

according to Regulation (EC) No. 1907/2006



TETRAETHYLENEPENTAMINE (TEPA)

Version 1	Revision Date	10.12.2013	Print Date 27.02.20)14	GB / EN
SECTION 1: II COMPANY/UN		OF THE SUBS	TANCE/MIXTURE AN	D OF THE	
1.1 Product ide	entifier				
Trade name	е	: TETRAETHY	LENEPENTAMINE (TEI	PA)	
Substance Index-No.	name	: Tetraethylen : 612-060-00-0	epentamine, linear, cyclid)	c and branched	
	egistration Number entified uses of the		290-37-0002 mixture and uses advis	ed against	
Use of the Substance/	Mixture	: Specific use(er to attached expos ario Annex.	sure
1.3 Details of the	he supplier of the s	afety data shee	t		
Company		Ethylene Am ANC Stenun Stenunge All	gsund		
Telephone Telefax E-mail addi 1.4 Emergency	ress telephone number		1 fairs@akzonobel.com		
Emergency number	r telephone	: 020 99 60 00 NL) Kemiakuten, SE +31 57	' 06 79 211 AkzoNo	bel,

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)	
Acute toxicity, 4, H302	
Acute toxicity, 4, H312	
Skin corrosion, 1B, H314	
Skin sensitisation, 1, H317	
Chronic aquatic toxicity, 2, H411	

Classification (67/548/EEC, 1999/45/EC)

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Labelling (REGULATION (E	=C) NC	1272/2008)	
Symbol(s)	:		
Signal word	: C	Danger	
Hazard statements	: ⊢	1302 + H312	Harmful if swallowed or in contact v skin
	F	1314	Causes severe skin burns and eye damage.
	F	1317	May cause an allergic skin reaction
	F	1411	Toxic to aquatic life with long lasting effects.
Precautionary statements	: P	Prevention:	
	P	261	Avoid breathing dust/ fume/ gas/ m vapours/ spray.
	-	273	Avoid release to the environment.
	P	2280	Wear protective gloves/ protective clothing/ eye protection/ face protection/
		lesponse:	
	P	2303 + P361 + P353	IF ON SKIN (or hair): Remove/ Tak immediately all contaminated clothi Rinse skin with water/ shower.
	Ρ	2305 + P351 + P338	IF IN EYES: Rinse cautiously with v for several minutes. Remove conta lenses, if present and easy to do. Continue rinsing.
	P	310	Immediately call a POISON CENTE doctor/ physician.

Hazardous components which must be listed on the label:
Tetraethylenepentamine112-57-22.3 Other hazards

No further data available.

PBT and vPvB assessment : This substance/mixture contains no components considered

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For the full text of the H-Statements mentioned in this Section, see Section 16.

For the full text of the R-phrases mentioned in this Section, see Section 16.

Corrosive, C, R34 Harmful, Xn, R21/22 Sensitising, Xi, R43

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Dangerous for the environment, N, R51/53

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to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

CAS-No.

: 90640-66-7

Hazardous substance

Chemical Name	PBT vPvB OEL	CAS-No. EC-No. REACH No.	Classification (REGULATION (EC) No 1272/2008)	Classification (67/548/EEC)	Concentration [%]
Tetraethylenepentamine		112-57-2 203-986-2 01- 2119487290- 37	Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Corr. 1B; H314 Skin Sens. 1; H317 Aquatic Chronic 2; H411	C; R34 Xn; R21/22 R43 N; R51-R53	100

The following substances have multiple CAS-number

Tetraethylenepentamine : 90640-66-7

For the full text of the H-Statements mentioned in this Section, see Section 16.

For the full text of the R-phrases mentioned in this Section, see Section 16.

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).

REACH - Candidate List of : not applicable Substances of Very High Concern for Authorisation (Article 59).

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice	: Immediate medical attention is required. Move out of dangerous area. Show this safety data sheet to the doctor in attendance.
If inhaled	: If breathed in, move person into fresh air. Consult a physician after significant exposure.
In case of skin contact	 Take off contaminated clothing and shoes immediately. Rinse immediately with plenty of water. Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty. If skin irritation persists, call a physician.
In case of eye contact	 Rinse with plenty of water. Get medical attention immediately. Continue to rinse during transport. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing.
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		Small amounts splashed into eyes can cause irreversible tissue damage and blindness.	
If swallowed	:	Clean mouth with water and drink afterwards plenty of wate Never give anything by mouth to an unconscious person. Take victim immediately to hospital. Do not induce vomiting! May cause chemical burns in mour and throat.	
4.2 Most importa	ant symptoms and e	ffects, both acute and delayed	
Symptoms	:	corrosive effects sensitising effects	
Risks	:	No information available.	
4.3 Indication of	any immediate med	ical attention and special treatment needed	
Treatment	:	No information available.	

SECTION 5: FIREFIGHTING MEASURES	

5.1 Extinguishing media

en Exangalennig meala	
Suitable extinguishing media	: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
5.2 Special hazards arising from	the substance or mixture
Specific hazards during firefighting / Specific hazards arising from the chemical	: Do not allow run-off from fire fighting to enter drains or water courses.
Combustion products	: Carbon oxides nitrogen oxides (NOx)
5.3 Advice for firefighters	
Special protective equipment for firefighters	: Wear self-contained breathing apparatus and protective suit.
Further information	 Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	: Use personal protective equipment. Wear respiratory protection. Ensure adequate ventilation.
6.2 Environmental precautions	
Environmental precautions	: Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities.

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6.3 Methods and material	s for containment	and cleaning up	
Methods for cleaning u Methods for containme	ent acid bin	o with inert absorbent material (e.g. sa ider, universal binder). suitable, closed containers for dispos	-
6.4 Reference to other se	ctions		
Additional advice	: For per	sonal protection see section 8.	
SECTION 7: HANDLING	AND STORAGE		
7.1 Precautions for safe h	andling		
Advice on safe handlir	Avoid fo Do not Person asthma should being u Smokin applica Dispose regulati	g, eating and drinking should be prohi tion area. e of rinse water in accordance with loc	itory disease ich this mixture is bited in the
Advice on protection a fire and explosion 7.2 Conditions for safe st	•	measures for preventive fire protectio	n.
Requirements for stora areas and containers	place.	ontainer tightly closed in a dry and wel with copper, aluminium, zinc and their	
Other data	: No dec	omposition if stored and applied as dir	ected.
7.3 Specific end use(s)			
Specific use(s)	: Refer to	o attached exposure scenario Annex.	

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006

Substance name	End Use	Exposure routes	Potential health effects	Value
Tetraethylenepentamine	Workers	Skin contact	Long-term systemic effects	0.74 mg/kg bw/day

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		Workers	Inhalation	Long-term systemic effects	1.29 mg/m3	
_		Consumers	Skin contact	Acute systemic effects	10 mg/kg bw/day	
		Consumers	Skin contact	Long-term systemic effects	0.32 mg/kg bw/day	
		Consumers	Inhalation	Long-term systemic effects	0.38 mg/m3	
		Consumers	Ingestion	Long-term systemic effects	0.53 mg/kg bw/day	

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006

Substance name	Environmental Compartment	Value
Tetraethylenepentamine	Fresh water	0.00068 mg/l
	Marine water	0.00068 mg/l
	Fresh water sediment	3.43 mg/kg dry weight
	Marine sediment	0.343 mg/kg dry weight
	Sewage treatment plant	9.73 mg/l
	Soil	0.683 mg/kg dry weight

8.2 Exposure controls

Engineering Controls

Effective exhaust ventilation system

Ensure that eyewash stations and safety showers are close to the workstation location.

,		-			
Personal protective equipme Respiratory protection		In the case of vapour formation use a respirator with an approved filter. Wear full face mask supplied with: Gas cartridge K (ammonia, green).			
Hand protection	:	butyl-rubber			
Eye protection	:	Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.			
Skin and body protection	:	Protective suit			
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday. Wash contaminated clothing before re-use.			
Environmental exposure controls					
General advice	:	Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform			

respective authorities.

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9.1 Information on ba			
Appearance			
Form	: liqu	id	
Colour	: yell	low	
Odour	: am	moniacal	
Odour Threshold	: no	data available	
Safety data			
рН	: 11.	8 at 2 % solution	
Melting point/rang	ge : -30	°C	
Boiling point/boili	ng range : > 3	0° 00	
Flash point	: >1	00 - 199 °C	
Ignition temperat	ure : 330	℃ (
Evaporation rate	: no	data available	
Flammability (sol	id, gas) : The	e product is not flammable.	
Lower explosion	limit : 0.1	%(V)	
Upper explosion	limit : 15	%(V)	
Vapour pressure	: <0	.1 hPa at 20 °C	
Relative vapour o	lensity : no	data available	
Density	: 998	3 kg/m3 at 20 °C	
Relative density	: ca.	1.0 at 20 °C	
Water solubility		l,000 g/l at 20 °C ry soluble.	
Solubility in other	solvents : no	data available	
Partition coefficie octanol/water	nt: n- : log	Pow: -3.16	
Auto-ignition tem	perature : 330	℃ (
Decomposition te	mperature : no	data available	
Viscosity, dynam	ic : ca.	23 mPa.s at 20 °C	

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Viscosity	, kinematic	: ca.23 m	m2/s at 20 °C	
Explosive	e properties	: Not explo	osive	
Oxidizing	g properties	: The subs	stance or mixture is not classified as o	xidizing.

9.2 Other information

This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Stable under normal conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Heating can release hazardous gases.

10.4 Conditions to avoid

Conditions to avoid	:	Extremes of temperature and direct sunlight.
10.5 Incompatible materials		
Materials to avoid	:	Reacts with copper, aluminium, zinc and their alloys. Strong acids and oxidizing agents Halogenated compounds

10.6 Hazardous decomposition products

Hazardous decomposition products		nitrogen oxides (NOx)
Thermal decomposition	:	no data available

SECTION 11: TOXICOLOGICAL INFORMATION

Product information: Hazard Summary	
Inhalation	 Inhalation of aerosols may cause irritation to mucous membranes. Thermal decomposition can lead to release of irritating gases and vapours. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin	: Symptoms may be delayed. Harmful in contact with skin. May cause an allergic skin reaction. Causes severe skin burns.

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E	Eyes	:	Causes serio	us eye damage.	
Ir	ngestion	:	Harmful if swa Causes burns May be harm		
	Foxicology Further inforr	Assessment mation :	No further da	a available.	
11.1 h	nformation	on toxicological ef	fects		
Т	Fest result	data for the compo nepentamine	nents:		
	Acute oral to:		LD50: >2,00 Species: rat	0 - 5,000 mg/kg	
Δ	Acute derma	I toxicity :	LD50: > 1,00 Species: rabb	0 - 2,000 mg/kg it	
S	Skin irritation	:	Species: rabb Result: Cause Method: OEC		
S	Sensitisation	:	Species: guir Result: May c	ea pig ause sensitisation by skin contact.	
G	Germ cell mu	utagenicity			
G	Genotoxicity	in vivo :		of genotoxic effects in vivo.	

SECTION 12: ECOLOGICAL INFORMATION

Product information: Ecotoxicology Assessment Results of PBT assessment	: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Additional ecological information	: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life with long lasting effects.
12.1 Toxicity	
Components: Ecotoxicology Assessment Tetraethylenepentamine Results of PBT assessment	: This substance is not considered to be a PBT (Persistent, Bioaccumulation, Toxic) This substance is not considered to be vPvB (very Persistent nor very Bioaccumulating)

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Test result Tetraethyle Toxicity to fi	e nepentamine sh	E	_C50: > 100 mg/l Exposure time: 96 h Species: Poecilia reticulata (guppy)	
Toxicity to c aquatic inve	laphnia and other rtebrates	E	EC50: > 10 - 100 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)	
Toxicity to a	lgae	E	EC50: > 1 - 10 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae)	
12.2 Persistenc	e and degradabili	ty		
Componen Tetraethyle Biodegrada	nepentamine		Result: Not readily biodegradable. Method: OECD Test Guideline 301D	
12.3 Bioaccumu	Ilative potential			
Componen Tetraethyle Bioaccumul	enepentamine	: [Does not bioaccumulate.	
12.4 Mobility in	soil			
Componen Tetraethyle Mobility	ts: nepentamine	: ii	mmobile	
12.5 Results of	PBT and vPvB as	sess	sment	
Product inf PBT and vP	ormation: WB assessment	t V	This substance/mixture contains no components conside o be either persistent, bioaccumulative and toxic (PBT), o /ery persistent and very bioaccumulative (vPvB) at levels 0.1% or higher.	or
	ts: nepentamine vB assessment	E 1	This substance is not considered to be a PBT (Persistent Bioaccumulation, Toxic) This substance is not considered to be vPvB (very Persis nor very Bioaccumulating)	
12.6 Other adve	rse effects			
Componen Tetraethyle Biochemica Demand (B ⁱ	e nepentamine I Oxygen	: r	no data available	

	regulation.
Contaminated packaging	: Empty remaining contents. Dispose of as unused product.
SECTION 14: TRANSPORT INF	ORMATION
14.1 UN number	
ADR	: UN 2320
RID IMDC Code	: UN 2320
IMDG-Code IATA-DGR	: UN 2320 : UN 2320
14.2 Proper shipping name	
ADR	: TETRAETHYLENE-PENTAMINE
RID IMDC Code	: TETRAETHYLENE-PENTAMINE
IMDG-Code IATA-DGR	: TETRAETHYLENEPENTAMINE : Tetraethylenepentamine
14.3 Transport hazard class	
ADR	: 8
RID	: 8
IMDG-Code IATA-DGR	: 8 : 8
14.4 Packing group	. 0
ADR	
Packing group	: 111
Classification Code	: C7
Hazard Identification Number Labels	: 80 : 8
Tunnel restriction code	: (E)
RID Decking group	· III
Packing group Classification Code	: III : C7
Hazard Identification Number	: 80
Labels	: 8
IMDG-Code	: 111
Packing group Labels	: III : 8
EmS Code	: F-A, S-B
IATA-DGR	
Packing instruction (cargo	: 856
aircraft)	

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SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

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: The product should not be allowed to enter drains, water

Do not contaminate ponds, waterways or ditches with

Dispose of contents/container in accordance with local

courses or the soil.

Hazardous waste

chemical or used container.

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(Packing instruction passenger aircraft)	: 852		
	Packing instruction (LQ)	: Y841		
F	Packing group	: 111		
L	abels	: 8		
14.5 E	Environmental hazards			
ļ	NDR			
	nvironmentally hazardous	: yes		
E	nvironmentally hazardous	: yes		
I	MDG-Code			
Ν	larine pollutant	: yes		
	ATA-DGR			
E	Invironmentally hazardous	: yes		
14.6 \$	Special precautions for user			

not applicable

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

Not applicable for product as supplied.

SECTION 15: REGULATORY INFORMATION

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

Major Accident Hazard Legislation	:	96/82/EC Dangerous for the environment 9b Quantity 1: 200 t Quantity 2: 500 t
Water contaminating class (Germany)	:	WGK 2 water endangering

Notification status

CH INV TSCA	YES. On the inventory, or in compliance with the inventory YES. All chemical substances in this product are either listed on the TSCA Inventory or in compliance with a TSCA Inventory exemption.
DSL	YES. All components of this product are on the Canadian DSL.
AICS	YES. On the inventory, or in compliance with the inventory
NZIoC	YES. On the inventory, or in compliance with the inventory
ENCS	YES. On the inventory, or in compliance with the inventory
ISHL	YES. On the inventory, or in compliance with the inventory
KECI	YES. On the inventory, or in compliance with the inventory
PICCS	YES. On the inventory, or in compliance with the inventory
IECSC	YES. On the inventory, or in compliance with the inventory

For explanation of abbreviation see section 16.

Further information

This product is to be considered as a substance according to EU-legislation.

15.2 Chemical Safety Assessment

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Tetraethylenepentamine : A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: OTHER INFORMATION

Full text of H-S	Statements referred to under sections 2 and 3.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H411	Toxic to aquatic life with long lasting effects.
Full text of R-p	phrases referred to under sections 2 and 3
R21/22	Harmful in contact with skin and if swallowed.
R34	Causes burns.
R43	May cause sensitisation by skin contact.
R51	Toxic to aquatic organisms.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
B = 0	

R53 May cause long-term adverse effects in the aquatic environment.

Explanations for possible abbreviations mentioned in section 2

- PBT : PBT: Persistent, bioaccumulative and toxic.
- vPvB : vPvB: Very persistent and very bioaccumulative.
- OEL : OEL: Occupational exposure limit.

Notification status explanation

CH INV	Switzerland. New notified substances and declared preparations
TSCA	United States TSCA Inventory
DSL	Canadian Domestic Substances List (DSL)
AICS	Australia Inventory of Chemical Substances (AICS)
NZIoC	New Zealand. Inventory of Chemical Substances
ENCS	Japan. ENCS - Existing and New Chemical Substances Inventory
ISHL	Japan. ISHL - Inventory of Chemical Substances (METI)
KECI	Korea. Korean Existing Chemicals Inventory (KECI)
PICCS	Philippines Inventory of Chemicals and Chemical Substances (PICCS)
IECSC	China. Inventory of Existing Chemical Substances in China (IECSC)

Further information

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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Annex :

Intermediate

Industrial formulation

Manufacture of Coatings, adhesives and inks (and powder products)

Diesel and gasoline additive

Diesel and gasoline additive

Industrial use of Coatings and Adhesives

Ashless dispersant, Processing aid

Corrosion inhibitor

Use in electroplating

- Lube oil, Metal working fluids
- . Professional use of coatings & adhesives
- Epoxy, Polyurethane Curing Agent
- . Consumer use

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1. Short title of Exposure Scenario: Intermediate

Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental Release Categories Process categories	 preparations at industrial sites ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates) PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC8a: Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
	PROC15: Use as laboratory reagent

2.1 Contributing scenario controlling environmental exposure for: ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

Amount used Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Maximum daily site tonnage (kg/day):	: 4650 ton(s)/year : 100 % : 15500 kg/day
Environment factors not influenced Flow rate	: 83,333.3 m3/h
Dilution Factor (River) Other given operational conditions a	: 1,000
Number of emission days per year	: 300
Emission or Release Factor: Air	: 736 ppm
Emission or Release Factor: Water	: 0.048 ppm
Emission or Release Factor: Soil Provide, with either onsite or	

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	wastewater treatment, stewater removal of (%)			
Technical co	onditions and measures / C	organizational measures		
Exposure	time :	Continuous use/release		
Compartm	Compartment : Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Grassland, Sewage treatment plant			

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	: General exposures, Continuous process, Bulk product storage, (closed systems)			
Product characteristics				
Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).			
Physical Form (at time of use)	: liquid			
Frequency and duration of use				
Exposure duration	: < 480 min			
Remarks	: Inhalation, Dermal			
Frequency of use	: <= 300 days/year			
Human factors not influenced by risk management				
Breathing volume	: 10 m3/day			
Other operational conditions affecting workers exposure				
Outdoor / Indoor	: Indoor			
Technical conditions and measures Assumes a good basic standard of occupational hygiene is implemented.				

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)

2.3 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Activity	: General exposures, Process sampling
Product characteristics Concentration of the Substance	: Covers the percentage of the substance in the product up
in Mixture/Article	to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 240 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 300 days/year

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Human factors not influenced by risk management Breathing volume : 10 m3/day				
Other operationa Outdoor / Indo	al conditions affecti oor	ing workers e : Indoor	xposure	
	tions and measures tion ventilation at p		missions occur. (Effect	iveness (of a measure): 90
Wear chemical		(tested to EN	otection, hygiene and he 374) in combination with sure): 98 %)	ealth evaluation n intensive management
	g scenario contro esis or formulatio	•	exposure for: PROC	3: Use in closed batch
in Mixture/Arti	of the Substance	: Covers t	exposures (closed systen he percentage of the sul (unless stated different	bstance in the product up
Frequency and c Exposure dura Remarks Frequency of	ation	: < 480 mii : Inhalatio : <= 300 da	n, Dermal	
Human factors r Breathing volu	not influenced by ris ume	sk manageme : 10 m3/da		
Other operationa Outdoor / Indo	al conditions affecti oor	ing workers e : Indoor	xposure	
Technical conditions and measures Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 90 %)				
Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %) Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 90 %)				
2.5 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises				
Activity Product charact Concentration in Mixture/Arti	of the Substance			bstance in the product up ly).

		X Z	
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Physical Form (at time of use)	: liquid	I	
Frequency and duration of use Exposure duration Remarks Frequency of use		min ation, Dermal 0 days/year	
Human factors not influenced by Breathing volume	risk manag : 10 m		
Other operational conditions affect Outdoor / Indoor	cting worke : Indoc	-	
Technical conditions and measur Provide extraction ventilation at %)		re emissions occur. (Effectivenes	s (of a measure): 90
Wear chemically resistant glove supervision controls. (Effectiver	s (tested to ness (of a m	l protection, hygiene and health ev EN374) in combination with intens easure): 98 %) n Type A filter or better. (Effectiven	sive management
batch processes for formulation significant contact) Activity Product characteristics	on of prepa	ker exposure for: PROC5: Mixin trations and articles (multistage g operations (open systems)	e and/ or
Concentration of the Substance in Mixture/Article Physical Form (at time of use)		rs the percentage of the substance) % (unless stated differently).	e in the product up
Frequency and duration of use			
Exposure duration	: < 480		
Remarks Fraguency of use		ation, Dermal 0 days/year	
Frequency of use	. <= 30	u days/year	
Human factors not influenced by Breathing volume	risk manag : 10 m		
Other operational conditions affect Outdoor / Indoor	cting worke : Indoc		
Technical conditions and measur Provide extraction ventilation at %)		re emissions occur. (Effectivenes	s (of a measure): 90
Wear chemically resistant glove supervision controls. (Effectiver	s (tested to ness (of a m	Protection, hygiene and health ev EN374) in combination with intens easure): 98 %) Type A filter or better. (Effectiven	sive management
		19 / 201	
		19/201	

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90 %)

2.7 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Material transfers Covers the percentage of the substance in the product up to 100 % (unless stated differently). liquid
Frequency and duration of use	
Exposure duration	: < 60 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 300 days/year
Human factors not influenced by ris Breathing volume	k management : 10 m3/day
Other operational conditions affectin Outdoor / Indoor	ng workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at po %)	pints where emissions occur. (Effectiveness (of a measure): 90
Wear chemically resistant gloves (supervision controls. (Effectivenes	personal protection, hygiene and health evaluation tested to EN374) in combination with intensive management ss (of a measure): 98 %) N140 with Type A filter or better. (Effectiveness (of a measure):

2.8 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity Product characteristics	: Bulk transfers, Dedicated facility
Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 240 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 300 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day

TETRAETHYLENE	PENTAMINE	E (TEPA)	
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Other operational conditions Outdoor / Indoor	affecting workers e : Indoor	exposure	
Technical conditions and me Provide extraction ventilation %)		emissions occur. (Effectiveness	s (of a measure): 97
	loves (tested to EN	otection, hygiene and health ev 374) in combination with intens sure): 98 %)	
		r exposure for: PROC9: Tran ted filling line, including wei	
Activity	: Material	transfers, Bulk transfers, Dedic	ated facility
Product characteristics Concentration of the Subst in Mixture/Article	to 100 %	he percentage of the substance (unless stated differently).	in the product up
Physical Form (at time of u	se) : liquid		
Frequency and duration of us Exposure duration	se : < 480 mi	n	
Remarks	: Inhalatio	n, Dermal	
Frequency of use	∶ <= 300 d	ays/year	
Human factors not influenced Breathing volume	d by risk manageme : 10 m3/da		
Other operational conditions Outdoor / Indoor	affecting workers e : Indoor	exposure	
Technical conditions and me Provide extraction ventilation %)		emissions occur. (Effectiveness	s (of a measure): 90
Wear chemically resistant g supervision controls. (Effection of the second s	loves (tested to EN tiveness (of a meas	otection, hygiene and health ev 374) in combination with intens sure): 98 %) pe A filter or better. (Effectiven	sive management
2.10 Contributing scenario reagent	controlling work	er exposure for: PROC15: Us	se as laboratory
Activity	: Laborato	ory activities	

Activity	: Laboratory activities
Product characteristics	
Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Covers the percentage of the substance in the product up to 100 % (unless stated differently). liquid

Frequency and duration of use

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Remarks :		15 - 60 min Inhalation, Dermal <= 300 days/year	
Human facto Breathing	ors not influenced by risk volume	management 10 m3/day	
Other operat Outdoor /	tional conditions affecting	workers exposure Indoor	
	onditions and measures traction ventilation at poi	nts where emissions occur. (Effectiveness	(of a measure): 90
Wear chem		ersonal protection, hygiene and health eva sted to EN374) in combination with intensiv (of a measure): 98 %)	

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartme nt	Value	Level of Exposure	RCR
ERC6a	EUSES		Fresh water		0.0004 mg/L	0.064
			Fresh water sediment		0.221 mg/kg dry weight	0.064
			Marine water		< 0.0001 mg/L	0.064
			Marine sediment		0.022 mg/kg dry weight	0.064
			Sewage treatment plant		0.0002 mg/L	< 0.0001
			Soil		0.077 mg/kg dry weight	0.113
			Grassland		0.077 mg/kg dry weight	0.113

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.06 mg/m3	0.0609
			Long term dermal	0.007 mg/kg bw/day	0.012
			Short term	0.12 mg/m3	< 0.0001

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	1		inhalation	I	
PROC2	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.357 mg/m3	0.357
			Long term dermal	0.0027 mg/kg bw/day	0.0048
			Short term inhalation	0.73 mg/m3	0.0001
PROC3	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.183 mg/m3	0.183
			Long term dermal	0.0007 mg/kg bw/day	0.0012
			Short term inhalation	0.36 mg/m3	< 0.000
PROC4	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.3 mg/m3	0.3046
			Long term dermal	0.14 mg/kg bw/day	0.2406
			Short term inhalation	0.62 mg/m3	0.0001
PROC5	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.3 mg/m3	0.3046
			Long term dermal	0.27 mg/kg bw/day	0.4812
			Short term inhalation	0.6 mg/m3	0.000
PROC8a	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.37 mg/m3	0.3650
			Long term dermal	0.27 mg/kg bw/day	0.4812
			Short term inhalation	0.74 mg/m3	0.000
PROC8b	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.548 mg/m3	0.5484
			Long term dermal	0.14 mg/kg bw/day	0.2400
			Short term inhalation	0.55 mg/m3	0.0002
PROC9	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated	Long term inhalation	0.3 mg/m3	0.3

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		differently).			
			Long term dermal	0.14 mg/kg bw/day	0.2406
			Short term inhalation	0.62 mg/m3	0.0001
PROC15	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.596 mg/m3	0.596
			Long term dermal	0.0007 mg/kg bw/day	0.0012
			Short term inhalation	1.2 mg/m3	0.0002

ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates) PROC1: Use in closed process, no likelihood of exposure

PROC15: Use as laboratory reagent

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users http://guidance.echa.europa.eu/downstream_users_en.htm

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: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
: ERC2: Formulation of preparations
 PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non- dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent

2.1 Contributing scenario controlling environmental exposure for: ERC2: Formulation of preparations

Amount used	
Regional use tonnage (tonnes/year):	: 2320 ton(s)/year
Fraction of Regional tonnage used locally:	: 100 %
Maximum daily site tonnage (kg/day):	: 10300 kg/day
Environment factors not influenced Flow rate	by risk management : 83,333.3 m3/h
Dilution Factor (River)	: 1,000
Dilution Factor (Coastal Areas)	,
Other given operational conditions a	affecting environmental exposure
Number of emission days per year	: 225
Emission or Release Factor: Air	: 736 ppm
Emission or Release Factor: Water	: 0 %
Emission or Release Factor: Soil	: 0%

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Remarks Remarks		SpERC: CEPE 2.1b.v1 No waste water is released to the environment	
Technical cond	litions and measures / O	rganizational measures	
Exposure tim	ne :	Continuous use/release	
Compartmen	t :	Fresh water, Fresh water sediment, Marine water, Marine water, Sediment, Soil, Grassland, Sewage treatment plant	

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	: General exposures, Continuous process, Bulk product storage, (closed systems)
Product characteristics	
Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day

Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Technical conditions and measures

Assumes a good basic standard of occupational hygiene is implemented.

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)

2.3 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Activity Product characteristics	: General exposures, Process sampling
Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 240 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year

Human factors not influenced by risk management

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Breathing volume	: 10 m3/da	у	
Other operational conditions affecti Outdoor / Indoor	ing workers e : Indoor	xposure	
Technical conditions and measures Provide extraction ventilation at po %)		missions occur. (Effectiveness (o	of a measure): 90
Organisational measures to prevent Assumes a good basic standard o			
Conditions and measures related to Wear chemically resistant gloves (supervision controls. (Effectivenes	(tested to EN	374) in combination with intensive	
2.4 Contributing scenario contro process (synthesis or formulation)		exposure for: PROC3: Use in	closed batch
Activity	: General	exposures (closed systems)	
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)		ne percentage of the substance ir (unless stated differently).	the product up
Frequency and duration of use			
Exposure duration	: < 480 mir		
Remarks	: Inhalatio	-	
Frequency of use	: <= 225 da	ays/year	
Human factors not influenced by ris	sk manageme	nt	
Breathing volume	: 10 m3/da		
Other operational conditions affecti Outdoor / Indoor	ing workers e : Indoor	xposure	
Technical conditions and measures Provide extraction ventilation at po %)		missions occur. (Effectiveness (o	of a measure): 90
Organisational measures to prevent Assumes a good basic standard o			
Conditions and measures related to Wear chemically resistant gloves (supervision controls. (Effectivenes Wear a respirator conforming to E 90 %)	(tested to EN ss (of a meas	374) in combination with intensive ure): 98 %)	e management

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2.5 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Activity Product characteristics	: Material transfers
Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Covers the percentage of the substance in the product up to 100 % (unless stated differently). liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	k management
Breathing volume	: 10 m3/day
	. Io molady
Other operational conditions affecting	ng workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures	
	pints where emissions occur. (Effectiveness (of a measure): 90
	/limit releases, dispersion and exposure f occupational hygiene is implemented.
	personal protection, hygiene and health evaluation tested to EN374) in combination with intensive management

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)

Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 90 %)

2.6 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

Activity Product characteristics	: Mixing operations (open systems)
Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Covers the percentage of the substance in the product up to 100 % (unless stated differently). liquid
Frequency and duration of use	
Exposure duration	: < 480 min
•	
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affecti	ing workers exposure

Other operational conditions affecting workers exposure

			X /	
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Outdoor / Ind	loor	: Indoor		
	litions and measures ction ventilation at p		emissions occur. (Effectiven	ess (of a measure): 90
			ses, dispersion and exposure nal hygiene is implemented.	
Wear chemica supervision c	ally resistant gloves ontrols. (Effectivene	(tested to Él ss (of a mea	rotection, hygiene and health N374) in combination with inte sure): 98 %) ype A filter or better. (Effectiv	ensive management
	preparation (charg		er exposure for: PROC8a: T Irging) from/ to vessels/ lar	
Activity		: Material	transfers	
in Mixture/Ar	on of the Substance		the percentage of the substar 6 (unless stated differently).	nce in the product up
Frequency and Exposure du Remarks Frequency of		: < 60 mir : Inhalatio : <= 225 c	on, Dermal	
Human factors Breathing vo	not influenced by ris lume	k managem : 10 m3/d		
Other operation Outdoor / Ind	nal conditions affecti loor	ng workers : Indoor	exposure	
	litions and measures ction ventilation at p		emissions occur. (Effectiven	ess (of a measure): 90
			ses, dispersion and exposure nal hygiene is implemented.	
Wear chemica supervision c	ally resistant gloves ontrols. (Effectivene	(tested to El ss (of a mea	rotection, hygiene and health N374) in combination with inte sure): 98 %) ype A filter or better. (Effectiv	ensive management

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2.8 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Bulk transfers, Dedicated facility Covers the percentage of the substance in the product up to 100 % (unless stated differently). liquid
Frequency and duration of use	
Exposure duration	: < 240 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris Breathing volume Other operational conditions affectin Outdoor / Indoor	: 10 m3/day
Technical conditions and measures Provide extraction ventilation at po %)	pints where emissions occur. (Effectiveness (of a measure): 97
	/limit releases, dispersion and exposure f occupational hygiene is implemented.

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)

2.9 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Activity Product characteristics	: Material transfers, Bulk transfers, Dedicated facility
Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Covers the percentage of the substance in the product up to 100 % (unless stated differently). liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affecti	ng workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures Provide extraction ventilation at p	oints where emissions occur. (Effectiveness (of a measure): 90

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%)

Organisational measures to prevent /limit releases, dispersion and exposure Assumes a good basic standard of occupational hygiene is implemented.

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %) Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 90 %)

2.10 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

Activity Product characteristics	: Laboratory activities
Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Covers the percentage of the substance in the product up to 100 % (unless stated differently). liquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: 15 - 60 min : Inhalation, Dermal : <= 225 days/year
Human factors not influenced by ris Breathing volume	k management : 10 m3/day
Other operational conditions affecti Outdoor / Indoor	ng workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at p %)	oints where emissions occur. (Effectiveness (of a measure): 90
	t /limit releases, dispersion and exposure f occupational hygiene is implemented.
Conditions and measures related to Wear chemically resistant gloves (supervision controls. (Effectivenes	personal protection, hygiene and health evaluation (tested to EN374) in combination with intensive management ss (of a measure): 98 %)
	olling worker exposure for: PROC5: Mixing or blending in of preparations and articles (multistage and/ or
Activity	: Mixing operations (open systems)
Product characteristics Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 2%.

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Physical Form (at time of use)	: liquid		
Frequency and duration of use			
Exposure duration	: < 480 r	nin	
Remarks		ion, Dermal	
Frequency of use		days/year	
Human factors not influenced by ris	k manager	nent	
Breathing volume	: 10 m3/		
Other operational conditions affecti	-	-	
Outdoor / Indoor	: Indoor		
Organisational measures to prevent			
Assumes a good basic standard o	t occupatio	onal hygiene is implemented.	
Conditions and measures related to Wear chemically resistant gloves ((Effectiveness (of a measure): 90 %	tested to E		
substance or preparation (charg non-dedicated facilities Activity Product characteristics		al transfers	
Concentration of the Substance	: Covers	s percentage substance in the pro	duct up to 2%.
in Mixture/Article			-
Physical Form (at time of use)	: liquid		
Frequency and duration of use Exposure duration	: < 480 n		
Exposure duration Remarks	: Inhalat	ion, Dermal	
Exposure duration	: Inhalat		
Exposure duration Remarks Frequency of use Human factors not influenced by ris	: Inhalat : <= 225 sk manager	ion, Dermal days/year ment	
Exposure duration Remarks Frequency of use	: Inhalat : <= 225	ion, Dermal days/year ment	
Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affecti	: Inhalat : <= 225 sk manager : 10 m3/ ng workers	ion, Dermal days/year ment day s exposure	
Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume	: Inhalat : <= 225 sk manager : 10 m3/	ion, Dermal days/year ment day s exposure	
Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affecti	: Inhalat : <= 225 k manager : 10 m3/ ng workers : Indoor	ion, Dermal days/year ment day s exposure	(of a measure): 90
Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affecti Outdoor / Indoor Technical conditions and measures Provide extraction ventilation at pe	: Inhalat : <= 225 sk manager : 10 m3/ ng workers : Indoor oints where t /limit relea	ion, Dermal days/year nent day s exposure e emissions occur. (Effectiveness ases, dispersion and exposure	(of a measure): 90

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

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2.13 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity	: Drum and small package filling
Product characteristics	
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affect	
Outdoor / Indoor	: Indoor
Arganisational measures to proven	t /limit releases, dispersion and exposure
	of occupational hygiene is implemented.
Assumes a good basic standard e	n oodpational hygiene is implemented.
Conditions and measures related to	personal protection, hygiene and health evaluation
	(tested to EN374) in combination with 'basic' employee training.
Wear chemically resistant gloves	
	%)
Wear chemically resistant gloves (Effectiveness (of a measure): 90 °	%)
	%)
(Effectiveness (of a measure): 90	·
(Effectiveness (of a measure): 90 2.14 Contributing scenario contri	rolling worker exposure for: PROC9: Transfer of
(Effectiveness (of a measure): 90 2.14 Contributing scenario contri	·
(Effectiveness (of a measure): 90 2.14 Contributing scenario contr	rolling worker exposure for: PROC9: Transfer of
(Effectiveness (of a measure): 90 2.14 Contributing scenario contri substance or preparation into sr	rolling worker exposure for: PROC9: Transfer of nall containers (dedicated filling line, including weighing)
(Effectiveness (of a measure): 90 2.14 Contributing scenario contr	rolling worker exposure for: PROC9: Transfer of nall containers (dedicated filling line, including weighing)
(Effectiveness (of a measure): 90 2.14 Contributing scenario contrisubstance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article	rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 2%.
(Effectiveness (of a measure): 90 2.14 Contributing scenario contrisubstance or preparation into sr Activity Product characteristics Concentration of the Substance	rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility
(Effectiveness (of a measure): 90 2.14 Contributing scenario contrisubstance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 2%.
(Effectiveness (of a measure): 90 2.14 Contributing scenario contrisubstance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use	rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 2%. : liquid
(Effectiveness (of a measure): 90 2.14 Contributing scenario contrisubstance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 2%. : liquid : < 480 min
(Effectiveness (of a measure): 90 2.14 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 2%. : liquid : < 480 min : Inhalation, Dermal
(Effectiveness (of a measure): 90 2.14 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 225 days/year
(Effectiveness (of a measure): 90 2.14 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris	rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 2%. : liquid : <480 min : Inhalation, Dermal : <= 225 days/year
(Effectiveness (of a measure): 90 2.14 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 225 days/year
(Effectiveness (of a measure): 90 2.14 Contributing scenario contrisubstance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rise Breathing volume	rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 2%. : liquid : <480 min : Inhalation, Dermal : <= 225 days/year sk management : 10 m3/day
(Effectiveness (of a measure): 90 2.14 Contributing scenario contrisubstance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume	rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 2%. : liquid : <480 min : Inhalation, Dermal : <= 225 days/year sk management : 10 m3/day ing workers exposure
(Effectiveness (of a measure): 90 2.14 Contributing scenario contrisubstance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rise Breathing volume	rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 2%. : liquid : <480 min : Inhalation, Dermal : <= 225 days/year sk management : 10 m3/day
(Effectiveness (of a measure): 90 2.14 Contributing scenario contrisubstance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affection Outdoor / Indoor	 rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 225 days/year Sk management 10 m3/day ing workers exposure Indoor
(Effectiveness (of a measure): 90 ° 2.14 Contributing scenario contrisubstance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affection Outdoor / Indoor	rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 2%. : liquid : <480 min : Inhalation, Dermal : <= 225 days/year sk management : 10 m3/day ing workers exposure : Indoor t /limit releases, dispersion and exposure
(Effectiveness (of a measure): 90 ° 2.14 Contributing scenario contrisubstance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affection Outdoor / Indoor	 rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 225 days/year Sk management 10 m3/day ing workers exposure Indoor
 (Effectiveness (of a measure): 90 for a measure): 90 for a measure): 90 for a measure): 90 for a measure of a mea	rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 2%. : liquid : < 480 min : Inhalation, Dermal : <= 225 days/year sk management : 10 m3/day ing workers exposure : Indoor t /limit releases, dispersion and exposure of occupational hygiene is implemented.
 (Effectiveness (of a measure): 90 for a measure): 90 for a measure): 90 for a measure): 90 for a measure of a mea	rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 2%. : liquid : < 480 min : Inhalation, Dermal : <= 225 days/year sk management : 10 m3/day ing workers exposure : Indoor t /limit releases, dispersion and exposure of occupational hygiene is implemented.

(Effectiveness (of a measure): 90 %)

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2.15 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

Activity Product characteristics	: Mixing operations (open systems)
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affecti	ng workers exposure
Outdoor / Indoor	: Indoor

Organisational measures to prevent *l*limit releases, dispersion and exposure Assumes a good basic standard of occupational hygiene is implemented.

2.16 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Activity Product characteristics	: Material transfers
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	k management
Breathing volume	: 10 m3/day
Other operational conditions affection	ng workers exposure
Outdoor / Indoor	: Indoor
	t /limit releases, dispersion and exposure f occupational hygiene is implemented.
Conditions and moasures related to	personal protection, hygiene and health evaluation

Conditions and measures related to personal protection, hygiene and health evaluation Wear suitable gloves tested to EN374. (Effectiveness (of a measure): 80 %)

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Revision Date 10.12.2013

Print Date 27.02.2014

GB / EN

2.17 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity	: Drum and small package filling
Product characteristics	
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
in Mixture/Article	
Physical Form (at time of use)	: liquid
	. iquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Trequency of use	
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Diodaning volume	
Other operational conditions affect	ng workers exposure
Outdoor / Indoor	: Indoor
	olling worker exposure for: PROC9: Transfer of
substance or preparation into sr	nall containers (dedicated filling line, including weighing)
Activity	: Material transfers, Bulk transfers, Dedicated facility
Product characteristics	
Concentration of the Substance	
	: Covers percentage substance in the product up to 0.5%.
	: Covers percentage substance in the product up to 0.5%.
in Mixture/Article	
	: Covers percentage substance in the product up to 0.5%. : liquid
in Mixture/Article Physical Form (at time of use)	
in Mixture/Article Physical Form (at time of use) Frequency and duration of use	: liquid
in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	: liquid : < 480 min
in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	: liquid : < 480 min : Inhalation, Dermal
in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	: liquid : < 480 min
in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	: liquid : < 480 min : Inhalation, Dermal : <= 225 days/year
in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris	: liquid : < 480 min : Inhalation, Dermal : <= 225 days/year sk management
in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	: liquid : < 480 min : Inhalation, Dermal : <= 225 days/year
in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume	: liquid : < 480 min : Inhalation, Dermal : <= 225 days/year sk management : 10 m3/day
in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume	 liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day ing workers exposure
in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume	: liquid : < 480 min : Inhalation, Dermal : <= 225 days/year sk management : 10 m3/day
in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affection Outdoor / Indoor	 liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day ing workers exposure

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation and reference to its source

Environment

Version 1	Revision Date 10.12.2013		Print Date 27.02.2014			GB / EN
Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartme nt	Value	Level of Exposure	RCR
ERC2 EUSES		Fresh water		0.0004 mg/L	0.064	
			Fresh water sediment		0.221 mg/kg dry weight	0.064
			Marine water		< 0.0001 mg/L	0.064
			Marine sediment		0.022 mg/kg dry weight	0.064
			Sewage treatment plant		0 mg/L	0
			Soil		0.077 mg/kg dry weight	0.113
			Grassland		0.077 mg/kg dry weight	0.113

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1 ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.06 mg/m3	0.0609	
			Long term dermal	0.007 mg/kg bw/day	0.012
			Short term inhalation	0.12 mg/m3	< 0.0001
PROC2	OC2 ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.357 mg/m3	0.357
			Long term dermal	0.0027 mg/kg bw/day	0.0048
			Short term inhalation	0.73 mg/m3	0.0001
PROC3	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.183 mg/m3	0.183
			Long term dermal	0.0007 mg/kg bw/day	0.0012
			Short term inhalation	0.36 mg/m3	< 0.0001
PROC4	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.3 mg/m3	0.3046

sion 1	Revision Date 1	0.12.2013 Print Date 27.0			GB / E
			Long term dermal	0.14 mg/kg bw/day	0.240
			Short term inhalation	0.62 mg/m3	0.000
PROC5	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.3 mg/m3	0.304
			Long term dermal	0.27 mg/kg bw/day	0.481
			Short term inhalation	0.6 mg/m3	0.000
PROC8a	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.37 mg/m3	0.365
			Long term dermal	0.27 mg/kg bw/day	0.481
			Short term inhalation	0.74 mg/m3	0.000
PROC8b	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.548 mg/m3	0.548
			Long term dermal	0.14 mg/kg bw/day	0.240
			Short term inhalation	0.55 mg/m3	0.000
PROC9	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.3 mg/m3	0.3
			Long term dermal	0.14 mg/kg bw/day	0.240
			Short term inhalation	0.62 mg/m3	0.000
PROC15	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.596 mg/m3	0.59
			Long term dermal	0.0007 mg/kg bw/day	0.001
			Short term inhalation	1.2 mg/m3	0.000
PROC5	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.595 mg/m3	0.59
			Long term dermal	0.0274 mg/kg bw/day	0.048
			Short term inhalation	1.22 mg/m3	0.000
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.119 mg/m3	0.11

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			Long term dermal	0.0274 mg/kg bw/day	0.0481
			Short term inhalation	0.243 mg/m3	0.0004
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.595 mg/m3	0.595
			Long term dermal	0.002 mg/kg bw/day	0.005
			Short term inhalation	1.22 mg/m3	0.0002
PROC9	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.595 mg/m3	0.595
			Long term dermal	0.0137 mg/kg bw/day	0.024
			Short term inhalation	1.22 mg/m3	0.0002
PROC5	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.068 mg/kg bw/day	0.12
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.297 mg/m3	0.297
			Long term dermal	0.014 mg/kg bw/day	0.0241
			Short term inhalation	1.52 mg/m3	0.0003
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC9	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
		· · ·	Long term dermal	0.0686 mg/kg bw/day	0.12

ERC2: Formulation of preparations

PROC1: Use in closed process, no likelihood of exposure

PROC15: Use as laboratory reagent

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

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4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users http://guidance.echa.europa.eu/downstream_users_en.htm

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1. Short title of Exposure Scenario: Manufacture of Coatings, adhesives and inks (and powder products)

Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental Release Categories	: ERC2: Formulation of preparations
Process categories	 PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non- dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC8b: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC6a: Manufacture of substances, Formulation of preparations, Industrial use resulting in manufacture of another substance (use of intermediates)

Amount used Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Maximum daily site tonnage (kg/day):	: 1210 ton(s)/year : 100 % : 21500 kg/day
Environment factors not influenced I Dilution Factor (River) Dilution Factor (Coastal Areas)	: 1,000
Other given operational conditions a Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water	: 225

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Remarks Provide, w domestic	or Release Factor: Soil with either onsite or wastewater treatment, stewater removal of (%)	: 0 % : SpEl : > 37.	RC: CEPE 2.2a.v1 4 %	
Technical co	onditions and measures	-		
Exposure	time	: Cont	inuous use/release	
Compartm	nent		h water, Fresh water sediment, Mari nent, Soil, Grassland, Sewage treat	,

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Activity	: General exposures, Continuous process, Bulk product storage, (closed systems)				
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Covers the percentage of the substance in the product up to 100 % (unless stated differently). liquid 				
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 225 days/year				
Human factors not influenced by risk Breathing volume	c management : 10 m3/day				
Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor					
Technical conditions and measures Assumes a good basic standard of	occupational hygiene is implemented.				
	personal protection, hygiene and health evaluation ested to EN374) in combination with intensive management s (of a measure): 98 %)				
2.3 Contributing scenario controll continuous process with occasion	ling worker exposure for: PROC2: Use in closed, nal controlled exposure				
Activity Product characteristics	: General exposures, Process sampling				
Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Covers the percentage of the substance in the product up to 100 % (unless stated differently). liquid 				
Frequency and duration of use Exposure duration	: < 240 min				

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Remarks Frequency of	use	: Inhalatio : <= 225 da		
Human factors Breathing vol	not influenced by ris ume	k manageme : 10 m3/da		
Other operation Outdoor / Inde	al conditions affectir oor	ng workers e : Indoor	xposure	
	tions and measures tion ventilation at po	oints where e	missions occur. (Effectiven	ess (of a measure): 90
-	•		es, dispersion and exposure al hygiene is implemented.	
Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)				
2.4.Contributiv				

2.4 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Activity Product characteristics	: General exposures (closed systems)
Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Covers the percentage of the substance in the product up to 100 % (unless stated differently). liquid
Frequency and duration of use Exposure duration	: < 480 min
Remarks Frequency of use	: Inhalation, Dermal : <= 225 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affecti Outdoor / Indoor	ng workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at pe %)	oints where emissions occur. (Effectiveness (of a measure): 90
	t /limit releases, dispersion and exposure f occupational hygiene is implemented.
Wear chemically resistant gloves (supervision controls. (Effectivene	personal protection, hygiene and health evaluation (tested to EN374) in combination with intensive management ss (of a measure): 98 %) N140 with Type A filter or better. (Effectiveness (of a measure):
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2.5 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Activity	: Material transfers
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Covers the percentage of the substance in the product up to 100 % (unless stated differently). liquid
Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris	
Breathing volume	: 10 m3/day
Other operational conditions affecti Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at p %)	oints where emissions occur. (Effectiveness (of a measure): 90
	t /limit releases, dispersion and exposure of occupational hygiene is implemented.
Wear chemically resistant gloves supervision controls. (Effectivene	o personal protection, hygiene and health evaluation (tested to EN374) in combination with intensive management ss (of a measure): 98 %) N140 with Type A filter or better. (Effectiveness (of a measure):
	olling worker exposure for: PROC5: Mixing or blending in of preparations and articles (multistage and/ or
	•••••

Activity	: Mixing operations (open systems)
Product characteristics	
Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Covers the percentage of the substance in the product up to 100 % (unless stated differently). liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year

Human factors not influenced by risk management

Version 1	Revision Date 10.12.2	2013	Print Date 27.02.2014	GB / EN	
Breathing vo	blume	: 10 m3/da	у		
Other operation Outdoor / Inc	nal conditions affecti loor	ng workers e : Indoor	xposure		
	Technical conditions and measures Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 90 %)				
•	•		es, dispersion and exposure al hygiene is implemented.		
Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %) Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 90 %)			ensive management		

2.7 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Activity Product characteristics Concentration of the Substance	 Material transfers Covers the percentage of the substance in the product up
in Mixture/Article Physical Form (at time of use)	to 100 % (unless stated differently). : liquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 60 min : Inhalation, Dermal : <= 225 days/year
Human factors not influenced by ris Breathing volume	k management : 10 m3/day
Other operational conditions affectin Outdoor / Indoor	ng workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at po %)	oints where emissions occur. (Effectiveness (of a measure): 90
	/limit releases, dispersion and exposure f occupational hygiene is implemented.
Wear chemically resistant gloves (supervision controls. (Effectivenes	personal protection, hygiene and health evaluation (tested to EN374) in combination with intensive management ss (of a measure): 98 %) N140 with Type A filter or better. (Effectiveness (of a measure):
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95 %)

2.8 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity Product characteristics	: Bulk transfers, Dedicated facility
Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Covers the percentage of the substance in the product up to 100 % (unless stated differently). liquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 240 min : Inhalation, Dermal : <= 225 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at p %)	s oints where emissions occur. (Effectiveness (of a measure): 97
	t /limit releases, dispersion and exposure of occupational hygiene is implemented.
	o personal protection, hygiene and health evaluation (tested to EN374) in combination with intensive management ss (of a measure): 98 %)
	olling worker exposure for: PROC9: Transfer of substance ners (dedicated filling line, including weighing)
Activity	: Material transfers, Bulk transfers, Dedicated facility
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Covers the percentage of the substance in the product up to 100 % (unless stated differently). liquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 225 days/year

Human factors not influenced by risk management Breathing volume : 10 m3/day

Other operational conditions affecting workers exposure

Version 1 Revision Date 10.12	.2013	Print Date 27.02.2014	GB / EN
Outdoor / Indoor	: Indoor	r	
Technical conditions and measures Provide extraction ventilation at p %)	-	e emissions occur. (Effectivenes	ss (of a measure): 90
Organisational measures to preven Assumes a good basic standard o			
Conditions and measures related to Wear chemically resistant gloves supervision controls. (Effectivene Wear a respirator conforming to E 90 %)	(tested to less (of a me	EN374) in combination with inten easure): 98 %)	sive management
2.10 Contributing scenario cont reagent	rolling wo	rker exposure for: PROC15: U	se as laboratory
Activity	: Labora	atory activities	
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)		s the percentage of the substanc % (unless stated differently).	e in the product up
Frequency and duration of use			
Exposure duration	: 15 - 60		
Remarks Frequency of use		tion, Dermal 5 days/year	
Human factors not influenced by ris Breathing volume	sk manage : 10 m3/		
Other operational conditions affect Outdoor / Indoor	ing worker : Indoor	•	
Technical conditions and measures Provide extraction ventilation at p %)		e emissions occur. (Effectivenes	s (of a measure): 90
Organisational measures to preven Assumes a good basic standard o			
		protection bygiene and health e	

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)

2.11 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

Version 1 Revision	Date 10.12.2013	Print Date 27.02.2014	GB / EN
Activity	: Mixir	ng operations (open systems)	
Product characteristics			
Concentration of the S	ubstance : Cove	ers percentage substance in the pr	oduct up to 2%.
in Mixture/Article	of uso) i liqui	d	
Physical Form (at time	of use) : liqui	d	
Frequency and duration	of use		
Exposure duration	: < 480	0 min	
Remarks		lation, Dermal	
Frequency of use	: <= 22	25 days/year	
Human factors not influe Breathing volume	nced by risk manag : 10 m		
Other operational condit	ions affecting worke	ers exposure	
Outdoor / Indoor	: Indo		
Organisational measures	s to prevent /limit re	leases, dispersion and exposure	
		itional hygiene is implemented.	
	ant gloves (tested to	al protection, hygiene and health e b EN374) in combination with 'basi	
substance or preparat non-dedicated facilitie Activity	S	charging) from/ to vessels/ larg	e containers at
Product characteristics	. mate		
Concentration of the S in Mixture/Article	Substance : Cove	ers percentage substance in the pr	oduct up to 2%.
Physical Form (at time	of use) : liqui	d	
Fraguency and duration	of 1100		
Frequency and duration Exposure duration	: < 480	0 min	
Remarks		lation, Dermal	
Frequency of use		25 days/year	
Human factors not influe Breathing volume	nced by risk manag : 10 m		
Other operational condit Outdoor / Indoor	ions affecting worke : Indo		
Technical conditions and Provide extraction vent %)		ere emissions occur. (Effectivenes	ss (of a measure): 90
		leases, dispersion and exposure tional hygiene is implemented.	
		al protection, hygiene and health e o EN374) in combination with 'basi	

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(Effectiveness (of a measure): 90 %)

2.13 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity Product characteristics	: Drum and small package filling
Concentration of the Substance	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affecti	ng workers exposure
Outdoor / Indoor	: Indoor
•	t /limit releases, dispersion and exposure f occupational hygiene is implemented.
	personal protection, hygiene and health evaluation (tested to EN374) in combination with 'basic' employee training

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

2.14 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Activity	: Material transfers, Bulk transfers, Dedicated facility
Product characteristics	
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	k management
Breathing volume	: 10 m3/day
Other operational conditions affecti	ng workers exposure
Outdoor / Indoor	: Indoor
Organisational measures to prevent	/limit releases, dispersion and exposure

Arganisational measures to prevent /limit releases, dispersion and exposure Assumes a good basic standard of occupational hygiene is implemented.

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Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

2.15 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

Activity Product characteristics	: Mixing operations (open systems)
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	k management
Breathing volume	: 10 m3/day
Other operational conditions affecti	ng workers exposure
Outdoor / Indoor	: Indoor
•	t /limit releases, dispersion and exposure f occupational hygiene is implemented.

2.16 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Activity Product characteristics	: Material transfers
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use)	: liquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 225 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affecti Outdoor / Indoor	ng workers exposure : Indoor
Organisational measures to prevent	t /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

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Conditions and measures related to personal protection, hygiene and health evaluation Wear suitable gloves tested to EN374. (Effectiveness (of a measure): 80 %)

2.17 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity	: Drum and small package filling
Product characteristics	
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
in Mixture/Article	
Physical Form (at time of use)	: liquid
	•
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
-	
Other operational conditions affect	ing workers exposure
Outdoor / Indoor	: Indoor
	t /limit releases, dispersion and exposure
Accumes a good basic standard o	of occupational hygiene is implemented.
Assumes a yoou basic stanuaru u	
Assumes a good basic standard o	
Assumes a good basic standard o	
	alling worker exposure for: PPOCO: Transfer of
2.18 Contributing scenario contr	olling worker exposure for: PROC9: Transfer of
2.18 Contributing scenario contr	olling worker exposure for: PROC9: Transfer of nall containers (dedicated filling line, including weighing)
2.18 Contributing scenario contributing scenario contributing scenario contributing substance or preparation into sr	nall containers (dedicated filling line, including weighing)
2.18 Contributing scenario contr substance or preparation into sr Activity	olling worker exposure for: PROC9: Transfer of nall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics	nall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance	nall containers (dedicated filling line, including weighing)
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article	 mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%.
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance	nall containers (dedicated filling line, including weighing) : Material transfers, Bulk transfers, Dedicated facility
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%.
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use	 mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 <u>nall containers (dedicated filling line, including weighing)</u> Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 nall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 <u>nall containers (dedicated filling line, including weighing)</u> Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 225 days/year
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris	 mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 225 days/year
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 225 days/year
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rise Breathing volume	 mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 225 days/year
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rise Breathing volume	 mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 225 days/year Sk management 10 m3/day
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rise Breathing volume	 mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 225 days/year
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affection Outdoor / Indoor	 mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 225 days/year Sk management 10 m3/day ing workers exposure Indoor
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affection Outdoor / Indoor	 mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 225 days/year Sk management 10 m3/day ing workers exposure Indoor t /limit releases, dispersion and exposure
2.18 Contributing scenario contr substance or preparation into sr Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affection Outdoor / Indoor	 mall containers (dedicated filling line, including weighing) Material transfers, Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 225 days/year Sk management 10 m3/day ing workers exposure Indoor

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3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartme nt	Value	Level of Exposure	RCR
ERC2	EUSES		Fresh water		0.0005 mg/L	0.077
			Fresh water sediment		0.263 mg/kg dry weight	0.187
			Marine water		0.0001 mg/L	0.077
			Marine sediment		0.064 mg/kg dry weight	0.187
			Sewage treatment plant		0.084 mg/L	0.0086
			Soil		0.077 mg/kg dry weight	0.113
			Grassland		0.077 mg/kg dry weight	0.113

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.06 mg/m3	0.0609
			Long term dermal	0.007 mg/kg bw/day	0.012
			Short term inhalation	0.12 mg/m3	< 0.0001
PROC2	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.357 mg/m3	0.357
			Long term dermal	0.0027 mg/kg bw/day	0.0048
			Short term inhalation	0.73 mg/m3	0.0001
PROC3	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.183 mg/m3	0.183
			Long term dermal	0.0007 mg/kg bw/day	0.0012
			Short term inhalation	0.36 mg/m3	< 0.0001

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PROC4	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.3 mg/m3	0.3046
			Long term dermal	0.14 mg/kg bw/day	0.2406
			Short term inhalation	0.62 mg/m3	0.0001
PROC5	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.3 mg/m3	0.3046
			Long term dermal	0.27 mg/kg bw/day	0.4812
			Short term inhalation	0.6 mg/m3	0.0001
PROC8a	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.37 mg/m3	0.3656
			Long term dermal	0.27 mg/kg bw/day	0.4812
			Short term inhalation	0.74 mg/m3	0.0001
PROC8b	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.548 mg/m3	0.5484
			Long term dermal	0.14 mg/kg bw/day	0.2406
			Short term inhalation	0.55 mg/m3	0.0002
PROC9	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.3 mg/m3	0.3
			Long term dermal	0.14 mg/kg bw/day	0.2406
			Short term inhalation	0.62 mg/m3	0.0001
PROC15	ECETOC TRA	Covers the percentage of the substance in the product up to 100 % (unless stated differently).	Long term inhalation	0.596 mg/m3	0.596
			Long term dermal	0.0007 mg/kg bw/day	0.0012
			Short term inhalation	1.2 mg/m3	0.0002
PROC5	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.61
			Long term dermal	0.0274 mg/kg bw/day	0.0481

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			Short term inhalation	1.22 mg/m3	0.000
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.1218 mg/m3	0.121
			Long term dermal	0.0274 mg/kg bw/day	0.048
			Short term inhalation	0.243 mg/m3	0.000
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.603
			Long term dermal	0.055 mg/kg bw/day	0.096
			Short term inhalation	1.22 mg/m3	0.000
PROC9	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.609
			Long term dermal	0.055 mg/kg bw/day	0.096
			Short term inhalation	1.22 mg/m3	0.000
PROC5	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.068 mg/kg bw/day	0.12
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.304 mg/m3	0.304
		· · ·	Long term dermal	0.0686 mg/kg bw/day	0.12
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC9	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
		· · ·	Long term dermal	0.0686 mg/kg bw/day	0.12

ERC2: Formulation of preparations

PROC1: Use in closed process, no likelihood of exposure

PROC15: Use as laboratory reagent

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

PROC8a: Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

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4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users http://guidance.echa.europa.eu/downstream_users_en.htm

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1. Short title of Exposure Scenario: Diesel and gasoline additive

Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental Release Categories Process categories	 ERC4: Industrial use of processing aids in processes and products, not becoming part of articles PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC8a: Transfer of substance or preparation (charging/discharging) from/ to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/ to vessels/large containers at dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/ to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC16: Using material as fuel sources, limited exposure to unburned product to be expected

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC4, ERC10b: Manufacture of substances, Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles, Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing)

Amount used Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally:		465 ton(s)/year 0.05 %
Maximum daily site tonnage (kg/day):	:	0.637 kg/day
Environment factors not influenced	by	risk management
Dilution Factor (River)	:	1,000
Dilution Factor (Coastal Areas)	:	1,000
Other given operational conditions a	ffe	ecting environmental exposure
Number of emission days per year	:	365
Emission or Release Factor: Air	:	736 ppm
Emission or Release Factor: Water	:	0 %
Emission or Release Factor: Soil	:	0 %
Remarks	:	spERC: ESVOC SpERC 9.12b v1
Remarks	:	No waste water is released to the environment

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2.2 Contributing scenario controlling worker exposure for: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

Activity	: Mixing operations (open systems)
Product characteristics	· Covers normantana aukatanas in the needuction to 20/
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Filysical Form (at time of use)	. Ilquiu
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
. ,	
Human factors not influenced by ris	
Breathing volume	: 10 m3/day
Other operational conditions affect	
Outdoor / Indoor	: Indoor
Technical conditions and measures Assumes a good basic standard o	s f occupational hygiene is implemented.
	 personal protection, hygiene and health evaluation (tested to EN374) in combination with 'basic' employee training. %)
2.2 Contributing cooperie contro	lling worker evenesure fer PDOC9e. Trensfer of
	Iling worker exposure for: PROC8a: Transfer of ing/ discharging) from/ to vessels/ large containers at
non-dedicated facilities	ing/ discharging/ from/ to vessels/ large containers at
non-dedicated facilities	
Activity	: Material transfers
Product characteristics	. material (1815)515
Concentration of the Substance	: Covers percentage substance in the product up to 2%.
in Mixture/Article	
Physical Form (at time of use)	: liquid
,	•

Frequency and duration of useExposure duration: < 480 min</td>Remarks: Inhalation, DermalFrequency of use: <= 240 days/year</td>

Human factors not influenced by risk management Breathing volume : 10 m3/day

Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Technical conditions and measures

Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 90

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%)

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

2.4 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity Product characteristics	: Bulk transfers, Dedicated facility
Concentration of the Substance	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	: < 480 min
Exposure duration	
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affecti	ng workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures Assumes a good basic standard o	f occupational hygiene is implemented.
	personal protection, hygiene and health evaluation (tested to EN374) in combination with 'basic' employee training. %)
((),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),(),	
	Iling worker exposure for: PROC9: Transfer of substance ters (dedicated filling line, including weighing)
Activity Product characteristics	: Material transfers, Bulk transfers, Dedicated facility

Activity	: Material transfers, Bulk transfers, Dedicated facility
Product characteristics	
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day

Other operational conditions affecting workers exposure

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Outdoor / Indoo	or	: Indoor		
	ons and measures d basic standard of	foccupation	al hygiene is implemented.	
Wear chemically		tested to EN	otection, hygiene and health e 374) in combination with 'basi	
			r exposure for: PROC16: Us product to be expected	sing material as
Product characte Concentration in Mixture/Artic Physical Form	of the Substance le	: Covers p : liquid	ercentage substance in the p	roduct up to 2%.
Frequency and du Exposure durat Remarks Frequency of u	tion	: < 480 mi : Inhalatio : <= 240 d	n, Dermal	
Human factors no Breathing volu	ot influenced by ris me	k manageme : 10 m3/da		
Other operational Outdoor / Indoo	l conditions affectii or	ng workers e : Indoor	xposure	
	ons and measures d basic standard of	foccupation	al hygiene is implemented.	
	s for formulation		r exposure for: PROC5: Mix ions and articles (multistag	
Activity Product characte Concentration in Mixture/Artic Physical Form	of the Substance le	-	perations (open systems) ercentage substance in the p	roduct up to 0.5%.
Frequency and du	uration of use			

Activity Product characteristics	: Mixing operations (open systems)
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affecti	ing workers exposure
Outdoor / Indoor	: Indoor

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Technical conditions and measures

Assumes a good basic standard of occupational hygiene is implemented.

2.8 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Activity	: Material transfers
Product characteristics	
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
in Mixture/Article Physical Form (at time of use)	: liquid
Physical Form (at time of use)	. Iquiu
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
requerey of use	
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
	· · · · · · · · · · · · · · · · · · ·
Other operational conditions affect	ing workers exposure
Outdoor / Indoor	: Indoor
	personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN	374. (Effectiveness (of a measure): 80 %)
2.9 Contributing scenario contro	olling worker exposure for: PROC8b: Transfer of
	olling worker exposure for: PROC8b: Transfer of
substance or preparation (charg	olling worker exposure for: PROC8b: Transfer of jing/ discharging) from/ to vessels/ large containers at
substance or preparation (charg dedicated facilities	ing/ discharging) from/ to vessels/ large containers at
substance or preparation (charg dedicated facilities Activity	
substance or preparation (charg dedicated facilities Activity Product characteristics	ing/ discharging) from/ to vessels/ large containers at : Bulk transfers, Dedicated facility
substance or preparation (charg dedicated facilities Activity	ing/ discharging) from/ to vessels/ large containers at
substance or preparation (charg dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article	ing/ discharging) from/ to vessels/ large containers at : Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 0.5%.
substance or preparation (charg dedicated facilities Activity Product characteristics Concentration of the Substance	ing/ discharging) from/ to vessels/ large containers at : Bulk transfers, Dedicated facility
substance or preparation (charg dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article	ing/ discharging) from/ to vessels/ large containers at : Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 0.5%.
substance or preparation (charg dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	ing/ discharging) from/ to vessels/ large containers at : Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 0.5%.
substance or preparation (charg dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use	ing/ discharging) from/ to vessels/ large containers at : Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 0.5%. : liquid
substance or preparation (charg dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 ing/ discharging) from/ to vessels/ large containers at Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min
substance or preparation (charg dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 ing/ discharging) from/ to vessels/ large containers at Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year
substance or preparation (charg dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris	 ing/ discharging) from/ to vessels/ large containers at Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year
substance or preparation (charg dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 ing/ discharging) from/ to vessels/ large containers at Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year
substance or preparation (charge dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rise Breathing volume	 ing/ discharging) from/ to vessels/ large containers at Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year sk management 10 m3/day
substance or preparation (charg dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume	 ing/ discharging) from/ to vessels/ large containers at Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year sk management 10 m3/day
substance or preparation (charge dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rise Breathing volume	 ing/ discharging) from/ to vessels/ large containers at Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year sk management 10 m3/day
substance or preparation (charge dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affection Outdoor / Indoor	 ing/ discharging) from/ to vessels/ large containers at Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year sk management 10 m3/day ing workers exposure Indoor
substance or preparation (charge dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rise Breathing volume Other operational conditions affection Outdoor / Indoor	 ing/ discharging) from/ to vessels/ large containers at Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year sk management 10 m3/day ing workers exposure Indoor
substance or preparation (charge dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rise Breathing volume Other operational conditions affection Outdoor / Indoor	 ing/ discharging) from/ to vessels/ large containers at Bulk transfers, Dedicated facility Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year sk management 10 m3/day ing workers exposure Indoor

Activity	: Material transfers, Bulk transfers, Dedicated facility
Product characteristics	· · · · · · · · · ·
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affecti	ng workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures	
Assumes a good basic standard o	f occupational hygiene is implemented.
2 44 Contributing cooperie contr	alling worker expecting for PDOC16. Using meterial as
	olling worker exposure for: PROC16: Using material as o unburned product to be expected

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Product characteristics Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris	k management
Breathing volume	: 10 m3/day
Other operational conditions affectiv	ng workers exposure

Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Technical conditions and measures Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation and reference to its source

Environment

Contributing ScenarioExposure Assessment MethodSpecific conditions	Compartme nt	Value	Level of Exposure	RCR
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ERC4	EUSES	Fresh water	0.0004 mg/L	0.064
		Fresh water sediment	0.221 mg/kg dry weight	0.064
		Marine water	< 0.0001 mg/L	0.064
		Marine sediment	0.022 mg/kg dry weight	0.064
		Sewage treatment plant	0 mg/L	0
		Soil	0.077 mg/kg dry weight	0.113
		Grassland	0.077 mg/kg dry weight	0.113

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC5	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.6093
			Long term dermal	0.0274 mg/kg bw/day	0.0481
			Short term inhalation	1.22 mg/m3	0.0002
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.1218 mg/m3	0.1218
			Long term dermal	0.0274 mg/kg bw/day	0.048
			Short term inhalation	0.243 mg/m3	0.002
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.6093
			Long term dermal	0.055 mg/kg bw/day	0.0962
			Short term inhalation	1.22 mg/m3	0.0002
PROC9	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.6093
			Long term dermal	0.055 mg/kg bw/day	0.0962
			Short term inhalation	1.22 mg/m3	0.0002
PROC16	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.12 mg/m3	0.12
			Long term dermal	0.0069 mg/kg bw/day	0.002
PROC5	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term	0.0686	0.12

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			dermal	mg/kg bw/day	
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.304 mg/m3	0.304
			Long term dermal	0.0686 mg/kg bw/day	0.12
			Short term inhalation	0.609 mg/m3	0.005
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC9	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC16	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.015 mg/m3	0.015
			Long term dermal	0.014 mg/kg bw/day	0.024

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

PROC16: Using material as fuel sources, limited exposure to unburned product to be expected PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users http://guidance.echa.europa.eu/downstream_users_en.htm

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1. Short title of Exposure Scenario: Diesel and gasoline additive

Main User Groups	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental Release Categories	: ERC10b: Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing)
Process categories	 PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non- dedicated facilities PROC16: Using material as fuel sources, limited exposure to unburned product to be expected

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC4, ERC10b: Manufacture of substances, Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles, Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing)

Amount used Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Maximum daily site tonnage (kg/day):	: 465 ton(s)/year : 0.05 % : 0.637 kg/day
Environment factors not influenced Dilution Factor (River) Dilution Factor (Coastal Areas)	: 1,000
Other given operational conditions a Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil Remarks	: 365 : 736 ppm : 0 %
Remarks Technical conditions and measures Exposure time Compartment	: No waste water is released to the environment

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2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Activity Product characteristics	: Material transfers
Concentration of the Substance	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affect	ing workers exposure
Outdoor / Indoor	: Indoor

Conditions and measures related to personal protection, hygiene and health evaluation Wear suitable gloves tested to EN374. (Effectiveness (of a measure): 80 %)

2.3 Contributing scenario controlling worker exposure for: PROC16: Using material as fuel sources, limited exposure to unburned product to be expected

Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers percentage substance in the product up to 2%. : liquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 240 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measures Assumes a good basic standard c	s of occupational hygiene is implemented.
•	olling worker exposure for: PROC8a: Transfer of ging/ discharging) from/ to vessels/ large containers at
Activity Product characteristics	: Material transfers

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Concentration of the Substance	: Covers	s percentage substance in the pro	duct up to 0.5%.
in Mixture/Article			
Physical Form (at time of use)	: liquid		
Frequency and duration of use			
Exposure duration	: < 480 r	nin	
Remarks	: Inhalat	ion, Dermal	
Frequency of use	: <= 220	days/year	
Human factors not influenced by ris	k manage	nent	
Breathing volume	: 10 m3/	day	
Other operational conditions affecti	ng workers	s exposure	
Outdoor / Indoor	: Indoor	-	
Conditions and measures related to Wear suitable gloves tested to EN	personal 374. (Effec	protection, hygiene and health eva tiveness (of a measure): 80 %)	aluation
2.5 Contributing scenario contro fuel sources, limited exposure to			ng material as
Product characteristics Concentration of the Substance	· Cover	s percentage substance in the pro	duct up to 0.5%
in Mixture/Article	. Covers	s percentage substance in the pro	uuci up to 0.5 /0.
	المستعا		
Physical Form (at time of use)	: liquid		
Frequency and duration of use			
Exposure duration	: < 480 r	nin	
Remarks	: Inhalat	ion, Dermal	
Frequency of use	: <= 220	days/year	
Human factors not influenced by ris	k manage	nent	
Breathing volume	: 10 m3/		
Other operational conditions affecti	ng workers	s exposure	
Outdoor / Indoor	: Indoor		
Technical conditions and measures			
Assumes a good basic standard o	f occupation	onal hygiene is implemented.	

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartme nt	Value	Level of Exposure	RCR
ERC10b	EUSES		Fresh water		0.0004 mg/L	0.064
			Fresh water sediment		0.221 mg/kg dry weight	0.064
			Marine water		< 0.0001 mg/L	0.064

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		Marine sediment	0.022 mg/kg dry weight	0.064
		Sewage treatment plant	0 mg/Ľ	0
		Soil	0.077 mg/kg dry weight	0.113
		Grassland	0.077 mg/kg dry weight	0.113

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.609 mg/m3	0.609
			Long term dermal	0.0274 mg/kg bw/day	0.048
			Short term inhalation	1.2 mg/m3	0.004
PROC16	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.12 mg/m3	0.12
			Long term dermal	0.0069 mg/kg bw/day	0.002
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.76 mg/m3	0.76
			Long term dermal	0.0137 mg/kg bw/day	0.024
			Short term inhalation	1.52 mg/m3	0.001
PROC16	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.015 mg/m3	0.015
			Long term dermal	0.014 mg/kg bw/day	0.024

ERC10b: Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing)

PROC16: Using material as fuel sources, limited exposure to unburned product to be expected PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users http://guidance.echa.europa.eu/downstream_users_en.htm

1. Short title of Exposure Sc	enario: Industrial use of Coatings and Adhesives
Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental Release Categories	: ERC4, ERC5: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix
Process categories	 PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC6: Calendering operations PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non- dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC5: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix

Amount used Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Maximum daily site tonnage (kg/day):	: 465 ton(s)/year : 100 % : 2114 kg/day
Environment factors not influenced	by risk management
Dilution Factor (River)	: 1,000
Dilution Factor (Coastal Areas)	•
Other given operational conditions a	ffecting environmental exposure
Number of emission days per year	: 220
Emission or Release Factor: Air	: 736 ppm
Emission or Release Factor: Water	: 0 %
Emission or Release Factor: Soil	: 0%
Remarks	: No waste water is released to the environment

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Technical conditions and measures Exposure time Compartment	: Čontir : Fresh	ational measures nuous use/release water, Fresh water sediment, Ma ent, Soil, Grassland, Sewage trea	
2.2 Contributing scenario contro batch processes for formulation significant contact)			
Activity	: Mixing	operations (open systems)	
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Cover to 25 9 : liquid	s the percentage of the substanc %.	e in the product up
Frequency and duration of use			
Exposure duration Remarks	: 15 - 60) min tion, Dermal	
Frequency of use) days/year	
Human factors not influenced by ris Breathing volume	sk manage : 10 m3		
Other operational conditions affect Outdoor / Indoor	ing worker : Indoo		
Technical conditions and measures Provide extraction ventilation at p %)		e emissions occur. (Effectivenes	s (of a measure): 90
Conditions and measures related to Wear chemically resistant gloves supervision controls. (Effectivene	(tested to	EN374) in combination with inten	valuation sive management
2.3 Contributing scenario contro substance or preparation (charg non-dedicated facilities			
Activity	: Materi	al transfers	
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Cover to 25 c : liquid	s the percentage of the substanc %.	e in the product up
Frequency and duration of use Exposure duration Remarks Frequency of use		min tion, Dermal) days/year	
Human factors not influenced by ris			

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Breathing volume	:	10 m3/da	у	
Other operational co Outdoor / Indoor		workers e Indoor	xposure	
Technical conditions Provide extraction %)		its where e	missions occur. (Effectivene	ess (of a measure): 90
Wear chemically re supervision control	sistant gloves (tes Is. (Effectiveness	sted to EN (of a meas	otection, hygiene and health (374) in combination with inte ure): 98 %) pe A filter or better. (Effective	nsive management
	aration (charging		exposure for: PROC8b: T ging) from/ to vessels/ larg	
Activity		Bulk tran	sfers, Dedicated facility	
Product characterist Concentration of the in Mixture/Article		Covers th to 25 %.	ne percentage of the substan	ce in the product up
Physical Form (at t	time of use) :	liquid		
Frequency and durat				
Exposure duration Remarks		< 480 mir Inhalatio	-	
Frequency of use		<= 240 da		
Human factors not in	Ifluenced by risk r	manageme	nt	
Breathing volume		10 m3/da		
Other operational co Outdoor / Indoor	•	workers e Indoor	xposure	
Technical conditions Provide extraction %)		its where e	missions occur. (Effectivene	ess (of a measure): 97
	sistant gloves (tes	sted to EN	otection, hygiene and health (374) in combination with inte ure): 98 %)	
			exposure for: PROC9: Trated filling line, including w	
Activity	:	Material t	ransfers, Bulk transfers, Dec	licated facility

Activity	: Material transfers, Bulk transfers, Dedicated facility
Product characteristics	
Concentration of the Substance	: Covers the percentage of the substance in the product up
in Mixture/Article	to 25 %.

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Physical Form (a	at time of use)	: liquid		
Frequency and du Exposure durati Remarks Frequency of us	on		nin ion, Dermal days/year	
Human factors not Breathing volum		k managen : 10 m3/e		
Other operational o Outdoor / Indoor		ng workers : Indoor	s exposure	
Technical conditio Provide extractio %)			e emissions occur. (Effectivenes	s (of a measure): 90
Wear chemically supervision cont	resistant gloves (rols. (Effectivenes	(tested to E ss (of a me	protection, hygiene and health e N374) in combination with inten asure): 98 %) Fype A filter or better. (Effective	sive management
batch processes significant conta	for formulation	of prepara	er exposure for: PROC5: Mix ations and articles (multistag	
Activity Product characteri Concentration o	f the Substance	-	operations (open systems) percentage substance in the pr	oduct up to 15%.
in Mixture/Article Physical Form (a	-	: liquid		
Frequency and du Exposure durati Remarks Frequency of us	on		nin ion, Dermal days/year	
Human factors not Breathing volum		k managen : 10 m3/e		
Other operational o Outdoor / Indoor		ng workers : Indoor	s exposure	
Technical conditio Provide extractio %)			e emissions occur. (Effectivenes	s (of a measure): 90
Conditions and me				

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2.7 Contributing scenario controlling worker exposure for: PROC6: Calendering operations

Activity	: Calendering (including Banburys)
Product characteristics Concentration of the Substance	: Covers percentage substance in the product up to 15%.
in Mixture/Article	. Obvers percentage substance in the product up to 1970.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	
Breathing volume	: 10 m3/day
Other operational conditions affect	ing workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures	
	points where emissions occur. (Effectiveness (of a measure): 90
%)	
Conditions and measures related to	o personal protection, hygiene and health evaluation
Wear chemically resistant gloves	(tested to EN374) in combination with intensive management
supervision controls. (Effectivene	ess (of a measure): 98 %)
2.8 Contributing scenario contro	olling worker exposure for: PROC7: Industrial spraying
	olling worker exposure for: PROC7: Industrial spraying
Product characteristics	
Product characteristics Concentration of the Substance	Olling worker exposure for: PROC7: Industrial spraying : Covers percentage substance in the product up to 15%.
Product characteristics	
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers percentage substance in the product up to 15%.
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use	: Covers percentage substance in the product up to 15%.
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers percentage substance in the product up to 15%.
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 Covers percentage substance in the product up to 15%. liquid < 480 min
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume	 Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by risk	 Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affect Outdoor / Indoor	 Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day ing workers exposure Indoor
 Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affect Outdoor / Indoor Technical conditions and measures 	 Covers percentage substance in the product up to 15%. Ilquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day ing workers exposure Indoor
 Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affect Outdoor / Indoor Technical conditions and measures 	 Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day ing workers exposure Indoor
 Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affect Outdoor / Indoor Technical conditions and measures Provide extraction ventilation at p 	 Covers percentage substance in the product up to 15%. Ilquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day ing workers exposure Indoor

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)

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Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 90 %)

2.9 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics Concentration of the Substance : Covers percentage substance in the product up in Mixture/Article Physical Form (at time of use) : liquid	
	p to 15%.
Frequency and duration of use	
Exposure duration : 15 - 60 min Remarks : Inhalation, Dermal	
Frequency of use : <= 225 days/year	
Human factors not influenced by risk management Breathing volume : 10 m3/day	
Other operational conditions affecting workers exposure	
Outdoor / Indoor : Indoor	
Technical conditions and measures Provide extraction ventilation at points where emissions occur. (Effectiveness (of a m %)	neasure): 90
Conditions and measures related to personal protection, hygiene and health evaluatior Wear chemically resistant gloves (tested to EN374) in combination with intensive mar supervision controls. (Effectiveness (of a measure): 98 %)	
2.10 Contributing scenario controlling worker exposure for: PROC8b: Transfer substance or preparation (charging/ discharging) from/ to vessels/ large contai dedicated facilities	
substance or preparation (charging/ discharging) from/ to vessels/ large contai dedicated facilities Activity : Bulk transfers, Dedicated facility	
substance or preparation (charging/ discharging) from/ to vessels/ large contai dedicated facilities Activity : Bulk transfers, Dedicated facility Product characteristics : Covers percentage substance in the product up	iners at
substance or preparation (charging/ discharging) from/ to vessels/ large contai dedicated facilities Activity : Bulk transfers, Dedicated facility Product characteristics	iners at
substance or preparation (charging/ discharging) from/ to vessels/ large contaidedicated facilities Activity : Bulk transfers, Dedicated facility Product characteristics : Covers percentage substance in the product up in Mixture/Article Physical Form (at time of use) : liquid	iners at
substance or preparation (charging/ discharging) from/ to vessels/ large contaidedicated facilities Activity : Bulk transfers, Dedicated facility Product characteristics : Covers percentage substance in the product up in Mixture/Article Physical Form (at time of use) : liquid Frequency and duration of use : in the product up in the product u	iners at
substance or preparation (charging/ discharging) from/ to vessels/ large contaidedicated facilities Activity : Bulk transfers, Dedicated facility Product characteristics : Covers percentage substance in the product up in Mixture/Article Physical Form (at time of use) : liquid	iners at
substance or preparation (charging/ discharging) from/ to vessels/ large contaidedicated facilities Activity : Bulk transfers, Dedicated facility Product characteristics : Covers percentage substance in the product up in Mixture/Article Physical Form (at time of use) : liquid Frequency and duration of use : < 480 min	iners at
substance or preparation (charging/ discharging) from/ to vessels/ large contained dedicated facilities Activity : Bulk transfers, Dedicated facility Product characteristics : Covers percentage substance in the product up in Mixture/Article Physical Form (at time of use) : liquid Frequency and duration of use : < 480 min	iners at
substance or preparation (charging/ discharging) from/ to vessels/ large contain dedicated facilities Activity : Bulk transfers, Dedicated facility Product characteristics : Covers percentage substance in the product up in Mixture/Article Physical Form (at time of use) : liquid Frequency and duration of use : < 480 min	iners at
substance or preparation (charging/ discharging) from/ to vessels/ large contained dedicated facilities Activity : Bulk transfers, Dedicated facility Product characteristics : Covers percentage substance in the product up in Mixture/Article Physical Form (at time of use) : liquid Frequency and duration of use : < 480 min	iners at
substance or preparation (charging/ discharging) from/ to vessels/ large contain dedicated facilities Activity : Bulk transfers, Dedicated facility Product characteristics : Covers percentage substance in the product up in Mixture/Article Physical Form (at time of use) : liquid Frequency and duration of use : < 480 min	iners at

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Technical conditions and measures

Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 97 %)

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)

2.11 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Activity	: Material transfers, Bulk transfers, Dedicated facility
Product characteristics	
Concentration of the Substance	: Covers percentage substance in the product up to 15%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affecti	ng workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures Provide extraction ventilation at p	s oints where emissions occur. (Effectiveness (of a measure): 90

%)

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)

2.12 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity Product characteristics	: Roller, spreader, flow application
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 15%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: 60 - 240 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year

Human factors not influenced by risk management

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Breathing volume	: 10 m3/d	ау	
Other operational conditions affect Outdoor / Indoor	cting workers : Indoor	exposure	
Technical conditions and measure Provide extraction ventilation at %)		emissions occur. (Effectiveness (of a measure): 90
Conditions and measures related Wear chemically resistant glove supervision controls. (Effectiver	s (tested to EN	1374) in combination with intensiv	
2.13 Contributing scenario con articles by dipping and pouring		er exposure for: PROC13: Trea	atment of
Activity		ent by dipping and pouring, Produ ng and pouring	ction of articles
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	e : Covers : liquid	percentage substance in the prod	uct up to 15%.
Frequency and duration of use Exposure duration Remarks Frequency of use	: 60 - 240 : Inhalatic : <= 240 c	on, Dermal	
Human factors not influenced by Breathing volume	risk managem : 10 m3/d		
Other operational conditions affect Outdoor / Indoor	cting workers : Indoor	exposure	
Technical conditions and measure Provide extraction ventilation at %)		emissions occur. (Effectiveness (of a measure): 90
Conditions and measures related Wear chemically resistant glove supervision controls. (Effectiver	s (tested to E	1374) in combination with intensiv	
2.14 Contributing scenario con preparations or articles by table			
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	e : Covers : liquid	percentage substance in the prod	uct up to 15%.
Frequency and duration of use Exposure duration	: < 480 m	in	

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Remarks Frequency of use	: Inhalatio : <= 240 d		
Human factors not influenced by ris Breathing volume	k manageme : 10 m3/da		
Other operational conditions affecti Outdoor / Indoor	ng workers e : Indoor	exposure	
Technical conditions and measures Provide extraction ventilation at pe %)		emissions occur. (Effectiveness	; (of a measure): 90
Conditions and measures related to Wear chemically resistant gloves (supervision controls. (Effectivenes	tested to EN	374) in combination with intens	
2.15 Contributing scenario contr batch processes for formulation significant contact)			
Activity	: Mixing o	perations (open systems)	
Product characteristics Concentration of the Substance in Mixture/Article	: Covers p	percentage substance in the pro	oduct up to 2%.
Physical Form (at time of use)	: liquid		
Frequency and duration of use			
Exposure duration	: < 480 mi		
Remarks		n, Dermal	
Frequency of use	: <= 225 d	ays/year	
Human factors not influenced by ris			
Breathing volume	: 10 m3/da	ау	
Other operational conditions affecti Outdoor / Indoor	ng workers e : Indoor	exposure	
Technical conditions and measures Assumes a good basic standard o		al hygiene is implemented.	
Conditions and measures related to Wear chemically resistant gloves ((Effectiveness (of a measure): 90 %	tested to EN		
2.16 Contributing scenario contr Product characteristics	olling work	er exposure for: PROC7: Ind	ustrial spraying

Product characteristics	
Concentration of the Substance	: Covers percentage substance in the product up to 2%.
in Mixture/Article	
Physical Form (at time of use)	: liquid

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Frequency ar Exposure of Remarks Frequency		: < 480 m : Inhalati : <= 225 c	on, Dermal	
Human factor Breathing	s not influenced by ris	sk managem : 10 m3/d		
Other operati Outdoor / I	onal conditions affecti	ng workers : Indoor	exposure	
	nditions and measures raction ventilation at p		emissions occur. (Effectiveness	(of a measure): 95
Wear chemi		(tested to El	rotection, hygiene and health eva N374) in combination with 'basic'	
	r preparation (charg		ker exposure for: PROC8a: Tra arging) from/ to vessels/ large	
non-dedicat	ed facilities			
non-dedicat		: Materia	l transfers	
Activity Product char Concentrat in Mixture/	acteristics ion of the Substance Article	: Covers	l transfers percentage substance in the pro	duct up to 2%.
Activity Product char Concentrat in Mixture/ Physical Fo	acteristics ion of the Substance Article orm (at time of use)			duct up to 2%.
Activity Product char Concentrat in Mixture/ Physical Fo Frequency ar	acteristics ion of the Substance Article orm (at time of use) ad duration of use	: Covers	percentage substance in the pro	duct up to 2%.
Activity Product char Concentrat in Mixture/ Physical Fo	acteristics ion of the Substance Article orm (at time of use) ad duration of use	: Covers : liquid : < 480 m	percentage substance in the pro	duct up to 2%.
Activity Product char Concentrat in Mixture/ Physical Fo Frequency ar Exposure of	acteristics ion of the Substance Article orm (at time of use) Ind duration of use luration	: Covers : liquid : < 480 m	percentage substance in the pro in on, Dermal	duct up to 2%.
Activity Product char Concentrat in Mixture/ Physical Fo Frequency ar Exposure o Remarks Frequency	acteristics ion of the Substance Article orm (at time of use) Ind duration of use luration of use rs not influenced by ris	: Covers : liquid : < 480 m : Inhalati : <= 225 c	percentage substance in the pro in on, Dermal days/year ient	duct up to 2%.
Activity Product char Concentrat in Mixture/ Physical For Frequency ar Exposure of Remarks Frequency Human factor Breathing of	acteristics ion of the Substance Article orm (at time of use) ad duration of use luration of use rs not influenced by ris volume onal conditions affecti	: Covers : liquid : < 480 m : Inhalati : <= 225 c sk managem : 10 m3/d	percentage substance in the pro in on, Dermal days/year eent lay	duct up to 2%.
Activity Product chan Concentrat in Mixture/ Physical Fo Frequency ar Exposure of Remarks Frequency Human factor Breathing Other operati Outdoor / In	acteristics ion of the Substance Article orm (at time of use) ad duration of use luration of use 's not influenced by ris volume onal conditions affection ndoor	: Covers : liquid : < 480 m : Inhalati : <= 225 c sk managem : 10 m3/d ing workers : Indoor	percentage substance in the pro in on, Dermal days/year eent lay	

substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

		_ (,	
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Activity Product characteristics Concentration of the Substance		Il transfers, Bulk transfers, Ded percentage substance in the p	-
in Mixture/Article Physical Form (at time of use)	: liquid		
Frequency and duration of use Exposure duration Remarks Frequency of use		nin ion, Dermal days/year	
Human factors not influenced by r Breathing volume	isk managen : 10 m3/c		
Other operational conditions affec Outdoor / Indoor	ting workers : Indoor	exposure	
Technical conditions and measure Assumes a good basic standard		onal hygiene is implemented.	
Conditions and measures related Wear chemically resistant gloves (Effectiveness (of a measure): 90	s (tested to E		
2.19 Contributing scenario con substance or preparation into s			
Activity	: Bulk tra	ansfers, Dedicated facility	
Product characteristics Concentration of the Substance in Mixture/Article		percentage substance in the p	roduct up to 2%.
Physical Form (at time of use)	: liquid		
Frequency and duration of use Exposure duration Remarks Frequency of use		nin ion, Dermal days/year	
Human factors not influenced by r Breathing volume	isk managen : 10 m3/c		
Other operational conditions affec Outdoor / Indoor	ting workers : Indoor	exposure	

Technical conditions and measures

Assumes a good basic standard of occupational hygiene is implemented.

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

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2.20 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity Product characteristics	: Roller, spreader, flow application
Concentration of the Substance	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration Remarks	: < 480 min
Frequency of use	: Inhalation, Dermal : <= 240 days/year
Human factors not influenced by ris	
Breathing volume	: 10 m3/day
Other operational conditions affecti Outdoor / Indoor	ing workers exposure : Indoor
Taskaisel on ditions and more survey	
Technical conditions and measures Provide extraction ventilation at p %)	oints where emissions occur. (Effectiveness (of a measure): 90
(Effectiveness (of a measure): 90	(tested to EN374) in combination with 'basic' employee training. %)
	olling worker exposure for: PROC13: Treatment of
2.21 Contributing scenario contr articles by dipping and pouring	rolling worker exposure for: PROC13: Treatment of
	: Treatment by dipping and pouring, Production of articles
articles by dipping and pouring	
articles by dipping and pouring Activity	: Treatment by dipping and pouring, Production of articles
Activity Product characteristics Concentration of the Substance	: Treatment by dipping and pouring, Production of articles by dipping and pouring
articles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%.
articles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid
articles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min
Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid
articles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 240 days/year
articles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 240 days/year
articles by dipping and pouringActivityProduct characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)Frequency and duration of use Exposure duration Remarks Frequency of useHuman factors not influenced by ris Breathing volume	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 240 days/year sk management 10 m3/day
articles by dipping and pouringActivityProduct characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)Frequency and duration of use Exposure duration Remarks Frequency of useHuman factors not influenced by rist	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 240 days/year sk management 10 m3/day

Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 90 %)

Conditions and measures related to personal protection, hygiene and health evaluation

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Wear suitable gloves tested to EN374. (Effectiveness (of a measure): 80 %)

2.22 Contributing scenario controlling worker exposure for: PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers percentage substance in the product up to 2%. : liquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 240 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measures Assumes a good basic standard o	s of occupational hygiene is implemented.
	rolling worker exposure for: PROC5: Mixing or blending in of preparations and articles (multistage and/ or
Activity Product characteristics	: Mixing operations (open systems)
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
in Mixture/Article Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measures Assumes a good basic standard o	s of occupational hygiene is implemented.

2.24 Contributing scenario controlling worker exposure for: PROC7: Industrial spraying

Product characteristics

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	on of the Substance	: Covers	s percentage substance in the pro	oduct up to 0.5%.
in Mixture/A Physical Fo	Article rm (at time of use)	: liquid		
Frequency and Exposure d	d duration of use uration	: < 480 r	nin	
Remarks		: Inhalat	ion, Dermal	
Frequency	of use		days/year	
Human factors Breathing v	s not influenced by ris olume	k manager : 10 m3/		
Other operatio Outdoor / In	onal conditions affecti	ng workers : Indoor	s exposure	
	ditions and measures action ventilation at p		e emissions occur. (Effectivenes	s (of a measure): 95
	r preparation (charg		ker exposure for: PROC8a: Ti arging) from/ to vessels/ large	
Activity		: Materia	al transfers	
Product chara Concentrati in Mixture/A	on of the Substance	: Covers	s percentage substance in the pro	oduct up to 0.5%.
	rm (at time of use)	: liquid		
Frequency and	d duration of use			
Exposure d	uration	: < 480 n	nin	
Remarks			ion, Dermal	
Frequency	of use	: <= 225	days/year	
	s not influenced by ris			
Breathing v	olume	: 10 m3/	day	
Other operatio Outdoor / In	onal conditions affecti idoor	ng workers : Indoor	s exposure	
	ditions and measures good basic standard o		onal hygiene is implemented.	
			protection, hygiene and health ev iveness (of a measure): 80 %)	valuation
	r preparation (charg		ker exposure for: PROC8b: Tr arging) from/ to vessels/ large	
Activity Product chara	octeristics	: Materia	al transfers, Bulk transfers, Dedic	cated facility
			80 / 201	

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Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers : liquid	percentage substance in the pro	oduct up to 0.5%.
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 m : Inhalatic : <= 225 c	on, Dermal	
Human factors not influenced by ris Breathing volume	k managem : 10 m3/d		
Other operational conditions affecti Outdoor / Indoor	ng workers : Indoor	exposure	
Technical conditions and measures Assumes a good basic standard o		nal hygiene is implemented.	
2.27 Contributing scenario contributing scenario contributing substance or preparation into sr			
Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)		nsfers, Dedicated facility percentage substance in the pro	oduct up to 0.5%.
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 m : Inhalatio : <= 225 c	on, Dermal	
Human factors not influenced by ris Breathing volume	k managem : 10 m3/d		
Other operational conditions affecti Outdoor / Indoor	ng workers : Indoor	exposure	
Technical conditions and measures Assumes a good basic standard o		nal hygiene is implemented.	
2.28 Contributing scenario contr or brushing	olling work	er exposure for: PROC10: R	oller application
Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)		preader, flow application	oduct up to 0.5%.
Frequency and duration of use Exposure duration	: < 480 m	in	

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Remarks Frequency of use	: Inhalatior : <= 240 da		
Human factors not influenced by ris Breathing volume	k manageme : 10 m3/da		
Other operational conditions affecti Outdoor / Indoor	ng workers ex : Indoor	kposure	
Technical conditions and measures Assumes a good basic standard o		I hygiene is implemented.	
2.29 Contributing scenario contr articles by dipping and pouring	olling worke	r exposure for: PROC13: Tre	atment of
Activity		t by dipping and pouring, Produ g and pouring	ction of articles
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers po	ercentage substance in the proc	luct up to 0.5%.
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalatior : <= 240 da	n, Dermal	
Human factors not influenced by ris Breathing volume	k manageme : 10 m3/day		
Other operational conditions affecti Outdoor / Indoor	ng workers ex : Indoor	kposure	
Technical conditions and measures Assumes a good basic standard o		I hygiene is implemented.	
2.30 Contributing scenario contr preparations or articles by tablet			
Product characteristics Concentration of the Substance in Mixture/Article	-	ercentage substance in the proc	luct up to 0.5%.
Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	: liquid : < 480 min : Inhalatior : <= 240 da	n, Dermal	
Human factors not influenced by ris Breathing volume	k manageme : 10 m3/day		

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Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Technical conditions and measures

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartme nt	Value	Level of Exposure	RCR
ERC4	EUSES		Fresh water		0.0004 mg/L	0.064
			Fresh water sediment		0.221 mg/kg dry weight	0.064
			Marine water		< 0.0001 mg/L	0.064
			Marine sediment		0.022 mg/kg dry weight	0.064
			Sewage treatment plant		0 mg/L	0
			Soil		0.077 mg/kg dry weight	0.113
			Grassland		0.077 mg/kg dry weight	0.113

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC5	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.366 mg/m3	0.3656
			Long term dermal	0.069 mg/kg bw/day	0.1203
			Short term inhalation	0.731 mg/m3	0.0001
PROC8a	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.366 mg/m3	0.3656
			Long term dermal	0.069 mg/kg bw/day	0.1203
			Short term inhalation	0.731 - 0.914 mg/m3	0.0001 - 0.0002
PROC8b	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.548 mg/m3	0.548
			Long term dermal	0.034 mg/kg bw/day	0.0602

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			Short term inhalation	1.098 mg/m3	0.0002
PROC9	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.182 mg/m3	0.182
			Long term dermal	0.034 mg/kg bw/day	0.06
			Short term inhalation	0.731 mg/m3	0.000
PROC5	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.041 mg/kg bw/day	0.072
			Short term inhalation	0.914 mg/m3	0.0002
PROC6	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.082 mg/kg bw/day	0.144
			Short term inhalation	0.914 mg/m3	0.000
PROC7	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.129 mg/kg bw/day	0.225
			Short term inhalation	0.914 mg/m3	0.000
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.548 mg/m3	0.548
			Long term dermal	0.0411 mg/kg bw/day	0.072
			Short term inhalation	1.097 mg/m3	0.000
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.137 mg/m3	0.137
			Long term dermal	0.137 mg/kg bw/day	0.036
			Short term inhalation	0.274 mg/m3	< 0.000
PROC9	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.02 mg/kg bw/day	0.036
			Short term inhalation	0.913 mg/m3	0.000
PROC10	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.536 mg/m3	0.536
			Long term dermal	0.008 mg/kg bw/day	0.014
PROC13	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.548 mg/kg bw/day	0.548
			Long term dermal	0.0411 mg/m3	0.0722

rsion 1	Revision Date 1	0.12.2013 Print Date 27.0)2.2014		GB / E
			Short term inhalation		0.0002
PROC14	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/kg bw/day	0.457
			Long term dermal	0.0102 mg/m3	0.018
			Short term inhalation	0.914 mg/m3	0.0002
PROC5	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.609
			Long term dermal	0.05 mg/kg bw/day	0.096
			Short term inhalation	1.22 mg/m3	0.000
PROC7	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.609
			Long term dermal	0.09 mg/kg bw/day	0.150
			Short term inhalation	1.22 mg/m3	0.000
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.1218 mg/m3	0.121
			Long term dermal	0.0274 mg/kg bw/day	0.048
			Short term inhalation	0.243 mg/m3	< 0.00
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.609
			Long term dermal	0.055 mg/kg bw/day	0.096
			Short term inhalation	1.22 mg/m3	0.000
PROC9	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.609
			Long term dermal	0.055 mg/kg bw/day	0.096
			Short term inhalation	1.22 mg/m3	0.000
PROC10	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.119 mg/m3	0.119
			Long term dermal	0.054 mg/kg bw/day	0.096
PROC13	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.121 mg/m3	0.121
			Long term dermal	0.054 mg/kg bw/day	0.054
PROC14	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.609 mg/m3	0.609
			Long term dermal	0.068 mg/kg bw/day	0.12
PROC5	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term	0.686 mg/kg	0.12

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			dermal	bw/day		
PROC7	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.152 mg/m3	0.152	
			Long term dermal	0.214 mg/kg bw/day	0.376	
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.304 mg/m3	0.304	
			Long term dermal	0.0686 mg/kg bw/day	0.12	
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149	
			Long term dermal	0.0686 mg/kg bw/day	0.12	
PROC9	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149	
			Long term dermal	0.0686 mg/kg bw/day	0.12	
PROC10	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.298 mg/m3	0.298	
			Long term dermal	0.137 mg/kg bw/day	0.24	
PROC13	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.305 mg/m3	0.305	
			Long term dermal	0.068 mg/kg bw/day	0.12	
PROC14	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.152 mg/m3	0.152	
			Long term dermal	0.017 mg/kg bw/day	0.03	

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

ERC5: Industrial use resulting in inclusion into or onto a matrix

PROC10: Roller application or brushing

PROC13: Treatment of articles by dipping and pouring

PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

PROC6: Calendering operations

PROC7: Industrial spraying

PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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For further information, please also consult our Internet site: Downstream Users http://guidance.echa.europa.eu/downstream_users_en.htm

1. Short title of Exposure Scenario: Ashless dispersant, Processing aid						
Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites					
Environmental Release	: ERC4, ERC5: Industrial use of processing aids in					
Categories	processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix					
Process categories	 PROC5: Mixing or blending in inclusion into or onto a matrix formulation of preparations and articles (multistage and/ or significant contact) PROC6: Calendering operations PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non- dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) 					
	PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation					

2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC5: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix

Amount used Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Maximum daily site tonnage (kg/day):	 1210 ton(s)/year 100 % 4033 kg/day
Environment factors not influenced	by risk management
Dilution Factor (River)	: 1,000
Dilution Factor (Coastal Areas)	: 1,000
Other given operational conditions a	ffecting environmental exposure
Number of emission days per year	: 300
Emission or Release Factor: Air	: 736 ppm
Emission or Release Factor: Water	
Emission or Release Factor: Soil	: 0%
Remarks	: No waste water is released to the environment

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Technical conditions and m Exposure time Compartment	: Čontii : Fresh	ational measures nuous use/release water, Fresh water sediment, Ma ent, Soil, Grassland, Sewage trea	
-	•	ker exposure for: PROC5: Mix rations and articles (multistag	•
Activity Product characteristics Concentration of the Sub in Mixture/Article Physical Form (at time of	stance : Cover to 25	g operations (open systems) s the percentage of the substanc ‰.	e in the product up
Frequency and duration of Exposure duration Remarks Frequency of use	use : 15 - 60 : Inhala : <= 240	tion, Dermal) days/year	
Human factors not influenc Breathing volume	: 10 m3	/day	
Other operational condition Outdoor / Indoor	is affecting worker : Indoo		
Technical conditions and m Provide extraction ventila %)		e emissions occur. (Effectivenes	s (of a measure): 90
	gloves (tested to	protection, hygiene and health e EN374) in combination with inten easure): 98 %)	
		ker exposure for: PROC8a: Transmission for the second second second second second second second second second s Narging) from/ to vessels/ large	
Activity Product characteristics Concentration of the Sub in Mixture/Article Physical Form (at time of	stance : Cover to 25	al transfers s the percentage of the substanc %.	e in the product up
Frequency and duration of Exposure duration Remarks Frequency of use	: < 480 : Inhala	min tion, Dermal) days/year	
Human factors not influenc	ed by risk manage	ment	

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Breathing volum	ie	: 10 m	3/day	
Other operational o Outdoor / Indoor		ng worke : Indoc		
Technical conditio Provide extractio %)			ere emissions occur. (Effectivenes	ss (of a measure): 90
Wear chemically supervision cont	resistant gloves (rols. (Effectivenes	tested to ss (of a m	l protection, hygiene and health e EN374) in combination with inter neasure): 98 %) n Type A filter or better. (Effective	nsive management
	paration (charg		rker exposure for: PROC8b: Tr harging) from/ to vessels/ larg	
Activity		: Bulk	transfers, Dedicated facility	
Product characteri Concentration o in Mixture/Article Physical Form (a	f the Substance e	: Cove to 25 : liquid		ce in the product up
Frequency and dur Exposure durati Remarks Frequency of us	on		min ation, Dermal 0 days/year	
Human factors not Breathing volum		k manage : 10 m3		
Other operational o Outdoor / Indoor		ng worke : Indoc	•	
Technical conditio Provide extractio %)			ere emissions occur. (Effectivenes	ss (of a measure): 97
Wear chemically		tested to	l protection, hygiene and health e EN374) in combination with inter neasure): 98 %)	
			rker exposure for: PROC9: Tra licated filling line, including we	
Activity		: Mater	rial transfers, Bulk transfers, Ded	icated facility

Activity	: Material transfers, bulk transfers, Dedicated facility
Product characteristics	
Concentration of the Substance	: Covers the percentage of the substance in the product up
in Mixture/Article	to 25 %.

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Physical Form (a	at time of use)	: liquid		
Frequency and du Exposure durati Remarks Frequency of us	on	: < 480 m : Inhalatic : <= 240 c	on, Dermal	
Human factors not Breathing volun		k managem : 10 m3/d		
Other operational Outdoor / Indoor		ng workers : Indoor	exposure	
Technical conditio Provide extractio %)			emissions occur. (Effectiven	ess (of a measure): 90
Wear chemically supervision cont	resistant gloves (rols. (Effectivenes	tested to EN ss (of a mea	rotection, hygiene and health I374) in combination with inte sure): 98 %) ype A filter or better. (Effectiv	ensive management
	for formulation		er exposure for: PROC5: Mitions and articles (multista	
Activity		: Mixing c	operations (open systems)	
Product character Concentration o in Mixture/Article	f the Substance	-	percentage substance in the	product up to 15%.
Physical Form (a	at time of use)	: liquid		
Frequency and du Exposure durati Remarks Frequency of us	on	: < 480 mi : Inhalatic : <= 225 c	on, Dermal	
Human factors not Breathing volun		k managem : 10 m3/d		
Other operational Outdoor / Indoo		ng workers : Indoor	exposure	
Technical conditio Provide extractio %)			emissions occur. (Effectiven	ess (of a measure): 90
Wear chemically		tested to EN	otection, hygiene and health I374) in combination with inte sure): 98 %)	

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2.7 Contributing scenario controlling worker exposure for: PROC6: Calendering operations

Activity	: Calendering (including Banburys)
Product characteristics Concentration of the Substance	: Covers percentage substance in the product up to 15%.
in Mixture/Article	. Obvers percentage substance in the product up to 1970.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	
Breathing volume	: 10 m3/day
Other operational conditions affect	ing workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures	
	oints where emissions occur. (Effectiveness (of a measure): 90
%)	
Conditions and measures related to	o personal protection, hygiene and health evaluation
Wear chemically resistant gloves	(tested to EN374) in combination with intensive management
supervision controls. (Effectivene	ess (of a measure): 98 %)
2.8 Contributing scenario contro	olling worker exposure for: PROC7: Industrial spraying
	olling worker exposure for: PROC7: Industrial spraying
Product characteristics	
Product characteristics Concentration of the Substance	Dilling worker exposure for: PROC7: Industrial spraying : Covers percentage substance in the product up to 15%.
Product characteristics	
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers percentage substance in the product up to 15%.
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use	: Covers percentage substance in the product up to 15%.
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Covers percentage substance in the product up to 15%. liquid < 480 min
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	: Covers percentage substance in the product up to 15%.
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume	 Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by risk	 Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affect Outdoor / Indoor	 Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day ing workers exposure Indoor
 Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affect Outdoor / Indoor Technical conditions and measures 	 Covers percentage substance in the product up to 15%. Ilquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day ing workers exposure Indoor
 Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affect Outdoor / Indoor Technical conditions and measures 	 Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day ing workers exposure Indoor
 Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rise Breathing volume Other operational conditions affect Outdoor / Indoor Technical conditions and measures Provide extraction ventilation at provide extraction 	 Covers percentage substance in the product up to 15%. Ilquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day ing workers exposure Indoor
 Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affect Outdoor / Indoor Technical conditions and measures Provide extraction ventilation at p %) 	 Covers percentage substance in the product up to 15%. Ilquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day ing workers exposure Indoor

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)

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Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 90 %)

2.9 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Activity	: Material transfers
Product characteristics Concentration of the Substance	: Covers percentage substance in the product up to 15%.
in Mixture/Article Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: 15 - 60 min
Remarks Frequency of use	: Inhalation, Dermal : <= 225 days/year
requency of use	
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affect	ing workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures Provide extraction ventilation at p %)	s oints where emissions occur. (Effectiveness (of a measure): 90
	o personal protection, hygiene and health evaluation (tested to EN374) in combination with intensive management ss (of a measure): 98 %)
	rolling worker exposure for: PROC8b: Transfer of jing/ discharging) from/ to vessels/ large containers at
substance or preparation (charg dedicated facilities	jing/ discharging) from/ to vessels/ large containers at
substance or preparation (charg dedicated facilities Activity	
substance or preparation (charge dedicated facilities Activity Product characteristics Concentration of the Substance	jing/ discharging) from/ to vessels/ large containers at
substance or preparation (charg dedicated facilities Activity Product characteristics	jing/ discharging) from/ to vessels/ large containers at : Bulk transfers, Dedicated facility
substance or preparation (charge dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	jing/ discharging) from/ to vessels/ large containers at : Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 15%.
substance or preparation (charge dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use	jing/ discharging) from/ to vessels/ large containers at : Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 15%.
substance or preparation (charge dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	jing/ discharging) from/ to vessels/ large containers at : Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 15%. : liquid
substance or preparation (charge dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 jing/ discharging) from/ to vessels/ large containers at Bulk transfers, Dedicated facility Covers percentage substance in the product up to 15%. liquid < 480 min
substance or preparation (charge dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 jing/ discharging) from/ to vessels/ large containers at Bulk transfers, Dedicated facility Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year
substance or preparation (charge dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris	 jing/ discharging) from/ to vessels/ large containers at Bulk transfers, Dedicated facility Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year
substance or preparation (charge dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume	 jing/ discharging) from/ to vessels/ large containers at Bulk transfers, Dedicated facility Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day
substance or preparation (charge dedicated facilities Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris	 jing/ discharging) from/ to vessels/ large containers at Bulk transfers, Dedicated facility Covers percentage substance in the product up to 15%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day

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Technical conditions and measures

Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 97 %)

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)

2.11 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Activity	: Material transfers, Bulk transfers, Dedicated facility
Product characteristics	· · · · ·
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 15%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affecti	ng workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures Provide extraction ventilation at p	oints where emissions occur. (Effectiveness (of a measure): 90

%)

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)

2.12 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity Product characteristics	: Roller, spreader, flow application
Concentration of the Substance	: Covers percentage substance in the product up to 15%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: 60 - 240 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year

Human factors not influenced by risk management

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Breathing volume	: 10 m3/d	ау	
Other operational conditions affect Outdoor / Indoor	cting workers : Indoor	exposure	
Technical conditions and measure Provide extraction ventilation at %)		emissions occur. (Effectiveness (of a measure): 90
Conditions and measures related Wear chemically resistant glove supervision controls. (Effectiver	s (tested to EN	1374) in combination with intensiv	
2.13 Contributing scenario con articles by dipping and pouring		er exposure for: PROC13: Trea	atment of
Activity		ent by dipping and pouring, Produ ng and pouring	ction of articles
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	e : Covers : liquid	percentage substance in the prod	uct up to 15%.
Frequency and duration of use Exposure duration Remarks Frequency of use	: 60 - 240 : Inhalatic : <= 240 c	on, Dermal	
Human factors not influenced by Breathing volume	risk managem : 10 m3/d		
Other operational conditions affect Outdoor / Indoor	cting workers : Indoor	exposure	
Technical conditions and measure Provide extraction ventilation at %)		emissions occur. (Effectiveness (of a measure): 90
Conditions and measures related Wear chemically resistant glove supervision controls. (Effectiver	s (tested to E	1374) in combination with intensiv	
2.14 Contributing scenario con preparations or articles by table			
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	e : Covers : liquid	percentage substance in the prod	uct up to 15%.
Frequency and duration of use Exposure duration	: < 480 m	in	

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Remarks Frequency of use		on, Dermal days/year	
Human factors not influenced by ris Breathing volume	sk managen : 10 m3/e		
Other operational conditions affect Outdoor / Indoor	ing workers : Indoor	exposure	
Technical conditions and measures Provide extraction ventilation at p %)		emissions occur. (Effectiveness	(of a measure): 90
Conditions and measures related to Wear chemically resistant gloves supervision controls. (Effectivene	(tested to E	N374) in combination with intens	
2.15 Contributing scenario contributing scenario contributing batch processes for formulation significant contact)			
Activity	: Mixing	operations (open systems)	
Product characteristics Concentration of the Substance in Mixture/Article	: Covers	percentage substance in the pro	duct up to 2%.
Physical Form (at time of use)	: liquid		
Frequency and duration of use			
Exposure duration	: < 480 n	nin	
Remarks		on, Dermal	
Frequency of use	: <= 225	days/year	
Human factors not influenced by ris			
Breathing volume	: 10 m3/	Jay	
Other operational conditions affect Outdoor / Indoor	ing workers : Indoor	exposure	
Technical conditions and measures Assumes a good basic standard o		nal hygiene is implemented.	
Conditions and measures related to Wear chemically resistant gloves (Effectiveness (of a measure): 90	(tested to E		
2.16 Contributing scenario contributing	rolling wor	ker exposure for: PROC7: Indu	strial spraying
Product characteristics			

Product characteristics	
Concentration of the Substance	: Covers percentage substance in the product up to 2%.
in Mixture/Article	
Physical Form (at time of use)	: liquid

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Frequency ar Exposure o Remarks Frequency		: < 480 mi : Inhalatic : <= 225 d	on, Dermal	
Human factor Breathing	rs not influenced by ris volume	sk managem : 10 m3/da		
Other operati Outdoor / I	onal conditions affecti ndoor	ng workers of : Indoor	exposure	
	nditions and measures raction ventilation at p		emissions occur. (Effectiveness	(of a measure): 95
Wear chemi		tested to EN	otection, hygiene and health eva 1374) in combination with 'basic'	
	or preparation (charg		er exposure for: PROC8a: Tra rging) from/ to vessels/ large	
Activity Product char Concentrat in Mixture/	ion of the Substance	: Material : Covers (: liquid	transfers percentage substance in the proc	duct up to 2%.
Physical Fo	nd duration of use duration	: < 480 mi : Inhalatic : <= 225 d	on, Dermal	
Physical For Frequency ar Exposure of Remarks Frequency	nd duration of use Juration of use rs not influenced by ris	: Inhalatio : <= 225 d	on, Dermal lays/year ent	
Physical Fe Frequency ar Exposure of Remarks Frequency Human factor Breathing	nd duration of use duration of use rs not influenced by ris volume onal conditions affecti	: Inhalatic : <= 225 d sk managem : 10 m3/da	ays/year ays/year ay	
Physical For Frequency are Exposure of Remarks Frequency Human factor Breathing Other operation Other operation Outdoor / In Technical con	nd duration of use duration of use rs not influenced by ris volume onal conditions affection ndoor	: Inhalatio : <= 225 d sk managem : 10 m3/da ng workers o : Indoor	ays/year ays/year ay	(of a measure): 90

substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

		`	
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Activity	: Material tra	ansfers, Bulk transfers,	Dedicated facility
Product characteristics Concentration of the Substance in Mixture/Article	: Covers pe	rcentage substance in t	he product up to 2%.
Physical Form (at time of use)	: liquid		
Frequency and duration of use			
Exposure duration	: < 480 min		
Remarks	: Inhalation		
Frequency of use	: <= 225 day	/s/year	
Human factors not influenced by ris			
Breathing volume	: 10 m3/day		
Other operational conditions affecti	n q workers ex	posure	
Outdoor / Indoor	: Indoor		
Technical conditions and measures Assumes a good basic standard o Conditions and measures related to	personal prot	ection, hygiene and hea	alth evaluation
Wear chemically resistant gloves ((Effectiveness (of a measure): 90 %	6)	·	
2.19 Contributing scenario contr substance or preparation into sn			
Activity Product characteristics	: Bulk trans	fers, Dedicated facility	
Concentration of the Substance	: Covers pe	rcentage substance in t	he product up to 2%.
Physical Form (at time of use)	: liquid		
Frequency and duration of use			
Exposure duration	: < 480 min		
Remarks	: Inhalation	Dermal	
Frequency of use	: <= 225 day		
Human factors not influenced by ris	k managemen	t	
Breathing volume	: 10 m3/day		
Other operational conditions affecti Outdoor / Indoor	ng workers ex : Indoor	posure	

Technical conditions and measures Assumes a good basic standard of occupational hygiene is implemented.

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

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%)

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2.20 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity Product characteristics	: Roller, spreader, flow application
Concentration of the Substance	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration Remarks	: < 480 min
Frequency of use	: Inhalation, Dermal : <= 240 days/year
Human factors not influenced by ris	
Breathing volume	: 10 m3/day
Other operational conditions affecti Outdoor / Indoor	ing workers exposure : Indoor
Taskaisel on ditions and more survey	
Technical conditions and measures Provide extraction ventilation at p %)	oints where emissions occur. (Effectiveness (of a measure): 90
(Effectiveness (of a measure): 90	(tested to EN374) in combination with 'basic' employee training. %)
	olling worker exposure for: PROC13: Treatment of
2.21 Contributing scenario contr articles by dipping and pouring	rolling worker exposure for: PROC13: Treatment of
	: Treatment by dipping and pouring, Production of articles
articles by dipping and pouring	
articles by dipping and pouring Activity	: Treatment by dipping and pouring, Production of articles
Activity Product characteristics Concentration of the Substance	: Treatment by dipping and pouring, Production of articles by dipping and pouring
articles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%.
articles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid
articles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min
Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid
articles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 240 days/year
articles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 240 days/year
articles by dipping and pouringActivityProduct characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)Frequency and duration of use Exposure duration Remarks Frequency of useHuman factors not influenced by ris Breathing volume	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 240 days/year sk management 10 m3/day
articles by dipping and pouringActivityProduct characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)Frequency and duration of use Exposure duration Remarks Frequency of useHuman factors not influenced by rist	 Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 240 days/year sk management 10 m3/day

Conditions and measures related to personal protection, hygiene and health evaluation

Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 90

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Wear suitable gloves tested to EN374. (Effectiveness (of a measure): 80 %)

2.22 Contributing scenario controlling worker exposure for: PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers percentage substance in the product up to 2%. : liquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 240 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measures Assumes a good basic standard o	s of occupational hygiene is implemented.
	rolling worker exposure for: PROC5: Mixing or blending in of preparations and articles (multistage and/ or
Activity	: Mixing operations (open systems)
Product characteristics Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use)	: liquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 225 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measures Assumes a good basic standard o	s of occupational hygiene is implemented.

2.24 Contributing scenario controlling worker exposure for: PROC7: Industrial spraying

Product characteristics

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Concentration in Mixture/Artic Physical Form	le	: Covers per	centage substance in the	product up to 0.5%.
-		. IIquiu		
Frequency and du Exposure durat		: < 480 min		
Remarks		Inhalation,	Dermal	
Frequency of u		: <= 225 days		
Human factors no Breathing volu	ot influenced by risk me	management : 10 m3/day		
Other operational Outdoor / Indoo	conditions affecting	g workers exp : Indoor	osure	
	ons and measures on ventilation at poi	nts where em	issions occur. (Effectivene	ess (of a measure): 95
	eparation (chargin		exposure for: PROC8a: ng) from/ to vessels/ lar	
Activity		: Material tra	nsfers	
Product characte	of the Substance	: Covers per	centage substance in the	product up to 0.5%.
Physical Form		: liquid		
Frequency and du	uration of use			
Exposure durat		: < 480 min		
Remarks		Inhalation,	Dermal	
Frequency of u	se	: <= 225 days	s/year	
Human factors no	ot influenced by risk	management		
Breathing volu		: 10 m3/day		
Other operational Outdoor / Indoo	conditions affecting	g workers exp : Indoor	osure	
	ons and measures d basic standard of o	occupational I	hygiene is implemented.	
			ction, hygiene and health ess (of a measure): 80 %)	evaluation
	eparation (chargin		exposure for: PROC8b: ng) from/ to vessels/ lar	
Activity Product characte		Material tra	nsfers, Bulk transfers, De	dicated facility
		101/2	201	

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Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers : liquid	percentage substance in the pro	oduct up to 0.5%.
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 m : Inhalatio : <= 225 c	on, Dermal	
Human factors not influenced by ris Breathing volume	k managem : 10 m3/d		
Other operational conditions affecti Outdoor / Indoor	ng workers : Indoor	exposure	
Technical conditions and measures Assumes a good basic standard o		nal hygiene is implemented.	
2.27 Contributing scenario contributing scenario contributing substance or preparation into sr			
Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)		nsfers, Dedicated facility percentage substance in the pro	oduct up to 0.5%.
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 m : Inhalatio : <= 225 c	on, Dermal	
Human factors not influenced by ris Breathing volume	k managem : 10 m3/d		
Other operational conditions affecti Outdoor / Indoor	ng workers : Indoor	exposure	
Technical conditions and measures Assumes a good basic standard o		nal hygiene is implemented.	
2.28 Contributing scenario contr or brushing	olling work	er exposure for: PROC10: Ro	oller application
Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	-	spreader, flow application percentage substance in the pro	oduct up to 0.5%.
Frequency and duration of use Exposure duration	: < 480 m	in	
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Remarks Frequency of use	: Inhalation, Dermal : <= 240 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affecti Outdoor / Indoor	ng workers exposure : Indoor
Technical conditions and measures Assumes a good basic standard o	f occupational hygiene is implemented.
2.29 Contributing scenario contr articles by dipping and pouring	olling worker exposure for: PROC13: Treatment of
Activity	: Treatment by dipping and pouring, Production of articles by dipping and pouring
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers percentage substance in the product up to 0.5%. : liquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 240 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affecti Outdoor / Indoor	ng workers exposure : Indoor
Technical conditions and measures Assumes a good basic standard o	f occupational hygiene is implemented.
0	olling worker exposure for: PROC14: Production of tring, compression, extrusion, pelletisation
Product characteristics Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use) Frequency and duration of use	: liquid
Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 240 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day

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Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Technical conditions and measures

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartme nt	Value	Level of Exposure	RCR
ERC4	EUSES		Fresh water		0.0004 mg/L	0.064
			Fresh water sediment		0.221 mg/kg dry weight	0.064
			Marine water		< 0.0001 mg/L	0.064
			Marine sediment		0.022 mg/kg dry weight	0.064
			Sewage treatment plant		0 mg/L	0
			Soil		0.077 mg/kg dry weight	0.113
			Grassland		0.077 mg/kg dry weight	0.113

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC5	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.366 mg/m3	0.3656
			Long term dermal	0.069 mg/kg bw/day	0.1203
			Short term inhalation	0.731 mg/m3	0.0001
PROC8a	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.366 mg/m3	0.3656
			Long term dermal	0.069 mg/kg bw/day	0.1203
			Short term inhalation	0.731 - 0.914 mg/m3	0.0001 - 0.0002
PROC8b	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.548 mg/m3	0.548
			Long term dermal	0.034 mg/kg bw/day	0.0602

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			Short term inhalation	1.098 mg/m3	0.0002
PROC9 ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.182 mg/m3	0.182	
			Long term dermal	0.034 mg/kg bw/day	0.06
			Short term inhalation	0.731 mg/m3	0.000
PROC5	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.041 mg/kg bw/day	0.072
			Short term inhalation	0.914 mg/m3	0.000
PROC6	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.082 mg/kg bw/day	0.144
			Short term inhalation	0.914 mg/m3	0.000
PROC7	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.129 mg/kg bw/day	0.225
			Short term inhalation	0.914 mg/m3	0.000
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.548 mg/m3	0.548
			Long term dermal	0.0411 mg/kg bw/day	0.072
			Short term inhalation	1.097 mg/m3	0.000
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.137 mg/m3	0.137
			Long term dermal	0.137 mg/kg bw/day	0.036
			Short term inhalation	0.274 mg/m3	< 0.00
PROC9	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.02 mg/kg bw/day	0.036
			Short term inhalation	0.913 mg/m3	0.000
PROC10	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.536 mg/m3	0.536
			Long term dermal	0.008 mg/kg bw/day	0.014
PROC13	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.548 mg/kg bw/day	0.548
			Long term dermal	0.0411 mg/m3	0.072

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			Short term inhalation	1.097 mg/m3	0.0002
PROC14	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/kg bw/day	0.457
			Long term dermal	0.0102 mg/m3	0.018
			Short term inhalation	0.914 mg/m3	0.000
PROC5	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.609
			Long term dermal	0.05 mg/kg bw/day	0.096
			Short term inhalation	1.22 mg/m3	0.000
PROC7	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.609
			Long term dermal	0.09 mg/kg bw/day	0.150
			Short term inhalation	1.22 mg/m3	0.000
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.1218 mg/m3	0.121
			Long term dermal	0.0274 mg/kg bw/day	0.048
			Short term inhalation	0.243 mg/m3	< 0.00
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.609
			Long term dermal	0.055 mg/kg bw/day	0.096
			Short term inhalation	1.22 mg/m3	0.000
PROC9	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.609
			Long term dermal	0.055 mg/kg bw/day	0.096
			Short term inhalation	1.22 mg/m3	0.000
PROC10	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.119 mg/m3	0.119
			Long term dermal	0.054 mg/kg bw/day	0.096
PROC13	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.121 mg/m3	0.121
			Long term dermal	0.054 mg/kg bw/day	0.054
PROC14	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.609 mg/m3	0.609
			Long term dermal	0.068 mg/kg bw/day	0.12
PROC5	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term	0.686 mg/kg	0.12

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			dermal	bw/day	
PROC7	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.152 mg/m3	0.152
			Long term dermal	0.214 mg/kg bw/day	0.376
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.304 mg/m3	0.304
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC9	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC10	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.298 mg/m3	0.298
			Long term dermal	0.137 mg/kg bw/day	0.24
PROC13	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.305 mg/m3	0.305
			Long term dermal	0.068 mg/kg bw/day	0.12
PROC14	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.152 mg/m3	0.152
			Long term dermal	0.017 mg/kg bw/day	0.03

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

ERC5: Industrial use resulting in inclusion into or onto a matrix

PROC10: Roller application or brushing

PROC13: Treatment of articles by dipping and pouring

PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

PROC6: Calendering operations

PROC7: Industrial spraying

PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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For further information, please also consult our Internet site: Downstream Users http://guidance.echa.europa.eu/downstream_users_en.htm

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1. Short title of Exposure Scenario: Corrosion inhibitor

Main User Groups Environmental Release Categories	 SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites ERC4, ERC5: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix
Process categories	 PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC6: Calendering operations PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non- dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC5: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix

Amount used Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Maximum daily site tonnage (kg/day):	: 232 ton(s)/year : 5 % : 38.7 kg/day
Environment factors not influenced Dilution Factor (River) Dilution Factor (Coastal Areas)	: 1,000
Other given operational conditions a Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water	: 300
Emission or Release Factor: Soil Provide, with either onsite or	: 0.1 % : > 37.4 %

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domestic wastew a total wastewate efficiency of (%)				
Technical condition	ns and measures	/ Organizat	ional measures	
Exposure time Compartment		: Fresh w	ious use/release vater, Fresh water sediment, l nt, Soil, Grassland, Sewage t	
	for formulation		er exposure for: PROC5: N tions and articles (multist	
Activity Product characteris		: Mixing	operations (open systems)	
Concentration of in Mixture/Article Physical Form (a	the Substance	: Covers to 25 % : liquid	the percentage of the substa	ance in the product up
Frequency and dur Exposure duration Remarks Frequency of use	on	: 15 - 60 : Inhalati : <= 240	on, Dermal	
Human factors not Breathing volum		sk managen : 10 m3/c		
Other operational o Outdoor / Indoor		ng workers : Indoor	exposure	
Technical condition Provide extraction %)			emissions occur. (Effectiver	ness (of a measure): 90
	esistant gloves	(tested to E	rotection, hygiene and health N374) in combination with int Isure): 98 %)	
	paration (charg		er exposure for: PROC8a: arging) from/ to vessels/ la	
Activity		: Materia	l transfers	
Product characteris Concentration of in Mixture/Article Physical Form (a	the Substance	: Covers to 25 % : liquid	the percentage of the substa	ance in the product up
Frequency and dur		· ~ 480 m	in	

Frequency and duration of use Exposure duration : < 480 min Remarks : Inhalation, Dermal

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Frequency of	use	: <= 240 da	ays/year		
Human factors Breathing vol	not influenced by ris lume	k manageme : 10 m3/da			
Other operation Outdoor / Ind	al conditions affecti oor	ng workers e : Indoor	xposure		
Technical conditions and measures Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 90 %)					
Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %) Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 95 %)					

2.4 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Bulk transfers, Dedicated facility Covers the percentage of the substance in the product up to 25 %. liquid 			
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 240 days/year			
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day			
Other operational conditions affecti Outdoor / Indoor	ng workers exposure : Indoor			
Technical conditions and measures Provide extraction ventilation at p %)	oints where emissions occur. (Effectiveness (of a measure): 97			
Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)				
2.5 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)				

Activity : Material transfers, Bulk transfers, Dedicated facility

-	Material transfers, D	uik ilansiels, Deulcaleu i	a

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Product characteristics Concentration of the Substance in Mixture/Article	: Covers	s the percentage of the substance	in the product up
Physical Form (at time of use)	: liquid	0.	
Frequency and duration of use Exposure duration Remarks Frequency of use		min tion, Dermal) days/year	
Human factors not influenced by ris Breathing volume	sk manage : 10 m3/		
Other operational conditions affecti Outdoor / Indoor	ing workers : Indoor		
Technical conditions and measures Provide extraction ventilation at p %)		e emissions occur. (Effectiveness	(of a measure): 90
Conditions and measures related to Wear chemically resistant gloves supervision controls. (Effectivene Wear a respirator conforming to E 90 %)	(tested to E ss (of a me	EN374) in combination with intensicasure): 98 %)	ive management
2.6 Contributing scenario contro batch processes for formulation significant contact)			
Activity	: Mixing	operations (open systems)	
Product characteristics Concentration of the Substance in Mixture/Article	: Covers	s percentage substance in the pro	duct up to 15%.
Physical Form (at time of use)	: liquid		
Frequency and duration of use Exposure duration	: < 480 I	min	
Remarks Frequency of use		tion, Dermal odays/year	
Human factors not influenced by ris Breathing volume	sk manage : 10 m3/		
Other operational conditions affecti Outdoor / Indoor	ing workers : Indoor		
Technical conditions and measures Provide extraction ventilation at p %)		e emissions occur. (Effectiveness	(of a measure): 90
Conditions and measures related to		protection, hygiene and health eva EN374) in combination with intensi	

Wear chemically resistant gloves (tested to EN374) in combination with intensive management

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supervision controls. (Effectiveness (of a measure): 98 %)

2.7 Contributing scenario controlling worker exposure for: PROC6: Calendering operations

Activity	: Calendering (including Banburys)
Product characteristics	
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 15%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at p %)	s oints where emissions occur. (Effectiveness (of a measure): 90
Wear chemically resistant gloves supervision controls. (Effectivene	· · ·
2.8 Contributing scenario contro	olling worker exposure for: PROC7: Industrial spraying
Product characteristics	
Concentration of the Substance	: Covers percentage substance in the product up to 15%.
in Mixture/Article	
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at p %)	s oints where emissions occur. (Effectiveness (of a measure): 95

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Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %) Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 90 %)

2.9 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Activity Product characteristics	: Material transfers				
Concentration of the Substance	: Covers percentage substance in the product up to 15%.				
Physical Form (at time of use)	: liquid				
Frequency and duration of use Exposure duration Remarks Frequency of use	: 15 - 60 min : Inhalation, Dermal : <= 225 days/year				
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day				
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor				
Technical conditions and measures Provide extraction ventilation at p %)	s oints where emissions occur. (Effectiveness (of a measure): 90				
	o personal protection, hygiene and health evaluation (tested to EN374) in combination with intensive management ess (of a measure): 98 %)				
	rolling worker exposure for: PROC8b: Transfer of jing/ discharging) from/ to vessels/ large containers at				
Activity	: Bulk transfers, Dedicated facility				
Product characteristics Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 15%.				
Physical Form (at time of use)	: liquid				
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 225 days/year				

Human factors not influenced by risk management

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Breathing vo	lume	: 10 m3/da	у					
•	Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor							
	Technical conditions and measures Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 97 %)							
Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)								
2.11 Contributing scenario controlling worker exposure for: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)								
Activity Product charac Concentratio in Mixture/Art	n of the Substance		ransfers, Bulk transfers, De ercentage substance in the					

: liquid

: < 480 min

: 10 m3/day

: Indoor

: Inhalation, Dermal

: <= 225 days/year

Technical conditions and measures

Human factors not influenced by risk management

Other operational conditions affecting workers exposure

Physical Form (at time of use)

Frequency and duration of use Exposure duration

Remarks

Frequency of use

Breathing volume

Outdoor / Indoor

Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 90 %)

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)

2.12 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity Product characteristics	: Roller, spreader, flow application
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 15%.
Physical Form (at time of use)	: liquid
Frequency and duration of use Exposure duration	: 60 - 240 min

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Remarks	· Inhalati	ion, Dermal	
Frequency of use		days/year	
Human factors not influenced by ris Breathing volume	k managen : 10 m3/c		
-		•	
Other operational conditions affectin Outdoor / Indoor	ng workers : Indoor	exposure	
Technical conditions and measures Provide extraction ventilation at po %)	oints where	emissions occur. (Effectiveness	s (of a measure): 90
Conditions and measures related to Wear chemically resistant gloves (supervision controls. (Effectivenes	tested to E	N374) in combination with intens	
2.13 Contributing scenario contro articles by dipping and pouring	olling wor	ker exposure for: PROC13: Tr	eatment of
Activity	: Treatm	ent by dipping and pouring, Proc	duction of articles
, loting		bing and pouring	
Product characteristics Concentration of the Substance in Mixture/Article	: Covers	percentage substance in the pro	oduct up to 15%.
Physical Form (at time of use)	: liquid		
Frequency and duration of use			
Exposure duration	: 60 - 240) min	
Remarks		ion, Dermal	
Frequency of use		days/year	
Human factors not influenced by ris	k managen	nent	
Breathing volume	: 10 m3/c		
Other operational conditions affecting		exposure	
Outdoor / Indoor	: Indoor		
Technical conditions and measures Provide extraction ventilation at po %)	oints where	e emissions occur. (Effectiveness	s (of a measure): 90
Conditions and measures related to Wear chemically resistant gloves (supervision controls. (Effectivenes	tested to E	N374) in combination with intens	
2.14 Contributing scenario contropresentations or articles by tablet			

Concentration of the Substance : Covers percentage substance in the product up to 15%. in Mixture/Article

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Physical Form ((at time of use)	: liquid		
Frequency and du Exposure durat Remarks Frequency of us	ion		nin tion, Dermal days/year	
Human factors no Breathing volur		sk manage : 10 m3/		
Other operational Outdoor / Indoo		ing workers : Indoor	-	
Technical condition Provide extraction %)			e emissions occur. (Effectivenes	s (of a measure): 90
Wear chemically		(tested to E	protection, hygiene and health ev EN374) in combination with intens easure): 98 %)	
	for formulation	of prepar	rker exposure for: PROC5: Mix ations and articles (multistage operations (open systems)	
Product character	of the Substance le	-	s percentage substance in the pro	oduct up to 2%.
Frequency and du Exposure durat Remarks Frequency of us	ion		nin tion, Dermal days/year	
Human factors no Breathing volur		sk manage : 10 m3/		
Other operational Outdoor / Indoo		ing workers : Indoor		
Technical condition Assumes a good			onal hygiene is implemented.	
Wear chemically		(tested to E	protection, hygiene and health ev EN374) in combination with 'basic	
2 16 Contributin	a scenario cont	rolling wo	rker exposure for: PROC7: Ind	ustrial spraving

Product characteristics

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Concentration of the Substance in Mixture/Article		ers percentage substance in the pro	duct up to 2%.
Physical Form (at time of use)	: liqu	id	
Frequency and duration of use Exposure duration Remarks Frequency of use		30 min alation, Dermal 225 days/year	
requeries of use	. <= 2		
Human factors not influenced by Breathing volume		gement n3/day	
Other operational conditions affect Outdoor / Indoor	ting work: indo:		
Technical conditions and measure Provide extraction ventilation at %)		nere emissions occur. (Effectiveness	(of a measure): 95
	s (tested t	al protection, hygiene and health eva o EN374) in combination with 'basic'	
	ging/ dis	vorker exposure for: PROC8a: Tra charging) from/ to vessels/ large erial transfers	
Product characteristics Concentration of the Substance		ers percentage substance in the pro	duct up to 2%.
in Mixture/Article Physical Form (at time of use)	: liqu	id	
	•		
Frequency and duration of use Exposure duration	: < 48	30 min	
Remarks		alation, Dermal	
Frequency of use	: <=2	225 days/year	
Human factors not influenced by I	risk mana	gement	
Breathing volume		n3/day	
Other operational conditions affect Outdoor / Indoor	ting work: indo	•	
Technical conditions and measure Provide extraction ventilation at %)		nere emissions occur. (Effectiveness	(of a measure): 90
	s (tested t	al protection, hygiene and health eva o EN374) in combination with 'basic'	

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2.18 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity	: Material transfers, Bulk transfers, Dedicated facility
Product characteristics Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks Frequency of use	: Inhalation, Dermal : <= 225 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measures Assumes a good basic standard o	s of occupational hygiene is implemented.
	o personal protection, hygiene and health evaluation (tested to EN374) in combination with 'basic' employee training. %)
2.19 Contributing scenario cont	rolling worker exposure for: PROC9: Transfer of
	mall containers (dedicated filling line, including weighing)
Activity	: Bulk transfers, Dedicated facility
Product characteristics	
Product characteristics Concentration of the Substance	: Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 2%.
Product characteristics	
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use	Covers percentage substance in the product up to 2%.liquid
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 Covers percentage substance in the product up to 2%. liquid < 480 min
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 225 days/year
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 225 days/year
 Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume 	 Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day
 Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rist 	 Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day
 Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affect Outdoor / Indoor Technical conditions and measures 	 Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day ing workers exposure Indoor
 Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affect Outdoor / Indoor Technical conditions and measures Assumes a good basic standard of Conditions and measures related to 	 Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal < = 225 days/year sk management 10 m3/day ing workers exposure Indoor opersonal protection, hygiene and health evaluation (tested to EN374) in combination with 'basic' employee training.

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2.20 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity Product characteristics	: Roller, spreader, flow application
Concentration of the Substance	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Breating volume	. To more a
Other operational conditions affect Outdoor / Indoor	ng workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at p %)	oints where emissions occur. (Effectiveness (of a measure): 90
	personal protection, hygiene and health evaluation (tested to EN374) in combination with 'basic' employee training.
(Effectiveness (of a measure): 90	
(Effectiveness (of a measure): 90	
(Effectiveness (of a measure): 90 2.21 Contributing scenario contri	%)
(Effectiveness (of a measure): 90 2.21 Contributing scenario contr articles by dipping and pouring Activity Product characteristics Concentration of the Substance	 olling worker exposure for: PROC13: Treatment of : Treatment by dipping and pouring, Production of articles
(Effectiveness (of a measure): 90 2.21 Contributing scenario contr articles by dipping and pouring Activity Product characteristics	 olling worker exposure for: PROC13: Treatment of Treatment by dipping and pouring, Production of articles by dipping and pouring
(Effectiveness (of a measure): 90 2.21 Contributing scenario contr articles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use	 olling worker exposure for: PROC13: Treatment of Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid
(Effectiveness (of a measure): 90 2.21 Contributing scenario contrarticles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 olling worker exposure for: PROC13: Treatment of Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min
(Effectiveness (of a measure): 90 2.21 Contributing scenario contrarticles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 olling worker exposure for: PROC13: Treatment of Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal
(Effectiveness (of a measure): 90 2.21 Contributing scenario contrarticles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 olling worker exposure for: PROC13: Treatment of Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min
(Effectiveness (of a measure): 90 f 2.21 Contributing scenario contrarticles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 olling worker exposure for: PROC13: Treatment of Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 240 days/year
(Effectiveness (of a measure): 90 2.21 Contributing scenario contrarticles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 olling worker exposure for: PROC13: Treatment of Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 240 days/year

Technical conditions and measures

Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 90

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%)

Conditions and measures related to personal protection, hygiene and health evaluation Wear suitable gloves tested to EN374. (Effectiveness (of a measure): 80 %)

2.22 Contributing scenario controlling worker exposure for: PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers percentage substance in the product up to 2%. : liquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 240 days/year
Human factors not influenced by ri Breathing volume	sk management : 10 m3/day
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measure Assumes a good basic standard o	s of occupational hygiene is implemented.
2.23 Contributing scenario cont	rolling worker exposure for: PROC5: Mixing or blending in
	of preparations and articles (multistage and/ or
batch processes for formulation significant contact)	of preparations and articles (multistage and/ or : Mixing operations (open systems)
batch processes for formulation significant contact) Activity Product characteristics Concentration of the Substance	
batch processes for formulation significant contact) Activity Product characteristics	: Mixing operations (open systems)
batch processes for formulation significant contact) Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use	 Mixing operations (open systems) Covers percentage substance in the product up to 0.5%. liquid
batch processes for formulation significant contact) Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 Mixing operations (open systems) Covers percentage substance in the product up to 0.5%. liquid < 480 min
batch processes for formulation significant contact) Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 Mixing operations (open systems) Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal
batch processes for formulation significant contact) Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 Mixing operations (open systems) Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 225 days/year
batch processes for formulation significant contact) Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 Mixing operations (open systems) Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 225 days/year
batch processes for formulation significant contact) Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ri	 Mixing operations (open systems) Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day

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2.24 Contributin	g scenario control	ing worker exposure for: PROC7: Industrial spra	aying
Product character Concentration of in Mixture/Artic Physical Form (of the Substance : le	Covers percentage substance in the product up to	0.5%.
Frequency and du Exposure durat Remarks Frequency of us	ion :	< 480 min Inhalation, Dermal <= 225 days/year	
Human factors no Breathing volu	ot influenced by risk me	nanagement 10 m3/day	
Other operational Outdoor / Indoo	conditions affecting	workers exposure Indoor	
	ons and measures on ventilation at poir	its where emissions occur. (Effectiveness (of a meas	ure): 95
	eparation (charging	ing worker exposure for: PROC8a: Transfer of g/ discharging) from/ to vessels/ large containers	s at

	rolling worker exposure for: PROC8b: Transfer of
	o personal protection, hygiene and health evaluation I374. (Effectiveness (of a measure): 80 %)
Technical conditions and measures Assumes a good basic standard o	s of occupational hygiene is implemented.
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Frequency of use	: <= 225 days/year
Remarks	: Inhalation, Dermal
Frequency and duration of use Exposure duration	: < 480 min
in Mixture/Article Physical Form (at time of use)	: liquid
Product characteristics Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
Activity	: Material transfers

2.26 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

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in Mixture/Art	n of the Substance		terial transfers, Bulk transfers, Dedica vers percentage substance in the proc iid	-
Frequency and Exposure dur Remarks Frequency of	ation	: Inh	80 min alation, Dermal 225 days/year	
Human factors Breathing vol	not influenced by ris ume		ngement m3/day	
Other operation Outdoor / Inde	al conditions affecti oor	ng worl : Ind		
	itions and measures od basic standard o		ational hygiene is implemented.	
			worker exposure for: PROC9: Tran ntainers (dedicated filling line, incl	
in Mixture/Art	n of the Substance		k transfers, Dedicated facility vers percentage substance in the proc iid	duct up to 0.5%.
Frequency and Exposure dur Remarks Frequency of	ation	: Inh	80 min alation, Dermal 225 days/year	

Human factors not influenced by risk management Breathing volume : 10 m3/day

Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Technical conditions and measures

Assumes a good basic standard of occupational hygiene is implemented.

2.28 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity Product characteristics	: Roller, spreader, flow application
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use)	: liquid

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TETRAETHYLENEPENTAMINE (TEPA)					
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Frequency and duration of use Exposure duration Remarks Frequency of use		in on, Dermal days/year			
Human factors not influenced by ris Breathing volume	sk managem : 10 m3/d				
Other operational conditions affect Outdoor / Indoor	ing workers : Indoor	exposure			
Technical conditions and measures Assumes a good basic standard o	-	nal hygiene is implemented.			
2.29 Contributing scenario contr articles by dipping and pouring	rolling work	er exposure for: PROC13: Tre	atment of		
Activity		ent by dipping and pouring, Prod ing and pouring	uction of articles		
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)		percentage substance in the pro	duct up to 0.5%.		
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 m : Inhalatio	in on, Dermal days/year			
Human factors not influenced by ris Breathing volume	sk managem : 10 m3/d				
Other operational conditions affect Outdoor / Indoor	ing workers : Indoor	exposure			
Technical conditions and measures Assumes a good basic standard o		nal hygiene is implemented.			
2.30 Contributing scenario contripreparations or articles by table					
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers : liquid	percentage substance in the pro	duct up to 0.5%.		
Frequency and duration of use					

Frequency and duration of use		
Exposure duration	:	< 480 min
Remarks	:	Inhalation, Dermal
Frequency of use	:	<= 240 days/year

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Human factors not influenced by risk management Breathing volume : 10 m3/day

Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Technical conditions and measures

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartme nt	Value	Level of Exposure	RCR
ERC4	EUSES		Fresh water		0.0006 mg/L	0.082
			Fresh water sediment		0.282 mg/kg dry weight	0.082
			Marine water		0.0002 mg/L	0.347
			Marine sediment		0.119 mg/kg dry weight	0.347
			Sewage treatment plant		0.121 mg/L	0.013
			Soil		0.077 mg/kg dry weight	0.113
			Grassland		0.077 mg/kg dry weight	0.113

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC5	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.366 mg/m3	0.3656
			Long term dermal	0.069 mg/kg bw/day	0.1203
			Short term inhalation	0.731 mg/m3	0.0001
PROC8a	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.366 mg/m3	0.3656
			Long term dermal	0.069 mg/kg bw/day	0.1203
			Short term inhalation	0.731 - 0.914 mg/m3	0.0001 - 0.0002
PROC8b	ECETOC TRA	Covers the percentage of the substance in the product up	Long term inhalation	0.548 mg/m3	0.548

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		to 25 %.			
			Long term dermal	0.034 mg/kg bw/day	0.0602
			Short term inhalation	1.098 mg/m3	0.0002
PROC9	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.182 mg/m3	0.182
			Long term dermal	0.034 mg/kg bw/day	0.06
			Short term inhalation	0.731 mg/m3	0.0001
PROC5	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
		· · ·	Long term dermal	0.041 mg/kg bw/day	0.072
			Short term inhalation	0.914 mg/m3	0.0002
PROC6	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
		· · ·	Long term dermal	0.082 mg/kg bw/day	0.144
			Short term inhalation	0.914 mg/m3	0.0002
PROC7	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
		· · ·	Long term dermal	0.129 mg/kg bw/day	0.2256
			Short term inhalation	0.914 mg/m3	0.0002
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.548 mg/m3	0.548
		· · ·	Long term dermal	0.0411 mg/kg bw/day	0.0722
			Short term inhalation	1.097 mg/m3	0.0002
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.137 mg/m3	0.137
			Long term dermal	0.137 mg/kg bw/day	0.036
			Short term inhalation	0.274 mg/m3	< 0.0001
PROC9	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.02 mg/kg bw/day	0.036
			Short term inhalation	0.913 mg/m3	0.0002
PROC10	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.536 mg/m3	0.536
			Long term dermal	0.008 mg/kg bw/day	0.014
PROC13	ECETOC TRA	Covers percentage substance		0.548 mg/kg	0.5484

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		in the product up to 15%.	inhalation	bw/day	
			Long term dermal	0.0411 mg/m3	0.072
			Short term inhalation	1.097 mg/m3	0.000
PROC14	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/kg bw/day	0.457
		• •	Long term dermal	0.0102 mg/m3	0.018
			Short term inhalation	0.914 mg/m3	0.000
PROC5	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.609
			Long term dermal	0.05 mg/kg bw/day	0.096
			Short term inhalation	1.22 mg/m3	0.000
PROC7	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.609
			Long term dermal	0.09 mg/kg bw/day	0.150
			Short term inhalation	1.22 mg/m3	0.000
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.1218 mg/m3	0.121
		· ·	Long term dermal	0.0274 mg/kg bw/day	0.048
			Short term inhalation	0.243 mg/m3	< 0.00
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.609
			Long term dermal	0.055 mg/kg bw/day	0.096
			Short term inhalation	1.22 mg/m3	0.000
PROC9	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.609
			Long term dermal	0.055 mg/kg bw/day	0.096
			Short term inhalation	1.22 mg/m3	0.000
PROC10	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.119 mg/m3	0.119
			Long term dermal	0.054 mg/kg bw/day	0.096
PROC13	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.121 mg/m3	0.12 [⁄]
		· · ·	Long term dermal	0.054 mg/kg bw/day	0.054
PROC14	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.609 mg/m3	0.609
			Long term dermal	0.068 mg/kg bw/day	0.12

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PROC5	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.686 mg/kg bw/day	0.12
PROC7	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.152 mg/m3	0.152
			Long term dermal	0.214 mg/kg bw/day	0.376
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.304 mg/m3	0.304
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC9	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC10	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.298 mg/m3	0.298
			Long term dermal	0.137 mg/kg bw/day	0.24
PROC13	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.305 mg/m3	0.305
			Long term dermal	0.068 mg/kg bw/day	0.12
PROC14	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.152 mg/m3	0.152
			Long term dermal	0.017 mg/kg bw/day	0.03

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

ERC5: Industrial use resulting in inclusion into or onto a matrix

PROC10: Roller application or brushing

PROC13: Treatment of articles by dipping and pouring

PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

PROC6: Calendering operations

PROC7: Industrial spraying

PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

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4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users http://guidance.echa.europa.eu/downstream_users_en.htm

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1. Short title of Exposure Sc	enario: Use in electroplating
Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental Release Categories	 ERC4, ERC5: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix
Process categories	 PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC6: Calendering operations PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non- dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

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2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC5: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix

Amount used Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Maximum daily site tonnage (kg/day):	: 46.5 ton(s)/year : 0.5 % : 77.5 kg/day
Environment factors not influenced Dilution Factor (River) Dilution Factor (Coastal Areas)	: 1,000
Other given operational conditions a Number of emission days per vear	affecting environmental exposure : 300
Emission or Release Factor: Air Emission or Release Factor: Water	: 0.05 % : 0.5 %
Emission or Release Factor: Soil Provide, with either onsite or	

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domestic wastew a total wastewate efficiency of (%)			
Technical condition	s and measures / O	rganizational measures	
Exposure time		Continuous use/release	
Compartment	:	Fresh water, Fresh water sediment, Marine sediment, Soil, Grassland, Sewage treatment	
	or formulation of	g worker exposure for: PROC5: Mixing of preparations and articles (multistage an	
Activity		Mixing operations (open systems)	
Product characteris Concentration of		Covers the percentage of the substance in	the product up
in Mixture/Article		to 25 %.	ine preduct up
Physical Form (at	time of use) :	liquid	
Frequency and dura	ution of use		
Exposure duratio		15 - 60 min	
Remarks		Inhalation, Dermal	
Frequency of use	:	<= 240 days/year	
Human factors not i Breathing volume		nanagement 10 m3/day	
Other operational co Outdoor / Indoor		workers exposure Indoor	
Technical condition Provide extraction %)		s where emissions occur. (Effectiveness (of	a measure): 90
Wear chemically re	esistant gloves (tes	rsonal protection, hygiene and health evalua ted to EN374) in combination with intensive of a measure): 98 %)	
0	aration (charging	g worker exposure for: PROC8a: Transf / discharging) from/ to vessels/ large co	
Activity		Material transfers	
Product characteris Concentration of		Covers the percentage of the substance in	the product up
in Mixture/Article		to 25 %.	ine product up
Physical Form (at	time of use) :	liquid	
-			
Frequency and dura Exposure duratio		< 480 min	

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Frequency of use	: <= 2	40 days/year	
Human factors not influenced b Breathing volume	y risk manaç : 10 m		
Other operational conditions af Outdoor / Indoor	fecting work : Indo	•	
Technical conditions and meas Provide extraction ventilation %)		ere emissions occur. (Effectiveness	(of a measure): 90
Wear chemically resistant glo supervision controls. (Effectiv	ves (tested to eness (of a r	al protection, hygiene and health eva o EN374) in combination with intensi neasure): 98 %) h Type A filter or better. (Effectivene	ive management

2.4 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Bulk transfers, Dedicated facility Covers the percentage of the substance in the product up to 25 %. Ilquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 240 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affecti Outdoor / Indoor	ng workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at p %)	oints where emissions occur. (Effectiveness (of a measure): 97
	o personal protection, hygiene and health evaluation (tested to EN374) in combination with intensive management ss (of a measure): 98 %)
	Iling worker exposure for: PROC9: Transfer of substance ners (dedicated filling line, including weighing)

Activity

: Material transfers, Bulk transfers, Dedicated facility

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Product characteri Concentration o in Mixture/Article Physical Form (a	f the Substance	: Covers to 25 % : liquid	the percentage of the substance	in the product up
Frequency and dur Exposure duration Remarks Frequency of us	on		nin ion, Dermal days/year	
Human factors not Breathing volum		k manager : 10 m3/		
Other operational of Outdoor / Indoor		ng workers : Indoor	exposure	
Technical conditio Provide extractio %)		oints where	e emissions occur. (Effectiveness	(of a measure): 90
Wear chemically supervision cont	resistant gloves (rols. (Effectivenes	tested to E ss (of a me	protection, hygiene and health eva N374) in combination with intensi asure): 98 %) Гуре A filter or better. (Effectivene	ve management
	for formulation		er exposure for: PROC5: Mixin ations and articles (multistage	
Activity Product characteri Concentration o in Mixture/Article Physical Form (a	f the Substance	-	operations (open systems) percentage substance in the pro	duct up to 15%.
Frequency and dur Exposure duration Remarks Frequency of us	on		nin ion, Dermal days/year	
Human factors not Breathing volum		k manager : 10 m3/e		
Other operational o Outdoor / Indoor		ng workers : Indoor	exposure	
Technical conditio Provide extractio %)		oints where	emissions occur. (Effectiveness	(of a measure): 90
Conditions and me			protection, hygiene and health eva N374) in combination with intensi	

Wear chemically resistant gloves (tested to EN374) in combination with intensive management

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supervision controls. (Effectiveness (of a measure): 98 %)

2.7 Contributing scenario controlling worker exposure for: PROC6: Calendering operations

Activity Product characteristics	: Calendering (including Banburys)
Concentration of the Substance	: Covers percentage substance in the product up to 15%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks Frequency of use	: Inhalation, Dermal : <= 225 days/year
Human factors not influenced by ris Breathing volume	: 10 m3/day
Other operational conditions affect	
Outdoor / Indoor	: Indoor
Technical conditions and measures Provide extraction ventilation at p %)	oints where emissions occur. (Effectiveness (of a measure): 90
	o personal protection, hygiene and health evaluation (tested to EN374) in combination with intensive management ss (of a measure): 98 %)
2.8 Contributing scenario contro	Iling worker exposure for: PROC7: Industrial spraying
Product characteristics	
Concentration of the Substance	: Covers percentage substance in the product up to 15%.
in Mixture/Article Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affect	
Outdoor / Indoor	: Indoor
Technical conditions and measures Provide extraction ventilation at p %)	oints where emissions occur. (Effectiveness (of a measure): 95

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Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %) Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 90 %)

2.9 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Activity : Materi Product characteristics	al transfers
	s percentage substance in the product up to 15%.
Physical Form (at time of use) : liquid	
	min tion, Dermal days/year
Human factors not influenced by risk manage Breathing volume : 10 m3	
Other operational conditions affecting worker Outdoor / Indoor : Indoor	•
Technical conditions and measures Provide extraction ventilation at points wher %)	e emissions occur. (Effectiveness (of a measure): 90
Conditions and measures related to personal Wear chemically resistant gloves (tested to l supervision controls. (Effectiveness (of a me	EN374) in combination with intensive management
2.10 Contributing scenario controlling wo substance or preparation (charging/ dischedicated facilities	rker exposure for: PROC8b: Transfer of arging) from/ to vessels/ large containers at
	ansfers, Dedicated facility
Product characteristics Concentration of the Substance : Cover in Mixture/Article	s percentage substance in the product up to 15%.
Physical Form (at time of use) : liquid	
Frequency and duration of useExposure duration: < 480	nin tion, Dermal

Human factors not influenced by risk management

Physical Form (at time of use)

Human factors not influenced by risk management

Frequency and duration of use Exposure duration

Remarks

Frequency of use

Breathing volume

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Breathing vo	ume	: 10 m3/da	y	
Other operation Outdoor / Ind	al conditions affecti oor	ng workers e : Indoor	xposure	
reennear eenna	itions and measures tion ventilation at p		missions occur. (Effectiver	iess (of a measure): 97
Wear chemica		(tested to EN	etection, hygiene and health 174) in combination with int ure): 98 %)	
	•		er exposure for: PROC9: ⁻ ers (dedicated filling line,	
Activity Product charac Concentration in Mixture/Art	n of the Substance		ransfers, Bulk transfers, De ercentage substance in the	-

Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor Technical conditions and measures

: Inhalation, Dermal

: <= 225 days/year

: liquid

: < 480 min

: 10 m3/day

Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 90 %)

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)

2.12 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity Product characteristics	: Roller, spreader, flow application
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 15%.
Physical Form (at time of use)	: liquid
Frequency and duration of use Exposure duration	: 60 - 240 min

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Remarks Frequency of use	: Inhalatio : <= 240 c	on, Dermal days/year	
Human factors not influenced by ris Breathing volume	k managem : 10 m3/d		
Other operational conditions affecti Outdoor / Indoor	ng workers : Indoor	exposure	
Technical conditions and measures Provide extraction ventilation at pe %)	oints where	emissions occur. (Effectiveness	(of a measure): 90
Conditions and measures related to Wear chemically resistant gloves (supervision controls. (Effectivenes	tested to El	N374) in combination with intens	
2.13 Contributing scenario contr articles by dipping and pouring	olling worl	ker exposure for: PROC13: Tre	eatment of
Activity		ent by dipping and pouring, Prod ing and pouring	luction of articles
Product characteristics Concentration of the Substance in Mixture/Article	: Covers	percentage substance in the pro	duct up to 15%.
Physical Form (at time of use)	: liquid		
Frequency and duration of use Exposure duration	: 60 - 240	min	
Remarks		on, Dermal	
Frequency of use	: <= 240 (days/year	
Human factors not influenced by ris Breathing volume	k managem : 10 m3/d		
Other operational conditions affecti Outdoor / Indoor	ng workers : Indoor	exposure	
Technical conditions and measures Provide extraction ventilation at po %)	oints where	emissions occur. (Effectiveness	o (of a measure): 90
Conditions and measures related to Wear chemically resistant gloves (tested to El	N374) in combination with intens	
supervision controls. (Effectivenes			

Concentration of the Substance : Covers percentage substance in the product up to 15%. in Mixture/Article

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Physical Form (at time of use)	: liquid		
Frequency and duration of use Exposure duration Remarks Frequency of use		nin ion, Dermal days/year	
Human factors not influenced by ris Breathing volume	k manager : 10 m3/		
Other operational conditions affecti Outdoor / Indoor	ng workers : Indoor	-	
Technical conditions and measures Provide extraction ventilation at p %)		e emissions occur. (Effectiveness	(of a measure): 90
Conditions and measures related to Wear chemically resistant gloves supervision controls. (Effectivenes	tested to E	N374) in combination with intens	
2.15 Contributing scenario contr batch processes for formulation significant contact)			
Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	-	operations (open systems) s percentage substance in the pro	duct up to 2%.
Frequency and duration of use Exposure duration Remarks Frequency of use		nin ion, Dermal days/year	
Human factors not influenced by ris Breathing volume	k manager : 10 m3/		
Other operational conditions affecti Outdoor / Indoor	ng workers : Indoor		
Technical conditions and measures Assumes a good basic standard o		onal hygiene is implemented.	
Conditions and measures related to Wear chemically resistant gloves ((Effectiveness (of a measure): 90 %	(tested to E		
2.16 Contributing scenario contr	ollina wor	ker exposure for: PROC7: Indu	ustrial spraving

Product characteristics

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Concentration of the Substance in Mixture/Article	: Covers percentage substance in the proc	duct up to 2%.
Physical Form (at time of use)	: liquid	
Frequency and duration of use	: < 480 min	
Exposure duration Remarks	: < 400 min : Inhalation, Dermal	
Frequency of use	: <= 225 days/year	
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day	
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor	
Technical conditions and measures Provide extraction ventilation at p %)	s points where emissions occur. (Effectiveness	(of a measure): 95
	o personal protection, hygiene and health eva (tested to EN374) in combination with 'basic' %)	
	rolling worker exposure for: PROC8a: Tra ging/ discharging) from/ to vessels/ large : Material transfers	
Product characteristics Concentration of the Substance	: Covers percentage substance in the proc	duct up to 2%
in Mixture/Article	. Covers percentage substance in the pro-	uuci up to 2 /0.
Physical Form (at time of use)	: liquid	
Frequency and duration of use		
Exposure duration	: < 480 min	
	: < 480 min : Inhalation, Dermal : <= 225 days/year	
Exposure duration Remarks Frequency of use Human factors not influenced by ris	: Inhalation, Dermal : <= 225 days/year sk management	
Exposure duration Remarks Frequency of use	 Inhalation, Dermal <= 225 days/year 	
Exposure duration Remarks Frequency of use Human factors not influenced by ris	 Inhalation, Dermal <= 225 days/year sk management 10 m3/day 	
Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affect Outdoor / Indoor Technical conditions and measures	 Inhalation, Dermal <= 225 days/year sk management 10 m3/day ing workers exposure Indoor 	(of a measure): 90

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2.18 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity	
	: Material transfers, Bulk transfers, Dedicated facility
Product characteristics Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min : Inhalation, Dermal
Remarks Frequency of use	: <= 225 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affect	ing workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures Assumes a good basic standard o	s of occupational hygiene is implemented.
	o personal protection, hygiene and health evaluation (tested to EN374) in combination with 'basic' employee training. %)
	rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing)
Activity	: Bulk transfers, Dedicated facility
Product characteristics Concentration of the Substance	: Covers percentage substance in the product up to 2%.
in Mixture/Article Physical Form (at time of use)	. liquid
	: liquid
Frequency and duration of use	. iiquid
Frequency and duration of use Exposure duration	: < 480 min
Exposure duration Remarks	: < 480 min : Inhalation, Dermal
Exposure duration	: < 480 min
Exposure duration Remarks	: < 480 min : Inhalation, Dermal : <= 225 days/year
Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 225 days/year
Exposure duration Remarks Frequency of use Human factors not influenced by ris	: < 480 min : Inhalation, Dermal : <= 225 days/year sk management : 10 m3/day
Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affect Outdoor / Indoor Technical conditions and measures	: < 480 min : Inhalation, Dermal : <= 225 days/year sk management : 10 m3/day ing workers exposure : Indoor
Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affect Outdoor / Indoor Technical conditions and measures Assumes a good basic standard of Conditions and measures related to	 : < 480 min : Inhalation, Dermal : <= 225 days/year sk management : 10 m3/day ing workers exposure : Indoor So for occupational hygiene is implemented. o personal protection, hygiene and health evaluation (tested to EN374) in combination with 'basic' employee training.

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2.20 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity	: Roller, spreader, flow application
Product characteristics Concentration of the Substance	: Covers percentage substance in the product up to 2%.
in Mixture/Article Physical Form (at time of use)	: liquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 240 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at p %)	oints where emissions occur. (Effectiveness (of a measure): 90
	p personal protection, hygiene and health evaluation (tested to EN374) in combination with 'basic' employee training. %)
Wear chemically resistant gloves (Effectiveness (of a measure): 90	(tested to EN374) in combination with 'basic' employee training.
Wear chemically resistant gloves (Effectiveness (of a measure): 90 2.21 Contributing scenario contri	(tested to EN374) in combination with 'basic' employee training. %)
Wear chemically resistant gloves (Effectiveness (of a measure): 90 2.21 Contributing scenario contr articles by dipping and pouring	 (tested to EN374) in combination with 'basic' employee training. (tested to EN374) in combination with 'basic' employee training. (tested to EN374) in combination with 'basic' employee training. (tested to EN374) in combination with 'basic' employee training. (tested to EN374) in combination with 'basic' employee training. (tested to EN374) in combination with 'basic' employee training. (tested to EN374) in combination with 'basic' employee training. (tested to EN374) in combination with 'basic' employee training. (tested to EN374) in combination with 'basic' employee training. (tested to EN374) in combination with 'basic' employee training. (tested to EN374) in combination with 'basic' employee training. (tested to EN374) in combination with 'basic' employee training.
Wear chemically resistant gloves (Effectiveness (of a measure): 90 2.21 Contributing scenario contrarticles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use	 (tested to EN374) in combination with 'basic' employee training. Folling worker exposure for: PROC13: Treatment of Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. Iliquid
Wear chemically resistant gloves (Effectiveness (of a measure): 90 2.21 Contributing scenario contrarticles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 (tested to EN374) in combination with 'basic' employee training. (rolling worker exposure for: PROC13: Treatment of : Treatment by dipping and pouring, Production of articles by dipping and pouring : Covers percentage substance in the product up to 2%. : liquid : < 480 min
Wear chemically resistant gloves (Effectiveness (of a measure): 90 2.21 Contributing scenario contrarticles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 (tested to EN374) in combination with 'basic' employee training. (rolling worker exposure for: PROC13: Treatment of : Treatment by dipping and pouring, Production of articles by dipping and pouring : Covers percentage substance in the product up to 2%. : liquid : < 480 min : Inhalation, Dermal
Wear chemically resistant gloves (Effectiveness (of a measure): 90 2.21 Contributing scenario contrarticles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 (tested to EN374) in combination with 'basic' employee training. (rolling worker exposure for: PROC13: Treatment of : Treatment by dipping and pouring, Production of articles by dipping and pouring : Covers percentage substance in the product up to 2%. : liquid : < 480 min
Wear chemically resistant gloves (Effectiveness (of a measure): 90 ° 2.21 Contributing scenario contra articles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris	 (tested to EN374) in combination with 'basic' employee training. (rolling worker exposure for: PROC13: Treatment of : Treatment by dipping and pouring, Production of articles by dipping and pouring : Covers percentage substance in the product up to 2%. : liquid : <480 min : Inhalation, Dermal : <= 240 days/year
Wear chemically resistant gloves (Effectiveness (of a measure): 90 ° 2.21 Contributing scenario contra articles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 (tested to EN374) in combination with 'basic' employee training. (rolling worker exposure for: PROC13: Treatment of : Treatment by dipping and pouring, Production of articles by dipping and pouring : Covers percentage substance in the product up to 2%. : liquid : <480 min : Inhalation, Dermal : <= 240 days/year

Technical conditions and measures

Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 90

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%)

Conditions and measures related to personal protection, hygiene and health evaluation Wear suitable gloves tested to EN374. (Effectiveness (of a measure): 80 %)

2.22 Contributing scenario controlling worker exposure for: PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers percentage substance in the product up to 2%. : liquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 240 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measures Assumes a good basic standard c	s f occupational hygiene is implemented.
batch processes for formulation	olling worker exposure for: PROC5: Mixing or blending in of preparations and articles (multistage and/ or
significant contact)	
Activity	: Mixing operations (open systems)
Activity Product characteristics Concentration of the Substance	: Mixing operations (open systems) : Covers percentage substance in the product up to 0.5%.
Activity Product characteristics	
Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal
Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 225 days/year
Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris	 Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day

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2.24 Contributi	ng scenario contro	lling worker exposure for: PROC7: Industrial spi	aying
in Mixture/Arti	of the Substance	: Covers percentage substance in the product up to : liquid	0.5%.
Frequency and c Exposure dura Remarks Frequency of	ation	: < 480 min : Inhalation, Dermal : <= 225 days/year	
Human factors n Breathing volu	not influenced by risk ume	management : 10 m3/day	
Other operationa Outdoor / Indo	al conditions affectin oor	g workers exposure : Indoor	
	tions and measures tion ventilation at poi	ints where emissions occur. (Effectiveness (of a mea	sure): 95
	preparation (charging	lling worker exposure for: PROC8a: Transfer of ng/ discharging) from/ to vessels/ large containe	rs at

2 26 Contributing scenario contr	olling worker exposure for: PROC8b: Transfer of
	personal protection, hygiene and health evaluation 374. (Effectiveness (of a measure): 80 %)
Technical conditions and measures Assumes a good basic standard o	f occupational hygiene is implemented.
Other operational conditions affecti Outdoor / Indoor	ng workers exposure : Indoor
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Frequency of use	: <= 225 days/year
Remarks	: Inhalation, Dermal
Frequency and duration of use Exposure duration	: < 480 min
in Mixture/Article Physical Form (at time of use)	: liquid
Product characteristics Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
Activity	: Material transfers

2.26 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

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in Mixture/Art	of the Substance		aterial transfers, Bulk transfers, Dedicated fac overs percentage substance in the product up quid	-
Frequency and o Exposure dur Remarks Frequency of	ation	: In	480 min halation, Dermal = 225 days/year	
Human factors r Breathing vol	not influenced by ris ume		nagement 0 m3/day	
Other operation Outdoor / Indo	al conditions affecti oor		orkers exposure door	
	tions and measures od basic standard o		upational hygiene is implemented.	
			y worker exposure for: PROC9: Transfer o ontainers (dedicated filling line, including	
in Mixture/Art	of the Substance		ulk transfers, Dedicated facility overs percentage substance in the product up quid	o to 0.5%.
Frequency and o Exposure dur Remarks Frequency of	ation	: In	480 min halation, Dermal = 225 days/year	

Human factors not influenced by risk management Breathing volume : 10 m3/day

Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Technical conditions and measures

Assumes a good basic standard of occupational hygiene is implemented.

2.28 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity Product characteristics	: Roller, spreader, flow application
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use)	: liquid

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Frequency and duration of use Exposure duration Remarks Frequency of use		nin ion, Dermal days/year				
Human factors not influenced by ris Breathing volume	sk manager : 10 m3/					
Other operational conditions affecti Outdoor / Indoor	ing workers : Indoor	-				
Technical conditions and measures Assumes a good basic standard o	-	onal hygiene is implemented.				
2.29 Contributing scenario contr articles by dipping and pouring	olling wo	vker exposure for: PROC13: Tre	atment of			
Activity		nent by dipping and pouring, Producing and pouring	uction of articles			
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)		s percentage substance in the proc	duct up to 0.5%.			
	. iiquiu					
Frequency and duration of use Exposure duration	: < 480 r	nin				
Remarks		ion, Dermal				
Frequency of use		days/year				
Human factors not influenced by ris	sk manager	nent				
Breathing volume	: 10 m3/	day				
Other operational conditions affecti Outdoor / Indoor	ing workers : Indoor	-				
Technical conditions and measures Assumes a good basic standard o		onal hygiene is implemented.				
2.30 Contributing scenario contr preparations or articles by table	•					
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers : liquid	s percentage substance in the pro	duct up to 0.5%.			
Frequency and duration of use						

Frequency and duration of use		
Exposure duration	:	< 480 min
Remarks	:	Inhalation, Dermal
Frequency of use	:	<= 240 days/year

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Human factors not influenced by risk management Breathing volume : 10 m3/day

Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Technical conditions and measures

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartme nt	Value	Level of Exposure	RCR
ERC4	EUSES		Fresh water		0.0006 mg/L	0.082
			Fresh water sediment		0.282 mg/kg dry weight	0.082
			Marine water		0.0002 mg/L	0.347
			Marine sediment		0.119 mg/kg dry weight	0.347
			Sewage treatment plant		0.121 mg/L	0.013
			Soil		0.077 mg/kg dry weight	0.113
			Grassland		0.077 mg/kg dry weight	0.113

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC5	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.366 mg/m3	0.3656
			Long term dermal	0.069 mg/kg bw/day	0.1203
			Short term inhalation	0.731 mg/m3	0.0001
PROC8a	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.366 mg/m3	0.3656
			Long term dermal	0.069 mg/kg bw/day	0.1203
			Short term inhalation	0.731 - 0.914 mg/m3	0.0001 - 0.0002
PROC8b	ECETOC TRA	Covers the percentage of the substance in the product up	Long term inhalation	0.548 mg/m3	0.548

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		to 25 %.			
			Long term dermal	0.034 mg/kg bw/day	0.0602
			Short term inhalation	1.098 mg/m3	0.0002
PROC9	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.182 mg/m3	0.182
			Long term dermal	0.034 mg/kg bw/day	0.06
			Short term inhalation	0.731 mg/m3	0.0001
PROC5	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.041 mg/kg bw/day	0.072
			Short term inhalation	0.914 mg/m3	0.0002
PROC6	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.082 mg/kg bw/day	0.144
			Short term inhalation	0.914 mg/m3	0.0002
PROC7	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
		• •	Long term dermal	0.129 mg/kg bw/day	0.2256
			Short term inhalation	0.914 mg/m3	0.0002
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.548 mg/m3	0.548
			Long term dermal	0.0411 mg/kg bw/day	0.0722
			Short term inhalation	1.097 mg/m3	0.0002
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.137 mg/m3	0.137
			Long term dermal	0.137 mg/kg bw/day	0.036
			Short term inhalation	0.274 mg/m3	< 0.0001
PROC9	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.02 mg/kg bw/day	0.036
			Short term inhalation	0.913 mg/m3	0.0002
PROC10	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.536 mg/m3	0.536
			Long term dermal	0.008 mg/kg bw/day	0.014
PROC13	ECETOC TRA	Covers percentage substance	Long term	0.548 mg/kg	0.5484

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		in the product up to 15%.	inhalation	bw/day	
			Long term	0.0411	0.072
			dermal	mg/m3	
			Short term inhalation	1.097 mg/m3	0.000
PROC14	ECETOC TRA	Covers percentage substance	Long term	0.457 mg/kg	0.457
		in the product up to 15%.	inhalation	bw/day	
			Long term	0.0102	0.018
			dermal	mg/m3	
			Short term inhalation	0.914 mg/m3	0.000
PROC5	ECETOC TRA	Covers percentage substance	Long term	0.61 mg/m3	0.609
		in the product up to 2%.	inhalation	_	
			Long term	0.05 mg/kg	0.096
			dermal	bw/day	
			Short term inhalation	1.22 mg/m3	0.000
PROC7	ECETOC TRA	Covers percentage substance	Long term	0.61 mg/m3	0.609
		in the product up to 2%.	inhalation		
			Long term dermal	0.09 mg/kg bw/day	0.150
			Short term inhalation	1.22 mg/m3	0.000
PROC8a	ECETOC TRA	Covers percentage substance	Long term	0.1218	0.121
		in the product up to 2%.	inhalation	mg/m3	-
		• •	Long term	0.0274	0.048
			dermal	mg/kg	
				bw/day	
			Short term inhalation	0.243 mg/m3	< 0.00
PROC8b	ECETOC TRA	Covers percentage substance	Long term	0.61 mg/m3	0.609
FROCOD		in the product up to 2%.	inhalation	0.01 mg/m3	0.009
			Long term	0.055 mg/kg	0.096
			dermal	bw/day	0.030
			Short term	1.22 mg/m3	0.000
			inhalation		0.000
PROC9	ECETOC TRA	Covers percentage substance	Long term	0.61 mg/m3	0.609
		in the product up to 2%.	inhalation	-	
			Long term dermal	0.055 mg/kg bw/day	0.096
			Short term	1.22 mg/m3	0.000
			inhalation		
PROC10	ECETOC TRA	Covers percentage substance	Long term	0.119 mg/m3	0.119
		in the product up to 2%.	inhalation	_	
			Long term dermal	0.054 mg/kg bw/day	0.09
PROC13	ECETOC TRA	Covers percentage substance	Long term	0.121 mg/m3	0.12
		in the product up to 2%.	inhalation	5 <u>-</u> ig/iii5	0.12
			Long term	0.054 mg/kg	0.054
			dermal	bw/day	
PROC14	ECETOC TRA	Covers percentage substance	Long term	0.609 mg/m3	0.609
		in the product up to 2%.	inhalation		
			Long term	0.068 mg/kg	0.12
			dermal	bw/day	

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PROC5	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.686 mg/kg bw/day	0.12
PROC7	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.152 mg/m3	0.152
			Long term dermal	0.214 mg/kg bw/day	0.376
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.304 mg/m3	0.304
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC9	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC10	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.298 mg/m3	0.298
			Long term dermal	0.137 mg/kg bw/day	0.24
PROC13	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.305 mg/m3	0.305
			Long term dermal	0.068 mg/kg bw/day	0.12
PROC14	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.152 mg/m3	0.152
		· · ·	Long term dermal	0.017 mg/kg bw/day	0.03

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

ERC5: Industrial use resulting in inclusion into or onto a matrix

PROC10: Roller application or brushing

PROC13: Treatment of articles by dipping and pouring

PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

PROC6: Calendering operations

PROC7: Industrial spraying

PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

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4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users http://guidance.echa.europa.eu/downstream_users_en.htm

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1. Short title of Exposure Scenario: Lube oil, Metal working fluids						
Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites					
Environmental Release Categories	 ERC4, ERC5: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix 					
Process categories	 PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC6: Calendering operations PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non- dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation 					

2.1 Contributing scenario controlling environmental exposure for: ERC4, ERC5: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix

Amount used Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Maximum daily site tonnage (kg/day):	: 1210 ton(s)/year : 2.1 % : 115 kg/day
Environment factors not influenced Dilution Factor (River) Dilution Factor (Coastal Areas)	: 1,000
Other given operational conditions a Number of emission days per year Emission or Release Factor: Air	: 220
Emission or Release Factor: Water Emission or Release Factor: Soil Provide, with either onsite or	: 0.1 % : 0.1 % : > 37.4 %

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domestic wastew a total wastewate efficiency of (%)				
Technical condition	is and measures	/ Organizat	ional measures	
Exposure time Compartment		: Fresh w	ious use/release /ater, Fresh water sediment, nt, Soil, Grassland, Sewage	
	for formulation		er exposure for: PROC5: I Itions and articles (multis	
Activity Product characteris	tice	: Mixing	operations (open systems)	
Concentration of in Mixture/Article Physical Form (a	the Substance	: Covers to 25 % : liquid	the percentage of the subst	ance in the product up
Frequency and dura Exposure duratio Remarks Frequency of use	n	: 15 - 60 : Inhalati : <= 240	on, Dermal	
Human factors not Breathing volume		k managen : 10 m3/c		
Other operational c Outdoor / Indoor	onditions affecti	ng workers : Indoor	exposure	
Technical condition Provide extraction %)			emissions occur. (Effective	eness (of a measure): 90
	esistant gloves	(tested to E	rotection, hygiene and heal N374) in combination with ir asure): 98 %)	
	paration (charg		er exposure for: PROC8a: arging) from/ to vessels/ I	
Activity		: Materia	l transfers	
Product characteris Concentration of in Mixture/Article Physical Form (at	the Substance	: Covers to 25 % : liquid	the percentage of the subst	ance in the product up
Frequency and dura		· < 480 m	in	

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Frequency of	use	: <= 240 da	ays/year	
Human factors Breathing vol	not influenced by ris lume	k manageme : 10 m3/da		
Other operation Outdoor / Ind	al conditions affecti oor	ng workers e : Indoor	xposure	
	itions and measures tion ventilation at p		missions occur. (Effectivene	ss (of a measure): 90
Wear chemica supervision co	Ily resistant gloves (ontrols. (Effectivenes	tested to EN3 ss (of a meas	otection, hygiene and health e 874) in combination with inter ure): 98 %) pe A filter or better. (Effective	nsive management

2.4 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Bulk transfers, Dedicated facility Covers the percentage of the substance in the product up to 25 %. liquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 240 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affecti Outdoor / Indoor	ng workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at p %)	oints where emissions occur. (Effectiveness (of a measure): 97
	personal protection, hygiene and health evaluation (tested to EN374) in combination with intensive management ss (of a measure): 98 %)
•	Iling worker exposure for: PROC9: Transfer of substance ners (dedicated filling line, including weighing)

Activity

: Material transfers, Bulk transfers, Dedicated facility

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Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers to 25 % : liquid	the percentage of the substance	in the product up
Frequency and duration of use Exposure duration Remarks Frequency of use		nin ion, Dermal days/year	
Human factors not influenced by ris Breathing volume	k manager : 10 m3/		
Other operational conditions affecti Outdoor / Indoor	ng workers : Indoor	s exposure	
Technical conditions and measures Provide extraction ventilation at pe %)		e emissions occur. (Effectiveness	(of a measure): 90
Conditions and measures related to Wear chemically resistant gloves (supervision controls. (Effectivenes Wear a respirator conforming to E 90 %)	(tested to E ss (of a me	N374) in combination with intens asure): 98 %)	ive management
2.6 Contributing scenario contro batch processes for formulation significant contact)			
Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	-	operations (open systems) percentage substance in the pro	duct up to 15%.
Frequency and duration of use Exposure duration Remarks Frequency of use		nin ion, Dermal days/year	
Human factors not influenced by ris Breathing volume	k manager : 10 m3/		
Other operational conditions affecti Outdoor / Indoor	ng workers : Indoor	exposure	
Technical conditions and measures Provide extraction ventilation at pe %)		e emissions occur. (Effectiveness	(of a measure): 90
Conditions and measures related to Wear chemically resistant gloves (protection, hygiene and health eva N374) in combination with intens	

Wear chemically resistant gloves (tested to EN374) in combination with intensive management

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supervision controls. (Effectiveness (of a measure): 98 %)

2.7 Contributing scenario controlling worker exposure for: PROC6: Calendering operations

Activity	: Calendering (including Banburys)
Product characteristics Concentration of the Substance	: Covers percentage substance in the product up to 15%.
in Mixture/Article	
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration Remarks	: < 480 min : Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at p %)	s oints where emissions occur. (Effectiveness (of a measure): 90
	o personal protection, hygiene and health evaluation (tested to EN374) in combination with intensive management ss (of a measure): 98 %)
2.8 Contributing scenario contro	olling worker exposure for: PROC7: Industrial spraying
Product characteristics	
Concentration of the Substance	: Covers percentage substance in the product up to 15%.
in Mixture/Article Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 225 days/year
Human factors not influenced by ris	
Breathing volume	: 10 m3/day
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at p %)	s oints where emissions occur. (Effectiveness (of a measure): 95

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Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %) Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 90 %)

2.9 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Activity : Materi Product characteristics	al transfers
	s percentage substance in the product up to 15%.
Physical Form (at time of use) : liquid	
	min tion, Dermal days/year
Human factors not influenced by risk manage Breathing volume : 10 m3	
Other operational conditions affecting worker Outdoor / Indoor : Indoor	•
Technical conditions and measures Provide extraction ventilation at points wher %)	e emissions occur. (Effectiveness (of a measure): 90
Conditions and measures related to personal Wear chemically resistant gloves (tested to l supervision controls. (Effectiveness (of a me	EN374) in combination with intensive management
2.10 Contributing scenario controlling wo substance or preparation (charging/ dischedicated facilities	rker exposure for: PROC8b: Transfer of arging) from/ to vessels/ large containers at
	ansfers, Dedicated facility
Product characteristics Concentration of the Substance : Cover in Mixture/Article	s percentage substance in the product up to 15%.
Physical Form (at time of use) : liquid	
Frequency and duration of useExposure duration: < 480	nin tion, Dermal

Human factors not influenced by risk management

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Breathing vo	olume	: 10 m3/da	ау	
Other operatio Outdoor / Inc	nal conditions affecti door	ing workers e : Indoor	exposure	
	ditions and measures action ventilation at p	•	emissions occur. (Effectivenes	ss (of a measure): 97
Wear chemic		(tested to EN	otection, hygiene and health e 374) in combination with inter sure): 98 %)	
	•	-	er exposure for: PROC9: Tr ers (dedicated filling line, ir	
Activity Product chara	cteristics	: Material	transfers, Bulk transfers, Dedi	cated facility
in Mixture/A		: Covers p	percentage substance in the p	roduct up to 15%.
Physical For	rm (at time of use)	: liquid		

Frequency and duration of useExposure duration: < 480 min</td>Remarks: Inhalation, DermalFrequency of use: <= 225 days/year</td>

Human factors not influenced by risk management Breathing volume : 10 m3/day

Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Technical conditions and measures

Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 90 %)

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)

2.12 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity Product characteristics	: Roller, spreader, flow application
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 15%.
Physical Form (at time of use)	: liquid
Frequency and duration of use Exposure duration	: 60 - 240 min

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Remarks Frequency of use		ion, Dermal days/year	
Human factors not influenced by ris Breathing volume	k managen : 10 m3/e		
Other operational conditions affecti Outdoor / Indoor	ng workers : Indoor	s exposure	
Technical conditions and measures Provide extraction ventilation at pe %)		e emissions occur. (Effectiveness	s (of a measure): 90
Conditions and measures related to Wear chemically resistant gloves (supervision controls. (Effectivenes	tested to E	N374) in combination with intens	
2.13 Contributing scenario contr articles by dipping and pouring	olling wor	ker exposure for: PROC13: Tr	eatment of
Activity		ent by dipping and pouring, Proc bing and pouring	duction of articles
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)		s percentage substance in the pro	oduct up to 15%.
	. iiquia		
Frequency and duration of use Exposure duration	: 60 - 240	0 min	
Remarks	: Inhalat	ion, Dermal	
Frequency of use	: <= 240	days/year	
Human factors not influenced by ris Breathing volume	k managen : 10 m3/e		
Other operational conditions affecti Outdoor / Indoor	ng workers : Indoor		
Technical conditions and measures Provide extraction ventilation at p %)		e emissions occur. (Effectiveness	s (of a measure): 90
Conditions and measures related to	tested to E	N374) in combination with intens	
supervision controls. (Effectivenes			

Concentration of the Substance : Covers percentage substance in the product up to 15%. in Mixture/Article

Physical Form (at time of use)	2013	Print Date 27.02.2014	GB / EN
	: liquid		
requency and duration of use Exposure duration Remarks Frequency of use		min tion, Dermal) days/year	
luman factors not influenced by ris Breathing volume	sk manage : 10 m3/		
Other operational conditions affect Outdoor / Indoor	ing workers : Indoor	-	
echnical conditions and measures Provide extraction ventilation at p %)		e emissions occur. (Effectiveness	(of a measure): 90
Conditions and measures related to Wear chemically resistant gloves supervision controls. (Effectivene	(tested to E	EN374) in combination with intens	
2.15 Contributing scenario contribatch processes for formulation ignificant contact)	of prepar	rations and articles (multistage	
Activity Product characteristics Concentration of the Substance in Mixture/Article	-	operations (open systems) s percentage substance in the pro	duct up to 2%.
Physical Form (at time of use)	: liquid		
requency and duration of use Exposure duration Remarks		min tion, Dermal 5 days/year	
Frequency of use			
	sk manage : 10 m3/		
Frequency of use Iuman factors not influenced by ris	: 10 m3/	/day s exposure	
Frequency of use luman factors not influenced by ris Breathing volume Other operational conditions affect	: 10 m3/ ing worker : Indoor	/day s exposure	

Product characteristics

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Concentration of the Substance in Mixture/Article	: Covers percentage substance in the pro-	duct up to 2%.
Physical Form (at time of use)	: liquid	
Frequency and duration of use Exposure duration	: < 480 min	
Remarks	: Inhalation, Dermal	
Frequency of use	: <= 225 days/year	
Human factors not influenced by ri Breathing volume	sk management : 10 m3/day	
Other operational conditions affect Outdoor / Indoor	ting workers exposure : Indoor	
Technical conditions and measure Provide extraction ventilation at p %)	s points where emissions occur. (Effectiveness	(of a measure): 95
	o personal protection, hygiene and health eva (tested to EN374) in combination with 'basic' %)	
	rolling worker exposure for: PROC8a: Tra ging/ discharging) from/ to vessels/ large : Material transfers	
Product characteristics		
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the proc	duct up to 2%.
Physical Form (at time of use)	: liquid	
Frequency and duration of use		
Exposure duration	: < 480 min	
Remarks Frequency of use	: Inhalation, Dermal : <= 225 days/year	
Human factors not influenced by ri		
Human factors not influenced by ri Breathing volume	sk management : 10 m3/day	
	: 10 m3/day	
Breathing volume Other operational conditions affect Outdoor / Indoor Technical conditions and measure	: 10 m3/day ting workers exposure : Indoor	(of a measure): 90

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2.18 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity	: Material transfers, Bulk transfers, Dedicated facility
Product characteristics Concentration of the Substance	: Covers percentage substance in the product up to 2%.
in Mixture/Article Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks Frequency of use	: Inhalation, Dermal : <= 225 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affect Outdoor / Indoor	ing workers exposure : Indoor
Technical conditions and measures Assumes a good basic standard o	s of occupational hygiene is implemented.
	o personal protection, hygiene and health evaluation (tested to EN374) in combination with 'basic' employee training. %)
	rolling worker exposure for: PROC9: Transfer of mall containers (dedicated filling line, including weighing)
substance or preparation into su Activity Product characteristics	mall containers (dedicated filling line, including weighing) : Bulk transfers, Dedicated facility
substance or preparation into su Activity Product characteristics Concentration of the Substance	mall containers (dedicated filling line, including weighing)
substance or preparation into su Activity Product characteristics	mall containers (dedicated filling line, including weighing) : Bulk transfers, Dedicated facility
substance or preparation into su Activity Product characteristics Concentration of the Substance in Mixture/Article	 mall containers (dedicated filling line, including weighing) Bulk transfers, Dedicated facility Covers percentage substance in the product up to 2%.
substance or preparation into su Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 mall containers (dedicated filling line, including weighing) Bulk transfers, Dedicated facility Covers percentage substance in the product up to 2%. liquid < 480 min
Substance or preparation into su Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 mall containers (dedicated filling line, including weighing) Bulk transfers, Dedicated facility Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal
substance or preparation into su Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 mall containers (dedicated filling line, including weighing) Bulk transfers, Dedicated facility Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 225 days/year
Substance or preparation into su Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rist	 mall containers (dedicated filling line, including weighing) : Bulk transfers, Dedicated facility : Covers percentage substance in the product up to 2%. : liquid : <480 min : Inhalation, Dermal : <= 225 days/year
substance or preparation into su Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 mall containers (dedicated filling line, including weighing) Bulk transfers, Dedicated facility Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 225 days/year
Substance or preparation into su Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rist	 mall containers (dedicated filling line, including weighing) Bulk transfers, Dedicated facility Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day
substance or preparation into su Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affect Outdoor / Indoor Technical conditions and measures	 mall containers (dedicated filling line, including weighing) Bulk transfers, Dedicated facility Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day ing workers exposure Indoor
substance or preparation into superiod Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rise Other operational conditions affect Outdoor / Indoor Technical conditions and measures Assumes a good basic standard of	 mall containers (dedicated filling line, including weighing) Bulk transfers, Dedicated facility Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 225 days/year sk management 10 m3/day ing workers exposure Indoor So for occupational hygiene is implemented. o personal protection, hygiene and health evaluation (tested to EN374) in combination with 'basic' employee training.

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2.20 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity Product characteristics	: Roller, spreader, flow application
Concentration of the Substance	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Breating volume	. To more a
Other operational conditions affect Outdoor / Indoor	ng workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at p %)	oints where emissions occur. (Effectiveness (of a measure): 90
	personal protection, hygiene and health evaluation (tested to EN374) in combination with 'basic' employee training.
(Effectiveness (of a measure): 90	
(Effectiveness (of a measure): 90	
(Effectiveness (of a measure): 90 2.21 Contributing scenario contri	%)
(Effectiveness (of a measure): 90 2.21 Contributing scenario contr articles by dipping and pouring Activity Product characteristics Concentration of the Substance	 olling worker exposure for: PROC13: Treatment of : Treatment by dipping and pouring, Production of articles
(Effectiveness (of a measure): 90 2.21 Contributing scenario contr articles by dipping and pouring Activity Product characteristics	 olling worker exposure for: PROC13: Treatment of Treatment by dipping and pouring, Production of articles by dipping and pouring
(Effectiveness (of a measure): 90 2.21 Contributing scenario contr articles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use	 olling worker exposure for: PROC13: Treatment of Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid
(Effectiveness (of a measure): 90 2.21 Contributing scenario contrarticles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 olling worker exposure for: PROC13: Treatment of Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min
(Effectiveness (of a measure): 90 2.21 Contributing scenario contrarticles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 olling worker exposure for: PROC13: Treatment of Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal
(Effectiveness (of a measure): 90 2.21 Contributing scenario contrarticles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 olling worker exposure for: PROC13: Treatment of Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min
(Effectiveness (of a measure): 90 f 2.21 Contributing scenario contrarticles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 olling worker exposure for: PROC13: Treatment of Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 240 days/year
(Effectiveness (of a measure): 90 2.21 Contributing scenario contrarticles by dipping and pouring Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 olling worker exposure for: PROC13: Treatment of Treatment by dipping and pouring, Production of articles by dipping and pouring Covers percentage substance in the product up to 2%. liquid < 480 min Inhalation, Dermal <= 240 days/year

Technical conditions and measures

Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 90

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%)

Conditions and measures related to personal protection, hygiene and health evaluation Wear suitable gloves tested to EN374. (Effectiveness (of a measure): 80 %)

2.22 Contributing scenario controlling worker exposure for: PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers percentage substance in the product up to 2%. : liquid
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 240 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affect Outdoor / Indoor	ng workers exposure : Indoor
Technical conditions and measures Assumes a good basic standard o	f occupational hygiene is implemented.
	olling worker exposure for: PROC5: Mixing or blending in of preparations and articles (multistage and/ or
Activity Product characteristics	: Mixing operations (open systems)
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use)	: liquid
Frequency and duration of use Exposure duration Remarks	: < 480 min : Inhalation, Dermal
Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris	: < 480 min : Inhalation, Dermal : <= 225 days/year sk management
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 225 days/year sk management : 10 m3/day

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2.24 Contributi	ng scenario contro	lling worker exposure for: PROC7: Industrial sp	raying		
in Mixture/Art	of the Substance	: Covers percentage substance in the product up to : liquid) 0.5%.		
Frequency and o Exposure dur Remarks Frequency of	ation	: < 480 min : Inhalation, Dermal : <= 225 days/year			
Human factors r Breathing vol	not influenced by risk ume	management : 10 m3/day			
Other operation Outdoor / Indo	al conditions affectin	g workers exposure : Indoor			
Technical conditions and measures Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 95 %)					
	preparation (charging	lling worker exposure for: PROC8a: Transfer of ng/ discharging) from/ to vessels/ large containe			

2 26 Contributing scenario contr	olling worker exposure for: PROC8b: Transfer of
	personal protection, hygiene and health evaluation 374. (Effectiveness (of a measure): 80 %)
Technical conditions and measures Assumes a good basic standard o	f occupational hygiene is implemented.
Other operational conditions affecti Outdoor / Indoor	ng workers exposure : Indoor
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Frequency of use	: <= 225 days/year
Remarks	: Inhalation, Dermal
Frequency and duration of use Exposure duration	: < 480 min
in Mixture/Article Physical Form (at time of use)	: liquid
Product characteristics Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
Activity	: Material transfers

2.26 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

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Activity Product characteristics Concentration of the Sub- in Mixture/Article Physical Form (at time of	stance : Cover	ial transfers, Bulk transfers, Dedic s percentage substance in the pr	•
Frequency and duration of u Exposure duration Remarks Frequency of use	: < 480 : Inhala	min Ition, Dermal 5 days/year	
Human factors not influence Breathing volume	ed by risk manage : 10 m3		
Other operational condition Outdoor / Indoor	s affecting worker : Indoo	•	
Technical conditions and m Assumes a good basic sta		ional hygiene is implemented.	
		orker exposure for: PROC9: Tra ainers (dedicated filling line, in	
Activity Product characteristics Concentration of the Subs in Mixture/Article Physical Form (at time of	stance : Cover	ransfers, Dedicated facility rs percentage substance in the pr	oduct up to 0.5%.
Frequency and duration of u Exposure duration Remarks Frequency of use	: < 480 : Inhala	min ition, Dermal 5 days/year	

Human factors not influenced by risk management Breathing volume : 10 m3/day

Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Technical conditions and measures

Assumes a good basic standard of occupational hygiene is implemented.

2.28 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity Product characteristics	: Roller, spreader, flow application
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use)	: liquid

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Frequency and duration of use Exposure duration Remarks Frequency of use		nin ion, Dermal days/year	
Human factors not influenced by ris Breathing volume	sk managen : 10 m3/d		
Other operational conditions affecti Outdoor / Indoor	ing workers : Indoor	exposure	
Technical conditions and measures Assumes a good basic standard o		nal hygiene is implemented.	
2.29 Contributing scenario contr articles by dipping and pouring	olling wor	ker exposure for: PROC13: Tre	atment of
Activity		ent by dipping and pouring, Prod sing and pouring	uction of articles
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)		percentage substance in the pro	duct up to 0.5%.
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 n : Inhalati	nin ion, Dermal days/year	
Human factors not influenced by ris Breathing volume	sk managen : 10 m3/e		
Other operational conditions affecti Outdoor / Indoor	ing workers : Indoor	exposure	
Technical conditions and measures Assumes a good basic standard o		nal hygiene is implemented.	
2.30 Contributing scenario contributing scenario contributing preparations or articles by table			
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers : liquid	percentage substance in the pro	duct up to 0.5%.
Frequency and duration of use			

Frequency and duration of use		
Exposure duration	:	< 480 min
Remarks	:	Inhalation, Dermal
Frequency of use	:	<= 240 days/year

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Human factors not influenced by risk management Breathing volume : 10 m3/day

Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Technical conditions and measures

Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartme nt	Value	Level of Exposure	RCR
ERC4	EUSES		Fresh water		0.0004 mg/L	0.070
			Fresh water sediment		0.239 mg/kg dry weight	0.070
			Marine water		0.0001 mg/L	0.148
			Marine sediment		0.051 mg/kg dry weight	0.148
			Sewage treatment plant		0.036 mg/L	0.0037
			Soil		0.077 mg/kg dry weight	0.113
			Grassland		0.077 mg/kg dry weight	0.113

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC5	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.366 mg/m3	0.3656
			Long term dermal	0.069 mg/kg bw/day	0.1203
			Short term inhalation	0.731 mg/m3	0.0001
PROC8a	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.366 mg/m3	0.3656
			Long term dermal	0.069 mg/kg bw/day	0.1203
			Short term inhalation	0.731 - 0.914 mg/m3	0.0001 - 0.0002
PROC8b	ECETOC TRA	Covers the percentage of the substance in the product up	Long term inhalation	0.548 mg/m3	0.548

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		to 25 %.			
			Long term dermal	0.034 mg/kg bw/day	0.0602
			Short term inhalation	1.098 mg/m3	0.0002
PROC9	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.182 mg/m3	0.182
			Long term dermal	0.034 mg/kg bw/day	0.06
			Short term inhalation	0.731 mg/m3	0.0001
PROC5	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
		· · ·	Long term dermal	0.041 mg/kg bw/day	0.072
			Short term inhalation	0.914 mg/m3	0.0002
PROC6	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
		• •	Long term dermal	0.082 mg/kg bw/day	0.144
			Short term inhalation	0.914 mg/m3	0.0002
PROC7	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.129 mg/kg bw/day	0.2256
			Short term inhalation	0.914 mg/m3	0.0002
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.548 mg/m3	0.548
			Long term dermal	0.0411 mg/kg bw/day	0.0722
			Short term inhalation	1.097 mg/m3	0.0002
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.137 mg/m3	0.137
			Long term dermal	0.137 mg/kg bw/day	0.036
			Short term inhalation	0.274 mg/m3	< 0.0001
PROC9	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.02 mg/kg bw/day	0.036
			Short term inhalation	0.913 mg/m3	0.0002
PROC10	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.536 mg/m3	0.536
			Long term dermal	0.008 mg/kg bw/day	0.014
PROC13	ECETOC TRA	Covers percentage substance	Long term	0.548 mg/kg	0.5484

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		in the product up to 15%.	inhalation	bw/day	
			Long term	0.0411	0.072
			dermal	mg/m3	
			Short term inhalation	1.097 mg/m3	0.000
PROC14	ECETOC TRA	Covers percentage substance	Long term	0.457 mg/kg	0.457
		in the product up to 15%.	inhalation	bw/day	••
		• •	Long term	0.0102	0.018
			dermal	mg/m3	
			Short term inhalation	0.914 mg/m3	0.000
PROC5	ECETOC TRA	Covers percentage substance	Long term	0.61 mg/m3	0.609
		in the product up to 2%.	inhalation		
			Long term	0.05 mg/kg	0.096
			dermal	bw/day	
			Short term	1.22 mg/m3	0.000
			inhalation		
PROC7	ECETOC TRA	Covers percentage substance	Long term	0.61 mg/m3	0.609
		in the product up to 2%.	inhalation	-	
			Long term dermal	0.09 mg/kg bw/day	0.150
			Short term	1.22 mg/m3	0.000
			inhalation		
PROC8a	ECETOC TRA	Covers percentage substance	Long term	0.1218	0.121
		in the product up to 2%.	inhalation	mg/m3	
			Long term	0.0274	0.048
			dermal	mg/kg	
			Short term	bw/day 0.243 mg/m3	< 0.00
			inhalation	0.245 mg/m5	< 0.00
PROC8b	ECETOC TRA	Covers percentage substance	Long term	0.61 mg/m3	0.609
		in the product up to 2%.	inhalation	J	
		• •	Long term	0.055 mg/kg	0.096
			dermal	bw/day	
			Short term	1.22 mg/m3	0.000
		-	inhalation		
PROC9	ECETOC TRA	Covers percentage substance	Long term	0.61 mg/m3	0.609
		in the product up to 2%.	inhalation	0.055	0.000
			Long term dermal	0.055 mg/kg bw/day	0.096
			Short term	1.22 mg/m3	0.000
			inhalation		
PROC10	ECETOC TRA	Covers percentage substance	Long term	0.119 mg/m3	0.119
		in the product up to 2%.	inhalation		
			Long term dermal	0.054 mg/kg bw/day	0.096
PROC13	ECETOC TRA	Covers percentage substance	Long term	0.121 mg/m3	0.12
		in the product up to 2%.	inhalation		0.12
			Long term	0.054 mg/kg	0.054
			dermal	bw/day	
PROC14	ECETOC TRA	Covers percentage substance	Long term	0.609 mg/m3	0.609
		in the product up to 2%.	inhalation	_	
			Long term	0.068 mg/kg	0.12
			dermal	bw/day	

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PROC5	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.686 mg/kg bw/day	0.12
PROC7	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.152 mg/m3	0.152
			Long term dermal	0.214 mg/kg bw/day	0.376
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.304 mg/m3	0.304
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC9	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.149 mg/m3	0.149
			Long term dermal	0.0686 mg/kg bw/day	0.12
PROC10	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.298 mg/m3	0.298
			Long term dermal	0.137 mg/kg bw/day	0.24
PROC13	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.305 mg/m3	0.305
			Long term dermal	0.068 mg/kg bw/day	0.12
PROC14	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.152 mg/m3	0.152
		· · ·	Long term dermal	0.017 mg/kg bw/day	0.03

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

ERC5: Industrial use resulting in inclusion into or onto a matrix

PROC10: Roller application or brushing

PROC13: Treatment of articles by dipping and pouring

PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

PROC6: Calendering operations

PROC7: Industrial spraying

PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

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4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users http://guidance.echa.europa.eu/downstream_users_en.htm

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1. Short title of Exposure Scenario: Professional use of coatings & adhesives						
Main User Groups	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)					
Environmental Release Categories	: ERC8a, ERC8c, ERC8d, ERC8f: Wide dispersive indoor use of processing aids in open systems, Wide dispersive indoor use resulting in inclusion into or onto a matrix, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive outdoor use resulting in inclusion into or onto a matrix					
Process categories	 PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non- dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC19: Hand-mixing with intimate contact and only PPE available PROC21: Low energy manipulation of substances bound in materials and/ or articles PROC24: High (mechanical) energy work-up of substances bound in materials and/ or articles 					

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8c, ERC8d, ERC8f: Wide dispersive indoor use of processing aids in open systems, Wide dispersive indoor use resulting in inclusion into or onto a matrix, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive outdoor use resulting in inclusion into or onto a matrix outdoor use resulting in inclusion into or onto a matrix.

Amount used Maximum daily site tonnage (kg/day):	: 2.55 kg/day
Environment factors not influenced	by risk management
Dilution Factor (River)	: 1,000
Dilution Factor (Coastal Areas)	,
Other given operational conditions	affecting environmental exposure
Number of emission days per year	: 365
Emission or Release Factor: Air	: 0%
Emission or Release Factor:	: 1%
Water	

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Provide, with		: 0.5 % : > 37.	-	
Technical cond Exposure tim Compartment		: Cont : Fres	zational measures inuous use/release h water, Fresh water sediment, Mari nent, Soil, Grassland, Sewage treat	
	es for formulation		rker exposure for: PROC5: Mixir arations and articles (multistage	
Activity		: Mixir	ig operations (open systems)	
Product charact Concentration in Mixture/Art	n of the Substance		ers the percentage of the substance %.	in the product up
Frequency and Exposure dur Remarks Frequency of	ation		60 min ation, Dermal 40 days/year	
Human factors Breathing vol	not influenced by ris ume	k manag : 10 m		
Other operation Outdoor / Ind	al conditions affecti oor	ng worke : Indo		
Wear chemica supervision co	Ily resistant gloves (ontrols. (Effectivene:	tested to ss (of a n	I protection, hygiene and health even EN374) in combination with intens neasure): 98 %) h Type A filter or better. (Effectiven	ive management
	preparation (charg		rker exposure for: PROC8a: Tra charging) from/ to vessels/ large	
in Mixture/Art	n of the Substance icle	: Cove to 25		in the product up
-	n (at time of use)	: liquio		
Frequency and Exposure dur Remarks		: <15 : Inhal	min ation, Dermal	
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Frequency of use	: <= 240 da	ys/year	
Human factors not influenced by ris Breathing volume	sk manageme : 10 m3/da		
Other operational conditions affecti Outdoor / Indoor	ng workers e : Indoor	kposure	
Conditions and measures related to Wear chemically resistant gloves (supervision controls. (Effectivene Wear a respirator conforming to E 95 %)	(tested to EN3 ss (of a meas	874) in combination with intensive ure): 98 %)	management
2.4 Contributing scenario contro substance or preparation (charg dedicated facilities			
Activity	: Bulk tran	sfers, Dedicated facility	
Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers th to 25 %. : liquid	e percentage of the substance in t	the product up
Frequency and duration of use	· iquid		
Exposure duration Remarks	: < 60 min : Inhalatior	n. Dermal	
Frequency of use	: <= 240 da		
Human factors not influenced by ris Breathing volume	k manageme : 10 m3/da		
Other operational conditions affecti Outdoor / Indoor	ng workers e : Indoor	kposure	
Technical conditions and measures Provide extraction ventilation at p %)		missions occur. (Effectiveness (of	a measure): 80
Conditions and measures related to Wear chemically resistant gloves (supervision controls. (Effectivenes	tested to EN	874) in combination with intensive	
2.5 Contributing scenario contro batch processes for formulation significant contact)			
Activity	: Mixing op	perations (open systems)	
Product characteristics Concentration of the Substance in Mixture/Article	: Covers p	ercentage substance in the produc	ct up to 15%.
Physical Form (at time of use)	: liquid		

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Frequency a Exposure Remarks Frequency	: Inhala	0 min ation, Dermal 0 days/year	
Human facto Breathing	ors not influenced by risk manag volume : 10 m		
Other operat Outdoor /	tional conditions affecting worke Indoor : Indoo		
	onditions and measures traction ventilation at points whe	re emissions occur. (Effectiveness	s (of a measure): 80
Wear chem		l protection, hygiene and health ev EN374) in combination with intens leasure): 98 %)	
substance		rker exposure for: PROC8a: Tra harging) from/ to vessels/ large	
Activity		rial transfers	

Activity	: Material transfers
Product characteristics	
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 15%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: 15 - 60 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affect	ing workers exposure
Outdoor / Indoor	: Indoor
	o personal protection, hygiene and health evaluation (tested to EN374) in combination with intensive management ss (of a measure): 98 %)
Wear a respirator conforming to E 90 %)	N140 with Type A filter or better. (Effectiveness (of a measure):
2.7 Contributing scenario contro	Illing worker exposure for: PROC8b: Transfer of

2.7 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity	: Bulk transfers, Dedicated facility

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Product characteristics			
Concentration of the Substance	: Cove	ers percentage substance in the proc	duct up to 15%.
in Mixture/Article			
Physical Form (at time of use)	: liqui	d	
From the stand duration of the			
Frequency and duration of use Exposure duration	: 15-0	30 min	
Remarks		lation, Dermal	
Frequency of use		40 days/year	
Human factors not influenced by ris	k manac	omont	
Human factors not influenced by ris Breathing volume	: 10 m		
2		-	
Other operational conditions affecti	-	-	
Outdoor / Indoor	: Indo	or	
Technical conditions and measures Provide extraction ventilation at p %)		ere emissions occur. (Effectiveness	(of a measure): 80
	(tested to	Il protection, hygiene and health eva EN374) in combination with intensineasure): 98 %)	
brushing Activity	: Rolle	er, spreader, flow application	
Product characteristics Concentration of the Substance in Mixture/Article	: Cove	ers percentage substance in the proc	luct up to 15%.
Physical Form (at time of use)	: liqui	d	
Frequency and duration of use			
Frequency and duration of use Exposure duration	: 15 - 0	30 min	
Remarks		lation, Dermal	
Frequency of use		40 days/year	
Humon footoro not influonood by ris	k monoc	omont	
Human factors not influenced by ris Breathing volume	: 10 m		
Other operational conditions affecti Outdoor / Indoor		ers exposure	
Technical conditions and measures Assumes a good basic standard o		tional hygiene is implemented.	
Wear chemically resistant gloves supervision controls. (Effectivene	(tested to ss (of a r	Il protection, hygiene and health eva DEN374) in combination with intensi neasure): 98 %) h Type A filter or better. (Effectivene	ve management

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2.9 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying

Activity Product characteristics Concentration of the Substance in Mixture/Article	: Spraying, Manual : Covers percentage substance in the product up to 10%.	
Physical Form (at time of use)	: liquid	
Frequency and duration of use Exposure duration Remarks	: 15 - 60 min : Inhalation, Dermal	
Frequency of use	: <= 240 days/year	
Human factors not influenced by ris Breathing volume	k management : 10 m3/day	
Other operational conditions affecti Outdoor / Indoor	ng workers exposure : Indoor	
Technical conditions and measures Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 80 %)		
Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %)		

Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 95 %)

2.10 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Activity	: Treatment by dipping and pouring, Production of articles by dipping and pouring	
Product characteristics Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 15%.	
Physical Form (at time of use)	: liquid	
Frequency and duration of use		
Exposure duration	: 60 - 240 min	
Remarks	: Inhalation, Dermal	
Frequency of use	: <= 240 days/year	
Human factors not influenced by risk management Breathing volume : 10 m3/day		
Other operational conditions affectin Outdoor / Indoor	ng workers exposure : Indoor	

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 Technical conditions and measures Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 90 %) Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %) 		
Activity	: Mixing operations (open systems)	
Product characteristics		
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 2%.	
Physical Form (at time of use)	: liquid	
Frequency and duration of use Exposure duration Remarks Frequency of use	: < 480 min : Inhalation, Dermal : <= 240 days/year	

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Human factors not influenced by risk management Breathing volume : 10 m3/day

Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Technical conditions and measures

Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 80 %)

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

2.12 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Activity Product characteristics	: Material transfers
Concentration of the Substance	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year

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Human facto Breathing	ors not influenced by risk manag volume : 10 m		
Other operat Outdoor /	tional conditions affecting worke Indoor : Indoo	•	
Wear suital	ble gloves tested to EN374. (Effe	l protection, hygiene and health eva ctiveness (of a measure): 80 %) n Type A filter or better. (Effectivene	
2.13 Contril	•	orker exposure for: PROC8b: Tra	ansfer of

2.13 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Activity	: Material transfers, Bulk transfers, Dedicated facility
Product characteristics	
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affect	ing workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures	-
 Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affection Outdoor / Indoor Technical conditions and measures 	 : Covers percentage substance in the product up to 2%. : liquid : < 480 min : Inhalation, Dermal : <= 240 days/year sk management : 10 m3/day ing workers exposure : Indoor

Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 90 %)

2.14 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity Product characteristics	: Roller, spreader, flow application	
Concentration of the Substance	: Covers percentage substance in the product up to 2%.	
Physical Form (at time of use)	: liquid	
Frequency and duration of use		
Exposure duration	: < 480 min	
Remarks	: Inhalation, Dermal	
Frequency of use	: <= 240 days/year	
Human factors not influenced by risk management		
Breathing volume	: 10 m3/day	

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Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Conditions and measures related to personal protection, hygiene and health evaluation Wear suitable gloves tested to EN374. (Effectiveness (of a measure): 80 %) Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 90 %)

2.15 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying

Activity	: Spraying, Manual
Product characteristics Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	: 60 - 240 min
Remarks Frequency of use	: Inhalation, Dermal : <= 240 days/year
Frequency of use	. <= 240 days/year
Human factors not influenced by ris Breathing volume	sk management : 10 m3/day
Other operational conditions affecti Outdoor / Indoor	ng workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at pe %)	oints where emissions occur. (Effectiveness (of a measure): 80
Wear suitable gloves tested to EN	personal protection, hygiene and health evaluation 374. (Effectiveness (of a measure): 90 %) N140 with Type A filter or better. (Effectiveness (of a measure):
2.16 Contributing scenario contr articles by dipping and pouring	olling worker exposure for: PROC13: Treatment of
Activity	: Treatment by dipping and pouring, Production of articles by dipping and pouring
Product characteristics	.,
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
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Frequency of use		: <= 240 c	lays/year	
Human factors n Breathing volu	ot influenced by ris ume	sk managem : 10 m3/d		
Other operationa Outdoor / Indo	al conditions affecti or	ing workers : Indoor	exposure	
	ions and measures tion ventilation at p	•	emissions occur. (Effectivenes	s (of a measure): 80
			rotection, hygiene and health ev veness (of a measure): 80 %)	valuation
	ng scenario contr ct and only PPE a	-	er exposure for: PROC19: H	and-mixing with
Activity		: Mixing of for appl	operations (open systems), Pre	paration of material
Product characte	eristics	••		
Concentration in Mixture/Arti	of the Substance cle	: Covers	percentage substance in the pr	oduct up to 2%.
Physical Form	(at time of use)	: liquid		
Eroquency and c	hanne (fam. a. f. a. a. a.			

Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year

Human factors not influence	d by risk management
Breathing volume	: 10 m3/day

Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %) Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 95 %)

2.18 Contributing scenario controlling worker exposure for: PROC21: Low energy manipulation of substances bound in materials and/ or articles

Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers percentage substance in the product up to 2%. : solid
Frequency and duration of use Remarks	: Inhalation, Dermal

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Human factors not influenced by ris Breathing volume Other operational conditions affecti	: 10 m3/da ng workers e	У	
Outdoor / Indoor Technical conditions and measures	: Indoor		
Assumes a good basic standard o		al hygiene is implemented.	
2.19 Contributing scenario contr energy work-up of substances b			ligh (mechanical)
Activity Product characteristics	: Operatio	n and lubrication of high energ	gy open equipment
Concentration of the Substance in Mixture/Article	: Covers p	ercentage substance in the pr	oduct up to 2%.
Physical Form (at time of use)	: solid		
Frequency and duration of use Remarks	: Inhalatio	n, Dermal	
Human factors not influenced by ris Breathing volume	k manageme : 10 m3/da		
Other operational conditions affecti Outdoor / Indoor	ng workers e : Indoor	xposure	
Technical conditions and measures Assumes a good basic standard o		al hygiene is implemented.	
2.20 Contributing scenario contr batch processes for formulation significant contact)			
Activity Product characteristics	: Mixing o	perations (open systems)	
Concentration of the Substance in Mixture/Article	: Covers p	ercentage substance in the pr	oduct up to 0.5%.
Physical Form (at time of use)	: liquid		
Frequency and duration of use Exposure duration	: < 480 mir	ı	
Remarks Frequency of use	: Inhalatio : <= 240 da		
Human factors not influenced by ris Breathing volume	sk manageme : 10 m3/da		
Other operational conditions affecti Outdoor / Indoor	ng workers e : Indoor	xposure	

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Assumes a good basic standard of occupational hygiene is implemented.

2.21 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Activity	: Material transfers	
Product characteristics Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.	
in Mixture/Article		
Physical Form (at time of use)	: liquid	
Frequency and duration of use		
Exposure duration Remarks	: < 480 min : Inhalation, Dermal	
Frequency of use	: <= 240 days/year	
requency of use	. <= 240 uays/year	
Human factors not influenced by ris		
Breathing volume	: 10 m3/day	
Other operational conditions affection		
Outdoor / Indoor	: Indoor	
Technical conditions and measures		
Assumes a good basic standard o	f occupational hygiene is implemented.	
Conditions and measures related to	personal protection, hygiene and health evaluation	
	374. (Effectiveness (of a measure): 80 %)	
2 22 Contributing scenario contr	olling worker exposure for: PROC8b: Transfer of	
	ing/ discharging) from/ to vessels/ large containers at	
dedicated facilities		
Activity	Material transfers, Bulk transfers, Dedicated facility	
Activity Product characteristics	: Material transfers, Bulk transfers, Dedicated facility	
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.	
in Mixture/Article		
Physical Form (at time of use)	: liquid	
Frequency and duration of use		
Exposure duration	: < 480 min	
Remarks	: Inhalation, Dermal	
Frequency of use	: <= 240 days/year	
Human factors not influenced by risk management		
Breathing volume	: 10 m3/day	
Other operational conditions affecti	ing workers exposure	
Outdoor / Indoor	: Indoor	
Technical conditions and measures		
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Assumes a good basic standard of occupational hygiene is implemented.

2.23 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity	: Roller, spreader, flow application
Product characteristics	
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
in Mixture/Article	
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Frequency and duration of use	
Exposure duration Remarks	: < 480 min : Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Disaling veranis	
Other operational conditions affecti	ng workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures	
Assumes a good basic standard o	f occupational hygiene is implemented.
	personal protection, hygiene and health evaluation
	374. (Effectiveness (of a measure): 80 %)
Wear suitable gloves tested to EN	
Wear suitable gloves tested to EN	374. (Effectiveness (of a measure): 80 %)
Wear suitable gloves tested to EN 2.24 Contributing scenario contr	374. (Effectiveness (of a measure): 80 %)
Wear suitable gloves tested to EN 2.24 Contributing scenario contr	374. (Effectiveness (of a measure): 80 %)
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying	374. (Effectiveness (of a measure): 80 %) colling worker exposure for: PROC11: Non industrial
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity	374. (Effectiveness (of a measure): 80 %) colling worker exposure for: PROC11: Non industrial
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity Product characteristics	374. (Effectiveness (of a measure): 80 %) colling worker exposure for: PROC11: Non industrial : Spraying, Manual
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity Product characteristics Concentration of the Substance	374. (Effectiveness (of a measure): 80 %) colling worker exposure for: PROC11: Non industrial : Spraying, Manual
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 374. (Effectiveness (of a measure): 80 %) colling worker exposure for: PROC11: Non industrial Spraying, Manual Covers percentage substance in the product up to 0.5%.
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use	 374. (Effectiveness (of a measure): 80 %) colling worker exposure for: PROC11: Non industrial Spraying, Manual Covers percentage substance in the product up to 0.5%.
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 374. (Effectiveness (of a measure): 80 %) colling worker exposure for: PROC11: Non industrial Spraying, Manual Covers percentage substance in the product up to 0.5%. liquid < 480 min
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks	 374. (Effectiveness (of a measure): 80 %) colling worker exposure for: PROC11: Non industrial Spraying, Manual Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration	 374. (Effectiveness (of a measure): 80 %) colling worker exposure for: PROC11: Non industrial Spraying, Manual Covers percentage substance in the product up to 0.5%. liquid < 480 min
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 374. (Effectiveness (of a measure): 80 %) colling worker exposure for: PROC11: Non industrial Spraying, Manual Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris	 374. (Effectiveness (of a measure): 80 %) colling worker exposure for: PROC11: Non industrial Spraying, Manual Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use	 374. (Effectiveness (of a measure): 80 %) colling worker exposure for: PROC11: Non industrial Spraying, Manual Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rise Breathing volume	 374. (Effectiveness (of a measure): 80 %) colling worker exposure for: PROC11: Non industrial Spraying, Manual Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year sk management 10 m3/day
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rise Breathing volume Other operational conditions affecti	 374. (Effectiveness (of a measure): 80 %) colling worker exposure for: PROC11: Non industrial Spraying, Manual Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year sk management 10 m3/day ng workers exposure
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rise Breathing volume	 374. (Effectiveness (of a measure): 80 %) colling worker exposure for: PROC11: Non industrial Spraying, Manual Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year sk management 10 m3/day
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by ris Breathing volume Other operational conditions affection Outdoor / Indoor	 374. (Effectiveness (of a measure): 80 %) olling worker exposure for: PROC11: Non industrial Spraying, Manual Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year sk management 10 m3/day ng workers exposure Indoor
Wear suitable gloves tested to EN 2.24 Contributing scenario contr spraying Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use) Frequency and duration of use Exposure duration Remarks Frequency of use Human factors not influenced by rist Breathing volume Other operational conditions affection Outdoor / Indoor Technical conditions and measures	 374. (Effectiveness (of a measure): 80 %) olling worker exposure for: PROC11: Non industrial Spraying, Manual Covers percentage substance in the product up to 0.5%. liquid < 480 min Inhalation, Dermal <= 240 days/year sk management 10 m3/day ng workers exposure Indoor

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Conditions and measures related to personal protection, hygiene and health evaluation Wear suitable gloves tested to EN374. (Effectiveness (of a measure): 80 %) Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 90 %)

2.25 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Activity	: Treatment by dipping and pouring, Production of articles by dipping and pouring	
Product characteristics		
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 0.5%.	
Physical Form (at time of use)	: liquid	
Frequency and duration of use		
Exposure duration	: < 480 min	
Remarks	: Inhalation, Dermal	
Frequency of use	: <= 240 days/year	
Human factors not influenced by risk management		
Breathing volume	: 10 m3/day	
Other operational conditions affecting workers exposure		
Outdoor / Indoor	: Indoor	
Technical conditions and measures Assumes a good basic standard of occupational hygiene is implemented.		

2.26 Contributing scenario controlling worker exposure for: PROC19: Hand-mixing with intimate contact and only PPE available

Activity	: Mixing operations (open systems), Preparation of material for application
Product characteristics	
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affecti	ng workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures Assumes a good basic standard o	f occupational hygiene is implemented.

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Conditions and measures related to personal protection, hygiene and health evaluation Wear suitable gloves tested to EN374. (Effectiveness (of a measure): 80 %) Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 90 %)

2.27 Contributing scenario controlling worker exposure for: PROC21: Low energy manipulation of substances bound in materials and/ or articles

Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	: Covers percentage substance in the product up to 0.5%.
Filysical Form (at time of use)	. Soliu
Frequency and duration of use	
Remarks	: Inhalation, Dermal
Human factors not influenced by ris Breathing volume	k management : 10 m3/day
Other operational conditions affecti	ng workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures Assumes a good basic standard o	f occupational hygiene is implemented.

2.28 Contributing scenario controlling worker exposure for: PROC24: High (mechanical) energy work-up of substances bound in materials and/ or articles

Activity	: Operation and lubrication of high energy open equipment
Product characteristics Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.
in Mixture/Article	. Covers percentage substance in the product up to 0.5 %.
Physical Form (at time of use)	: solid
Frequency and duration of use	
Remarks	: Inhalation, Dermal
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affecti	ng workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures	
Assumes a good basic standard o	f occupational hygiene is implemented.

3. Exposure estimation and reference to its source

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Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartme nt	Value	Level of Exposure	RCR
ERC8a	EUSES		Fresh water		0.0004 mg/L	0.065
			Fresh water sediment		0.222 mg/kg dry weight	0.065
			Marine water		< 0.0001 mg/L	0.069
			Marine sediment		0.024 mg/kg dry weight	0.069
			Sewage treatment plant		0.0032 mg/L	0.0003
			Soil		0.077 mg/kg dry weight	0.113
			Grassland		0.077 mg/kg dry weight	0.113

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC5	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.366 mg/m3	0.3656
			Long term dermal	0.069 mg/kg bw/day	0.1203
			Short term inhalation	0.731 mg/m3	0.0001
PROC8a	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.069 mg/kg bw/day	0.1203
			Short term inhalation	0.914 mg/m3	0.0002
PROC8b	ECETOC TRA	Covers the percentage of the substance in the product up to 25 %.	Long term inhalation	0.595 mg/m3	0.595
			Long term dermal	0.0068 mg/kg bw/day	0.012
PROC5	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.357 mg/m3	0.357
			Long term dermal	0.0082 mg/kg bw/day	0.014
			Short term inhalation	0.914 mg/m3	0.0002
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457

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			Long term dermal	0.0411 mg/kg bw/day	0.0722
			Short term inhalation	0.914 mg/m3	0.0002
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.357 mg/m3	0.357
			Long term dermal	0.004 mg/kg bw/day	0.007
PROC10	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.082 mg/kg bw/day	0.1444
			Short term inhalation	0.914 mg/m3	0.0002
PROC11	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.121 mg/kg bw/day	0.1219
			Long term dermal	0.214 mg/m3	0.3759
			Short term inhalation	0.243 mg/m3	< 0.000
PROC13	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.548 mg/kg bw/day	0.5484
			Long term dermal	0.0411 mg/m3	0.0722
			Short term inhalation	1.097 mg/m3	0.0002
PROC5	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.6093
			Long term dermal	0.05 mg/kg bw/day	0.0962
			Short term inhalation	1.22 mg/m3	0.0002
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.305 mg/m3	0.305
			Long term dermal	0.0548 mg/kg bw/day	0.0962
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.119 mg/m3	0.119
			Long term dermal	0.014 mg/kg bw/day	0.024
PROC10	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.304 mg/m3	0.304
			Long term dermal	0.109 mg/kg bw/day	0.192
			Short term inhalation	0.609 mg/m3	< 0.000
PROC11	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.146 mg/kg bw/day	0.146
			Long term dermal	0.214 mg/m3	0.375
			Short term inhalation	0.243 mg/m3	< 0.000

PROC13	ECETOC TRA	Covers percentage substance	Long term	0.238 mg/m3	0.238
		in the product up to 2%.	inhalation Long term	0.011 mg/kg	0.019
			dermal	bw/day	
PROC19	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.304 mg/m3	0.304
			Long term dermal	0.056 mg/kg bw/day	0.099
PROC21	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.06 mg/m3	0.06
			Long term dermal	0.0566 mg/kg bw/day	0.099
			Short term inhalation	0.12 mg/m3	< 0.00
PROC24	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.06 mg/m3	0.06
			Long term dermal	0.0566 mg/kg bw/day	0.099
			Short term inhalation	0.12 mg/m3	< 0.00
PROC5	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.297 mg/m3	0.12
			Long term dermal	0.068 mg/kg bw/day	0.12
PROC8a	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.76 mg/m3	0.76
			Long term dermal	0.013 mg/kg bw/day	0.024
PROC8b	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.297 mg/m3	0.297
			Long term dermal	0.034 mg/kg bw/day	0.06
PROC10	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.76 mg/m3	0.76
			Long term dermal	0.027 mg/kg bw/day	0.048
PROC11	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.3 mg/m3	0.304
			Long term dermal	0.11 mg/kg bw/day	0.188
			Short term inhalation	1.22 mg/m3	0.000
PROC13	ECETOC TRA	Covers percentage substance	Long term	0.297 mg/m3	0.297
		in the product up to 0.5%.	inhalation Long term	0.068 mg/kg	0.12
PROC19	ECETOC TRA	Covers percentage substance	dermal Long term	bw/day 0.076 mg/m3	0.076
		in the product up to 0.5%.	inhalation Long term	0.14 mg/kg	0.248
			dermal Short term inhalation	bw/day 1.52 mg/m3	< 0.000

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PROC21	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.02 mg/m3	0.015
			Long term dermal	0.0141 mg/kg bw/day	0.0248
			Short term inhalation	0.03 mg/m3	< 0.0001
PROC24	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.02 mg/m3	0.015
			Long term dermal	0.0141 mg/kg bw/day	0.0248
			Short term inhalation	0.03 mg/m3	< 0.0001

ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC19: Hand-mixing with intimate contact and only PPE available PROC21: Low energy manipulation of substances bound in materials and/ or articles PROC24: High (mechanical) energy work-up of substances bound in materials and/ or articles PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

PROC8a: Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users http://guidance.echa.europa.eu/downstream_users_en.htm

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1. Short title of Exposure Scenario: Epoxy, Polyurethane Curing Agent

Main User Groups	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental Release Categories	: ERC8b, ERC8c, ERC8e, ERC8f: Wide dispersive indoor use of reactive substances in open systems, Wide dispersive indoor use resulting in inclusion into or onto a
	matrix, Wide dispersive outdoor use of reactive substances in open systems, Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Process categories	: PROC10: Roller application or brushing PROC11: Non industrial spraying

2.1 Contributing scenario controlling environmental exposure for: ERC8b, ERC8c, ERC8e, ERC8f: Wide dispersive indoor use of reactive substances in open systems, Wide dispersive indoor use resulting in inclusion into or onto a matrix, Wide dispersive outdoor use of reactive substances in open systems, Wide dispersive outdoor use resulting in inclusion into or onto a matrix and the systems of reactive substances in open systems.

Amount used Regional use tonnage (tonnes/year): Fraction of Regional tonnage used locally: Maximum daily site tonnage (kg/day):	: 1160 ton(s)/year : 3.8 % : 200 kg/day
Environment factors not influenced Dilution Factor (River)	by risk management : 1,000
Dilution Factor (Coastal Areas)	: 1,000
Other given operational conditions a Number of emission days per year Emission or Release Factor: Air Emission or Release Factor: Water Emission or Release Factor: Soil Remarks	: 220 : 736 ppm : 0 %
Technical conditions and measures Exposure time Compartment	 / Organizational measures : Continuous use/release : Fresh water, Fresh water sediment, Marine water, Marine sediment, Soil, Grassland, Sewage treatment plant

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ve	rsion	

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2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity Product characteristics	: Roller, spreader, flow application
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 15%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: 15 - 60 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris	k management
Breathing volume	: 10 m3/day
Other operational conditions affecti	ng workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures Assumes a good basic standard o	f occupational hygiene is implemented.
Wear chemically resistant gloves (supervision controls. (Effectivenes	personal protection, hygiene and health evaluation (tested to EN374) in combination with intensive management ss (of a measure): 98 %) N140 with Type A filter or better. (Effectiveness (of a measure):

2.3 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying

Activity Product characteristics Concentration of the Substance in Mixture/Article Physical Form (at time of use)	 Spraying, Manual Covers percentage substance in the product up to 10%. liquid
Frequency and duration of use	
Exposure duration	: 15 - 60 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affecti Outdoor / Indoor	ng workers exposure : Indoor
Technical conditions and measures Provide extraction ventilation at p %)	oints where emissions occur. (Effectiveness (of a measure): 90

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Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. (Effectiveness (of a measure): 98 %) Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 95 %)

2.4 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity Product characteristics	: Roller, spreader, flow application
Concentration of the Substance	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affecti Outdoor / Indoor	ng workers exposure : Indoor
Wear chemically resistant gloves ((Effectiveness (of a measure): 80 9	personal protection, hygiene and health evaluation (tested to EN374) in combination with 'basic' employee training. %) N140 with Type A filter or better. (Effectiveness (of a measure):

2.5 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying

Activity Product characteristics	: Spraying, Manual
Concentration of the Substance	: Covers percentage substance in the product up to 2%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 240 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affecti	ng workers exposure
Outdoor / Indoor	: Indoor

|--|

Technical conditions and measures

Provide extraction ventilation at points where emissions occur. (Effectiveness (of a measure): 90 %)

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness (of a measure): 90 %)

Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 95 %)

2.6 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Activity	: Roller, spreader, flow application
Product characteristics	
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use)	: liquid
r hysical rollin (at time of use)	
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year
Human factors not influenced by ris	sk management
Breathing volume	: 10 m3/day
Other operational conditions affect	ing workers exposure
Outdoor / Indoor	: Indoor
Technical conditions and measures Assumes a good basic standard o	s of occupational hygiene is implemented.
5	
	o personal protection, hygiene and health evaluation (tested to EN374) in combination with 'basic' employee training. %)
2.7 Contributing scenario contro spraying	olling worker exposure for: PROC11: Non industrial
	• • • •
Activity	: Spraying, Manual
Product characteristics	· Covere percentage substance in the product we to 0.5%
Concentration of the Substance	: Covers percentage substance in the product up to 0.5%.

Product characteristics	
Concentration of the Substance in Mixture/Article	: Covers percentage substance in the product up to 0.5%.
Physical Form (at time of use)	: liquid
Frequency and duration of use	
Exposure duration	: < 480 min
Remarks	: Inhalation, Dermal
Frequency of use	: <= 240 days/year

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Human factors not influenced by risk management Breathing volume : 10 m3/day

Other operational conditions affecting workers exposure Outdoor / Indoor : Indoor

Conditions and measures related to personal protection, hygiene and health evaluation Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

Wear a respirator conforming to EN140 with Type A filter or better. (Effectiveness (of a measure): 95 %)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartme nt	Value	Level of Exposure	RCR
ERC8b	EUSES		Fresh water		0.0004 mg/L	0.064
			Fresh water		0.221 mg/kg	0.064
			sediment		dry weight	
			Marine		< 0.0001	0.064
			water		mg/L	
			Marine		0.022 mg/kg	0.064
			sediment		dry weight	
			Sewage		0 mg/L	0
			treatment			
			plant			
			Soil		0.077 mg/kg	0.113
					dry weight	
			Grassland		0.077 mg/kg	0.113
					dry weight	

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC10	ECETOC TRA	Covers percentage substance in the product up to 15%.	Long term inhalation	0.457 mg/m3	0.457
			Long term dermal	0.082 mg/kg bw/day	0.1444
			Short term inhalation	0.914 mg/m3	0.0002
PROC11	ECETOC TRA	Covers percentage substance in the product up to 10%.	Long term inhalation	0.121 mg/kg bw/day	0.1219
			Long term dermal	0.214 mg/m3	0.3759
			Short term inhalation	0.243 mg/m3	< 0.0001

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PROC10	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.61 mg/m3	0.6093
			Long term dermal	0.109 mg/kg bw/day	0.194
			Short term inhalation	1.22 mg/m3	0.0002
PROC11	ECETOC TRA	Covers percentage substance in the product up to 2%.	Long term inhalation	0.1218 mg/kg bw/day	0.1219
			Long term dermal	0.21 mg/m3	0.3759
			Short term inhalation	0.24 mg/m3	0.01
PROC10	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.76 mg/m3	0.76
			Long term dermal	0.027 mg/kg bw/day	0.048
			Short term inhalation	1.52 mg/m3	0.002
PROC11	ECETOC TRA	Covers percentage substance in the product up to 0.5%.	Long term inhalation	0.3 mg/m3	0.3046
		· ·	Long term dermal	0.11 mg/kg bw/day	0.188
			Short term inhalation	0.6 mg/m3	0.005

ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8e: Wide dispersive outdoor use of reactive substances in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix PROC10: Roller application or brushing PROC11: Non industrial spraying

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users http://guidance.echa.europa.eu/downstream_users_en.htm

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1. Short title o	of Exposure Scenario	: Consumer use	
Main User G	roups	: SU 21: Consumer uses: Private households	(= general

	public = consumers)
Environmental Release Categories	: ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f: Wide dispersive indoor use of processing aids in open systems, Wide dispersive indoor use of reactive substances in open systems, Wide dispersive indoor use resulting in inclusion into or onto a matrix, Wide
	dispersive outdoor use of processing aids in open systems, Wide dispersive outdoor use of reactive substances in open systems, Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Chemical product category	: PC1: Adhesives, sealants PC9b: Fillers, putties, plasters, modelling clay

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f: Wide dispersive indoor use of processing aids in open systems, Wide dispersive indoor use of reactive substances in open systems, Wide dispersive indoor use resulting in inclusion into or onto a matrix, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive outdoor use of reactive substances in open systems, wide dispersive outdoor use of processing aids in open systems, Wide dispersive outdoor use of reactive substances in open systems, Wide dispersive outdoor use of reactive substances in open systems, Wide dispersive outdoor use of reactive substances in open systems, Wide dispersive outdoor use resulting in inclusion into or onto a matrix

Amount used Maximum daily site tonnage : 2.55 kg/day (kg/day):

Environment factors not influenced by risk management Dilution Factor (River) : 1,000 Dilution Factor (Coastal Areas) : 1,000

Other given operational conditions affecting environmental exposure

i
)
%
ERC: CEPE 8f.1.v1
waste water is released to the environment

2.2 Contributing scenario controlling consumer exposure for: PC1: Adhesives, sealants

Activity	: Mixing and loading
Product characteristics Concentration of the Substance	: Covers the percentage of the substance in the product up

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in Mixture/Artic			25 %.	
Physical Form	(at time of use)	: liqu	Jid	
Amount used				
Amount used p	ner event	: 20	aram	
Remarks			alation	
Amount used			5 gram	
Remarks		: De		
Frequency and d	uration of use			
Application du		: 5 n	nin	
Exposure dura		: 5 n	nin	
Frequency of u		: 3 d	ays/year	
Remarks		: Inh	alation, Dermal	
Human factors no Dermal exposu	ot influenced by ris Ire	k mana : 2 c		
Other given oper	ational conditions	affectir	ig consumers exposure	
Outdoor / Indo	or	: Ind	oor, Outdoor	
Room size		: 1 n	13	
Ventilation rate	e per hour	: 0.6		
Conditions and m protection and hy	/giene)	-		
	/giene)	-	oid using at a product concentration	
protection and hy Consumer Mea	/giene) Isures	: Av		greater than 25%
protection and hy Consumer Mea 2.3 Contributing	/giene) Isures	: Av	oid using at a product concentration onsumer exposure for: PC1: Adhe	greater than 25%
protection and hy Consumer Mea 2.3 Contributing Activity	/giene) Isures g scenario contro	: Av	oid using at a product concentration	greater than 25%
protection and hy Consumer Mea 2.3 Contributing Activity Product characte	/giene) Isures g scenario contro	: Av	oid using at a product concentration onsumer exposure for: PC1: Adhe	greater than 25% esives, sealants
protection and hy Consumer Mea 2.3 Contributing Activity Product characte	ygiene) Isures g scenario contro ristics of the Substance	: Av Iling c : Ap : Co	oid using at a product concentration onsumer exposure for: PC1: Adhe plication	greater than 25% esives, sealants
protection and hy Consumer Mea 2.3 Contributing Activity Product characte Concentration in Mixture/Artic	ygiene) Isures g scenario contro ristics of the Substance	: Av Iling c : Ap : Co	oid using at a product concentration onsumer exposure for: PC1: Adhe plication vers the percentage of the substance 5%.	greater than 25% esives, sealants
protection and hy Consumer Mea 2.3 Contributing Activity Product characte Concentration in Mixture/Artio Physical Form Amount used	ygiene) Isures g scenario contro ristics of the Substance cle (at time of use)	Iling c Iling c : Ap : Co to : liqu	oid using at a product concentration onsumer exposure for: PC1: Adhe plication vers the percentage of the substance 5%. uid	greater than 25% esives, sealants
protection and hy Consumer Mea 2.3 Contributing Activity Product characte Concentration in Mixture/Artic Physical Form Amount used Amount used	ygiene) Isures g scenario contro ristics of the Substance cle (at time of use)	Iling c Iling c : Ap : Co to : liqu : 20	oid using at a product concentration onsumer exposure for: PC1: Adhe plication vers the percentage of the substance 5%. uid	greater than 25% esives, sealants
protection and hy Consumer Mea 2.3 Contributing Activity Product characte Concentration in Mixture/Artic Physical Form Amount used Amount used Remarks	ygiene) Isures g scenario contro ristics of the Substance cle (at time of use)	: Av : Av : Ap : Co to : liqu : 20 : Inh	oid using at a product concentration onsumer exposure for: PC1: Adhe plication vers the percentage of the substance 5%. uid gram alation	greater than 25% esives, sealants
protection and hy Consumer Mea 2.3 Contributing Activity Product characte Concentration in Mixture/Artic Physical Form Amount used Amount used	ygiene) Isures g scenario contro ristics of the Substance cle (at time of use)	: Av : Av : Ap : Co to : liqu : 20 : Inh	oid using at a product concentration onsumer exposure for: PC1: Adhe plication vers the percentage of the substance 5%. uid gram alation gram	greater than 25% esives, sealants
protection and hy Consumer Mea 2.3 Contributing Activity Product characte Concentration in Mixture/Artic Physical Form Amount used Amount used Remarks Amount used Remarks	ygiene) Isures g scenario contro ristics of the Substance cle (at time of use) per event	: Ava : Ava : Ap : Co to : : liqu : 20 : Inh : 0.1	oid using at a product concentration onsumer exposure for: PC1: Adhe plication vers the percentage of the substance 5%. uid gram alation gram	greater than 25% esives, sealants
protection and hy Consumer Mea 2.3 Contributing Activity Product characte Concentration in Mixture/Artic Physical Form Amount used Amount used Remarks Amount used Remarks	ygiene) Isures g scenario contro ristics of the Substance cle (at time of use) per event	: Av : Av : Ap : Co to 3 : liqu : 20 : Inh : 0.1 : De	oid using at a product concentration onsumer exposure for: PC1: Adhe plication vers the percentage of the substance 5%. uid gram alation gram rmal	greater than 25% esives, sealants
protection and hy Consumer Mea 2.3 Contributing Activity Product characte Concentration in Mixture/Artic Physical Form Amount used Amount used p Remarks Amount used Remarks Frequency and du	ygiene) Isures g scenario contro ristics of the Substance cle (at time of use) per event uration of use ration	: Av : Av : Ap : Co to 4 : liqu : 20 : Inh : 0.1 : De : 30	oid using at a product concentration onsumer exposure for: PC1: Adhe plication vers the percentage of the substance 5%. uid gram alation gram rmal	greater than 25% esives, sealants
protection and hy Consumer Mea 2.3 Contributing Activity Product characte Concentration in Mixture/Artic Physical Form Amount used Amount used Remarks Amount used Remarks Frequency and du Application du	ygiene) Isures g scenario contro ristics of the Substance cle (at time of use) per event uration of use ration tion	: Av : Av : Ap : Co to 4 : liqu : 20 : Inh : 0.1 : De : 30 : 90	oid using at a product concentration onsumer exposure for: PC1: Adhe plication vers the percentage of the substance 5%. uid gram alation gram rmal	greater than 25% esives, sealants
protection and hy Consumer Mea 2.3 Contributing Activity Product characte Concentration in Mixture/Artic Physical Form Amount used Amount used Remarks Amount used Remarks Frequency and du	ygiene) Isures g scenario contro ristics of the Substance cle (at time of use) per event uration of use ration tion	: Av : Av : Ap : Co to : : liqu : 20 : Inh : 0.1 : De : 30 : 30 : 3 d	oid using at a product concentration onsumer exposure for: PC1: Adhe plication vers the percentage of the substance 5%. uid gram alation gram rmal	greater than 25% esives, sealants
protection and hy Consumer Mea 2.3 Contributing Activity Product characte Concentration in Mixture/Artic Physical Form Amount used Amount used Remarks Amount used Remarks Frequency and du Application du Exposure dura Frequency of u Remarks	ygiene) Isures g scenario contro pristics of the Substance cle (at time of use) oer event uration of use ration tion Ise	: Av : Av : Ap : Co : Co : Iqu : 20 : Inh : 0.1 : De : 30 : 30 : 3 d : Inh	oid using at a product concentration onsumer exposure for: PC1: Adhe plication vers the percentage of the substance 5%. uid gram alation gram rmal min min ays/year alation, Dermal	greater than 25% esives, sealants
protection and hy Consumer Mea 2.3 Contributing Activity Product characte Concentration in Mixture/Artic Physical Form Amount used Amount used Remarks Amount used Remarks Frequency and du Application du Exposure dura Frequency of u Remarks	ygiene) Isures g scenario contro pristics of the Substance cle (at time of use) oer event uration of use ration tion use	: Av : Av : Ap : Co : Co : Iqu : 20 : Inh : 0.1 : De : 30 : 30 : 3 d : Inh	oid using at a product concentration onsumer exposure for: PC1: Adhe plication vers the percentage of the substance 5%. uid gram alation gram rmal min ays/year alation, Dermal agement	greater than 25% esives, sealants
protection and hy Consumer Mea 2.3 Contributing Activity Product characte Concentration in Mixture/Artic Physical Form Amount used Amount used Remarks Amount used p Remarks Amount used Remarks Frequency and du Application du Exposure dura Frequency of u Remarks Human factors no Dermal exposu	ygiene) Isures g scenario contro ristics of the Substance cle (at time of use) oer event uration of use ration tion use ot influenced by ris	: Av : Av : Ap : Co : Co : Co : Inq : 20 : Inh : 0.1 : De : 30 : 3 d : Inh k mana : 43	oid using at a product concentration onsumer exposure for: PC1: Adhe plication vers the percentage of the substance 5%. uid gram alation gram rmal min ays/year alation, Dermal agement cm2	greater than 25% esives, sealants
protection and hy Consumer Mea 2.3 Contributing Activity Product characte Concentration in Mixture/Artic Physical Form Amount used Amount used Remarks Amount used p Remarks Amount used Remarks Frequency and du Application du Exposure dura Frequency of u Remarks Human factors no Dermal exposu	ygiene) Isures g scenario contro ristics of the Substance cle (at time of use) oer event uration of use ration tion use ot influenced by risure ational conditions	: Av : Av : Ap : Co : Co : Co : Iqu : 20 : Inh : 0.1 : De : 30 : 3 d : 1nh : 43 affectir	oid using at a product concentration onsumer exposure for: PC1: Adhe plication vers the percentage of the substance 5%. uid gram alation gram rmal min ays/year alation, Dermal agement	greater than 25% esives, sealants

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Ventilation rate per hour	: 0.6		
	o protec	tion of consumer (e.g. behavioural ad	lvice, personal
protection and hygiene) Consumer Measures	: Avo	id using at a product concentration o	areater than 5%
2.4 Contributing scenario contro plasters, modelling clay	olling co	onsumer exposure for: PC9b: Fille	ers, putties,
Activity	: Mix	ing and loading	
Product characteristics	•		
Concentration of the Substance		vers the percentage of the substance	in the product up
in Mixture/Article Physical Form (at time of use)	to 2 : liqu	5 %.	
Filysical Form (at time of use)	. iiqu	ld	
Amount used			
Amount used per event	: 200	gram	
Remarks		alation	
Amount used	: 0.02	2 gram	
Remarks	: Der	mal	
Frequency and duration of use			
Application duration	: 5 m	in	
Exposure duration	: 5 m		
Frequency of use		ays/year	
Remarks		alation, Dermal	
Human factors not influenced by ris	sk mana	gement	
Dermal exposure	: 2 ci		
	-		
Other given operational conditions			
Outdoor / Indoor		oor, Outdoor	
Room size	: 1 m	3	
Ventilation rate per hour	: 0.6		
	o protec	tion of consumer (e.g. behavioural ad	lvice, personal
protection and hygiene)			
Consumer Measures	: Avo	bid using at a product concentration g	greater than 25%
2.5 Contributing scenario controplasters, modelling clay	olling co	onsumer exposure for: PC9b: Fille	rs, putties,
Activity	: Apr	blication	
Product characteristics	· ~P}		
Concentration of the Substance	; Cov	vers the percentage of the substance	in the product up
in Mixture/Article	to 5		
Physical Form (at time of use)	: liqu		

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Remarks Amount used Remarks	:	Inhalation 1 gram Dermal		
Frequency and du	ration of use			
Application dur	ation :	30 min		
Exposure durat	ion :	90 min		
Frequency of us	se :	2 days/yea	r	
Remarks	:	Inhalation,	Dermal	
Human factors no	t influenced by risk m	anagemen	t	
Dermal exposu	•	22 cm2		
Other given opera	tional conditions affe	cting consi	umers exposure	
Outdoor / Indoo		Indoor, Ou	•	
Room size	:	20 m3		
Ventilation rate	per hour :	0.6		

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures

: Avoid using at a product concentration greater than 5%

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartme nt	Value	Level of Exposure	RCR
ERC8a	EUSES		Fresh water		0.0004 mg/L	0.065
			Fresh water		0.222 mg/kg	0.065
			sediment		dry weight	
			Marine water		< 0.0001 mg/L	0.069
			Marine sediment		0.024 mg/kg dry weight	0.069
			Sewage treatment plant		0.0032 mg/L	0.0003
			Soil		0.077 mg/kg dry weight	0.113
			Grassland		0.077 mg/kg dry weight	0.113

Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PC1	"Consexpo"	Mixing and loading	Long term inhalation	0.039 mg/m3	0.17

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			Long term dermal	0.0002 mg/kg bw/day	< 0.001
			Short term inhalation	11.2 mg/m3	0.11
PC1	"Consexpo"	Application	Long term inhalation	0.188 mg/kg bw/day	0.82
			Long term dermal	0.0001 mg/m3	< 0.001
			Short term inhalation	3 mg/m3	0.03
PC9b	"Consexpo"	Mixing and loading	Long term inhalation	0.04 mg/m3	0.17
			Long term dermal	< 0.0001 mg/kg bw/day	< 0.001
			Short term inhalation	11.5 mg/m3	0.11
PC9b	"Consexpo"	Application	Long term inhalation	0.191 mg/kg bw/day	0.83
			Long term dermal	0.0001 mg/m3	< 0.001
			Short term inhalation	3.1 mg/m3	0.03

ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix PC8t: Wide dispersive outdoor use resulting in inclusion into or onto a matrix PC1: Adhesives, sealants

PC9b: Fillers, putties, plasters, modelling clay

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users http://guidance.echa.europa.eu/downstream_users_en.htm