wastewater treatment required.

Not available.

Section 2.1 Control of environmental exposure

Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives

Operational conditions: Indoor/Outdoor use

Product characteristics: Not applicable.

Amounts used:

Not available. Fraction of EU tonnage used in region

Regional use tonnage 10230 25% Fraction of Regional tonnage used locally **Annual site tonnage** 2560 Average Local Daily Tonnage (kg/day): 7014

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 10 Local marine water dilution factor 100 None. Other given operational conditions affecting environmental

exposure:

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Release fraction to air from process (initial release prior to

Release fraction to soil from process (initial release prior to 5.00x10-3

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 plant:

0.01

Not available.

Not available.

Not available.

Not applicable.

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

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

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)

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 professional setting

exposure:

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

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

Organisational measures to prevent/limit releases,

dispersion and exposure:

Personal protection:

Not applicable.

Not applicable.

Not applicable.

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

management supervision controls.

Section 2.2 Control of worker exposure

Contributing scenario controlling worker exposure for 1: Spraying outside industrial settings and/or applications

Product characteristics: Liquid. Covers concentrations up to 0.5%

Amounts used: Not applicable.

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

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

Not applicable.

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

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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

Personal protection:

Not applicable.

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

Section 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	4.26	3.5	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	0.021	0.135	EUSES calculation
Grassland averaged mg/kg dwt	0.041	0.155	EUSES calculation
Groundwater mg/l	Not evaluated.	1.35x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	1.18x10-3	Not evaluated.	EUSES calculation
Annual average mg/m³	9.74x10-4	9.74x10-4	EUSES calculation
Annual deposition mg/m²/d	1.76x10-4	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

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

Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 1: 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	EUSES calculation
Intermittent release. mg/l	Not applicable.	Not applicable.	Not applicable.
ı	Local concentration	PEC sediment (local+regional)	Justification
Fresh water sediment mg/kg dwt	Not evaluated.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	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: 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	0	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	3.1	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation

Triethylenetetramine, TETA

Identified use name: 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

tance supplied to that use in form or: In a mixture
Sector of end use: SU22

Subsequent service life relevant for that use: No. Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c,

ERC08e, ERC08f, ERC11a, ERC12a, ERC12b 279/283

Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Grassland averaged mg/kg dwt	Not evaluated.	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	Not evaluated.	Not evaluated.	EUSES calculation
Annual average mg/m³	Not evaluated.	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	Not evaluated.	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

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

Total release for regional

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 3: Laboratory chemicals

Release from point source

Waste water	day 0.502	1.38	EUSES calculation
Surface water	0.502 Not evaluated.	0	EUSES calculation EUSES calculation
air (direct + STP)	2.51x10-4	6.88x10-4	EUSES calculation
Soil (direct releases only)	0	6.88x10-3	Local : Table R16.23[REACH] , Total release for regional exposure estimation : EUSES calculation
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.157	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	237	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification
Fresh water mg/l	0.016	0.017	EUSES calculation
Marine water mg/l	1.56x10-3	1.70x10-3	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.	8.60	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.860	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	8.20x10-8	0.114	EUSES calculation
Grassland averaged mg/kg dwt	1.62x10-7	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	6.98x10-8	Not evaluated.	EUSES calculation
Annual average mg/m³	3.82x10-9	3.31x10-8	EUSES calculation
Annual deposition mg/m²/d	6.92x10-9	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification

Triethylenetetramine, TETA

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

Justification

Process Category: PROC08a, PROC11

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

Subsequent service life relevant for that use: No.

Environmental Release Category: ERC01, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

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

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 4: Processing aid

	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	Not evaluated.	0	EUSES calculation
air (direct + STP)	0.012	1.82	EUSES calculation
Soil (direct releases only)	0	0	Table R16.23[REACH]
	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	1.43x10-3	EUSES calculation
Marine water mg/l	0	1.42x10-4	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.	0.722	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.072	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.26x10-5	0.114	EUSES calculation
Grassland averaged mg/kg dwt	8.44x10-5	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	3.31x10-6	Not evaluated.	EUSES calculation
Annual average mg/m³	2.00x10-6	2.02x10-6	EUSES calculation
Annual deposition mg/m²/d	3.6x10-6	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.
1			

Section 3.1 Environment - Exposure estimation

Contributing scenario controlling environmental exposure for 5: Use of coatings and adhesives

	Release from point source (local exposure estimation) kg/day	Total release for regional exposure estimation kg/day	Justification
Waste water	0.056	28	EUSES calculation
Surface water	Not evaluated.	0	EUSES calculation
air (direct + STP)	0	0	EUSES calculation
Soil (direct releases only)	0	14	Table R16.23[REACH]
	Value	Justification	
Concentration in sewage (PECstp) mg/l	0.018	EUSES calculation	
Concentration in sewage sludge mg/kg dwt	26.5	EUSES calculation	
	Local concentration	PEC aquatic (local+regional)	Justification

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b

Fresh water mg/l	1.74x10-3	3.17x10-3	EUSES calculation
Marine water mg/l	2.78x10-4	4.2x10-4	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.	1.60	EUSES calculation
Marine water sediment mg/kg dwt	Not evaluated.	0.212	EUSES calculation
	Local concentration	PEC soil (local+regional)	Justification
Agricultural soil averaged mg/kg dwt	4.75x10-10	0.114	EUSES calculation
Grassland averaged mg/kg dwt	9.4x10-10	0.114	EUSES calculation
Groundwater mg/l	Not evaluated.	1.13x10-3	EUSES calculation
	Local concentration	PEC air (local+regional)	Justification
During emission mg/m³	2.22x10-11	Not evaluated.	EUSES calculation
Annual average mg/m³	2.22x10-11	2.93x10-8	EUSES calculation
Annual deposition mg/m²/d	4.01x10-11	Not evaluated.	EUSES calculation
	Local concentration	PEC aquatic (local+regional)	Justification
Micro-organism mg/l	Not applicable.	Not applicable.	Not applicable.

Section 3.2 Workers - Exposure estimation

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

Route of exposure	Contributing scenarios	Dose/Concentration	Justification
Long term exposure, Systemic, Dermal	Not applicable.	0.14	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.	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.

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b 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 1: Spraying outside industrial settings and/or applications

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

Long term exposure, Systemic,

Dermal

Not applicable.

0.11

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

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

below this value

Long term exposure, Systemic,

Inhalable

Not applicable.

0.30

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

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

below this value Not applicable.

Long term exposure, Systemic,

Combined

Long term exposure, Local, Dermal

Long term exposure, Local, Inhalable

Not evaluated.

Not applicable

Not applicable.

Not applicable

Not applicable.

Not applicable. Not applicable. Not applicable.

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

has been derived.

Short term exposure, Systemic, **Dermal**

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

has been derived.

Short term exposure, Systemic, Not applicable

Inhalable

Not applicable.

Not applicable.

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

has been derived.

Short term exposure, Systemic, Not applicable Combined

Not applicable.

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

has been derived.

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

has been derived.

Short term exposure, Local,

Inhalable

Not applicable.

1.22

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

below this value

Section 4: Guidance to check compliance with the exposure scenario

Environment Not available. Health Not available.

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

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

Triethylenetetramine, TETA

Identified use name: 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, ERC02, ERC04, ERC05,

ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ERC08a, ERC08b, ERC08c, ERC08e, ERC08f, ERC11a, ERC12a, ERC12b