

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006**MALIC ACID / BAG 25 KG FD/R**

Version 5.0

Print Date 07.11.2023

Revision date / valid from 22.11.2022

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Trade name : MALIC ACID / BAG 25 KG FD/R
Substance name : DL-malic acid
CAS-No. : 617-48-1
EC-No. : 210-514-9
EU REACH-Reg. No. : 01-2119552463-40-xxxx

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

Use of the Substance/Mixture : Identified use: See table in front of appendix for a complete overview of identified uses.
Uses advised against : At this moment we have not identified any uses advised against

1.3. Details of the supplier of the safety data sheet

Company : Brenntag Nordic A/S
Borupvang 5 B
DK 2750 Ballerup
Telephone : +45 43 29 28 00
Telefax : +45 43 29 27 00
E-mail address : dk-sds@brenntag.com
Responsible/issuing person : Environment & Quality

1.4. Emergency telephone number

Emergency telephone number : In case of personal injury call:
Denmark: +45 82 12 12 12 Giftlinien, Bispebjerg Hospital
Finland: +358 9 471 977 Finnish Poison Information Center (24 h/day)
Norway: +47 22 59 13 00 Giftinformasjonen (døgnet rundt)
Sweden: +46-8-33 70 43 Giftinformationscentralen (24 hour service)
Outside these countries: Please call your local emergency services

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture**

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Classification according to Regulation (EC) No 1272/2008

REGULATION (EC) No 1272/2008			
Hazard class	Hazard category	Target Organs	Hazard statements
Eye irritation	Category 2	---	H319

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

Most important adverse effects

Human Health	:	Prolonged skin contact may cause skin irritation. Causes serious eye irritation. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
Physical and chemical hazards	:	Stable under normal conditions.
Potential environmental effects	:	Harmful effects to aquatic organisms also due to pH-shift.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard symbols	:	
Signal word	:	Warning
Hazard statements	:	H319 Causes serious eye irritation.
Precautionary statements	:	
Prevention	:	P264 Wash skin thoroughly after handling. P280 Wear protective gloves/ eye protection/ face protection.
Response	:	P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 If eye irritation persists: Get medical advice/ attention.

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2.3. Other hazards

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.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1. Substances

		Classification (REGULATION (EC) No 1272/2008)	
Hazardous components	Amount [%]	Hazard class / Hazard category	Hazard statements
DL-malic acid			
CAS-No. : 617-48-1	> 99,5	Eye Irrit.2	H319
EC-No. : 210-514-9			
EU REACH- : 01-2119552463-40-xxxx			
Reg. No.			

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

SECTION 4: First aid measures

4.1. Description of first aid measures

If inhaled	: Move to fresh air. If unconscious place in recovery position. Consult a physician.
In case of skin contact	: Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician.
In case of eye contact	: Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 5 minutes. Consult a physician.
If swallowed	: Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. If symptoms persist, call a physician.

4.2. Most important symptoms and effects, both acute and delayed

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

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

4.3. Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures**5.1. Extinguishing media**

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media : Water jet.

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting : Fire may cause evolution of: Carbon monoxide, Carbon dioxide (CO₂)

5.3. Advice for firefighters

Special protective equipment for firefighters : Choose protective equipment according to size of fire. Wear self-contained breathing apparatus and full protective suit when necessary.

Further advice : Cool closed containers exposed to fire with water spray.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Personal precautions : Ensure adequate ventilation. Avoid dust formation. For personal protection see section 8.

6.2. Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.

6.3. Methods and materials for containment and cleaning up

Methods and materials for containment and cleaning up : Use mechanical handling equipment. Shovel into suitable container for disposal. Flush away residuals with plenty of water.

6.4. Reference to other sections

See Section 1 for emergency contact information.

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See Section 8 for information on personal protective equipment.
See Section 13 for waste treatment information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Provide for good ventilation. Avoid dusting. Use mechanical ventilation at dusting. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.
- Hygiene measures : Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday.

7.2. Conditions for safe storage, including any incompatibilities

- Further information on storage conditions : Keep in a dry place. Keep away from direct sunlight.
- Advice on common storage : Incompatible with: oxidizing agents alkalis Reducing agents
Alkali metals

7.3. Specific end use(s)

- Specific use(s) : Identified use: See table in front of appendix for a complete overview of identified uses.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Other Occupational Exposure Limit Values

- (Additional) Information : Contains no substances with occupational exposure limit values.

Component:	DL-malic acid	CAS-No. 617-48-1
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Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)

- DNEL
Workers, Long-term - systemic effects, Inhalation : 5,33 mg/m³
- DNEL
Workers, Long-term - local effects, Inhalation : 32 mg/m³
- DNEL
Workers, Acute - systemic effects, Inhalation : 104 mg/m³

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DNEL		
Workers, Acute - local effects, Inhalation	:	104 mg/m3
DNEL		
Workers, Long-term - systemic effects, Skin contact	:	2 mg/kg bw/day
DNEL		
Workers, Long-term - local effects, Skin contact	:	1 mg/cm2
DNEL		
Workers, Acute - systemic effects, Skin contact	:	40 mg/kg bw/day
DNEL		
Workers, Acute - local effects, Skin contact	:	1 mg/cm2
DNEL		
Consumers, Long-term - systemic effects, Inhalation	:	1,6 mg/m3
DNEL		
Consumers, Long-term - local effects, Inhalation	:	1,6 mg/m3
DNEL		
Consumers, Acute - systemic effects, Inhalation	:	52 mg/m3
DNEL		
Consumers, Acute - local effects, Inhalation	:	52 mg/m3
DNEL		
Consumers, Long-term - systemic effects, Skin contact	:	6 mg/kg bw/day
DNEL		
Consumers, Long-term - local effects, Skin contact	:	0,5 mg/cm2
DNEL		
Consumers, Acute - systemic effects, Skin contact	:	20 mg/kg bw/day
DNEL		
Consumers, Acute - local effects, Skin contact	:	0,4 mg/cm2
DNEL		
Consumers, Long-term - systemic effects, Ingestion	:	6 mg/kg bw/day
DNEL		
Consumers, Acute - systemic effects, Ingestion	:	20 mg/kg bw/day

Predicted No Effect Concentration (PNEC)

Fresh water	:	0,1 mg/l
Marine water	:	0,01 mg/l

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Freshwater intermittent releases : 1 mg/l

Sewage treatment plant (STP) : 3 mg/l

8.2. Exposure controls**Appropriate engineering controls**

Refer to protective measures listed in sections 7 and 8.

Personal protective equipment*Respiratory protection*

Advice : Required if dust is released
Particle filter:P2

Hand protection

Advice : Protective gloves complying with EN 374.
The glove material has to be impermeable and resistant to the product / the substance / the preparation.
Protective gloves should be replaced at first signs of wear.

Eye protection

Advice : Goggles giving complete protection to the eyes

Skin and body protection

Advice : Wear suitable protective clothing.

Environmental exposure controls

General advice : Do not flush into surface water or sanitary sewer system.

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties**

Form : solid

Physical state : solid

Colour : white

Odour : odourless

Odour Threshold : No data available

: 129 °C

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Boiling point/boiling range	: 150 °C
Flammability	: No data available
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available
Flash point	: 203 °C
Auto-ignition temperature	: 349 °C
Decomposition temperature	: No data available
Self-Accelerating decomposition temperature (SADT)	: No data available
pH	: ca. 2,3 Concentration: 10 g/l
Viscosity	
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Flow time	: No data available
Solubility(ies)	
Water solubility	: 558 g/l (20 °C)
Solubility in other solvents	: No data available
Dissolution Rate	: No data available
Partition coefficient: n-octanol/water	: log Pow: -1,26
Dispersion Stability	: No data available
Vapour pressure	: No data available
Relative density	: No data available
Density	: 1,6 g/cm ³ (20 °C)
Bulk density	: 740 - 750 kg/m ³
Relative vapour density	: No data available
Particle characteristics	
No data available	

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9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Advice : No information available.

10.2. Chemical stability

Advice : No decomposition if stored and applied as directed.
No further information available.

10.3. Possibility of hazardous reactions

Hazardous reactions : No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Conditions to avoid : Avoid dust formation.Keep away from heat and sources of ignition.Avoid moisture.

10.5. Incompatible materials

Materials to avoid : alkalis, Oxidizing agents, Alkali metals, Reducing agents

10.6. Hazardous decomposition products

Hazardous decomposition products : Fire may cause evolution of: Carbon dioxide (CO₂), Carbon monoxide

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Data for the product	
Acute toxicity	
Oral	
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.	
Inhalation	
Inhalation of high concentration may cause mechanical overstraining of mucous membranes.	
Irritation	
Skin	
Result	: Prolonged skin contact may cause skin irritation.

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Eyes

Result : Causes serious eye irritation.

Component: DL-malic acid CAS-No. 617-48-1

Sensitisation

Result : not sensitizing (Maximisation Test; Dermal; Guinea pig; Test substance: fumaric acid) (OECD Test Guideline 406) Read-across (Category)

CMR effects

CMR Properties

Carcinogenicity : No data available
 Mutagenicity : In vitro tests did not show mutagenic effects
 Reproductive toxicity : No data available

Specific Target Organ Toxicity

Single exposure

Remarks : The substance or mixture is not classified as specific target organ toxicant, single exposure.

Repeated exposure

Remarks : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Other toxic properties

Aspiration hazard

No aspiration toxicity classification,

11.2. Information on other hazards

Data for the product

Endocrine disrupting properties

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 12: Ecological information

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12.1. Toxicity

Component:	DL-malic acid	CAS-No. 617-48-1
Acute toxicity		

Fish

LC50 : > 100 mg/l (Danio rerio (zebra fish), mortality; 96 h; Test substance: fumaric acid) (semi-static test; Analytical monitoring: yes; OECD Test Guideline 203)Read-across (Category)
The details of the toxic effect relate to the nominal concentration

Toxicity to daphnia and other aquatic invertebrates

EC50 : > 100 mg/l (Daphnia magna (Water flea); 48 h; Test substance: fumaric acid) (semi-static test; Analytical monitoring: yes; OECD Test Guideline 202)Read-across (Category)

algae

EC50 : > 100 mg/l (Pseudokirchneriella subcapitata (green algae); 72 h; Test substance: fumaric acid) (static test; End point: Growth rate; Analytical monitoring: yes; OECD Test Guideline 201)Read-across (Category)

EC50 : > 100 mg/l (Pseudokirchneriella subcapitata (green algae); 72 h; Test substance: fumaric acid) (static test; End point: Biomass; Analytical monitoring: yes; OECD Test Guideline 201)Read-across (Category)
The details of the toxic effect relate to the nominal concentration

Bacteria

EC50 : > 300 mg/l (activated sludge; 3 h; Test substance: fumaric acid) (static test; End point: Respiration inhibition; OECD Test Guideline 209)Read-across (Category)
The details of the toxic effect relate to the nominal concentration

12.2. Persistence and degradability

Component:	DL-malic acid	CAS-No. 617-48-1
Persistence and degradability		

Biodegradability

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Result : 67,5 % (aerobic; activated sludge, domestic, non-adapted; Related to: CO₂ formation (% of the theoretical value).; Test substance: fumaric acid; Exposure Time: 28 d)(OECD Test Guideline 301B)Readily biodegradable.Read-across (Category)

12.3. Bioaccumulative potential

Component:	DL-malic acid	CAS-No. 617-48-1
Bioaccumulation		

Result : log K_{ow} < 1 (24 °C) (OECD Test Guideline 107)
: No bioaccumulative potential.

12.4. Mobility in soil

Component:	DL-malic acid	CAS-No. 617-48-1
Mobility		

Water : Good soluble in water.
Soil : Adsorption to solid soil phase is not expected.

12.5. Results of PBT and vPvB assessment

Data for the product
Results of PBT and vPvB assessment

Result : 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.

12.6. Endocrine disrupting properties

Data for the product
Endocrine disrupting potential : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7. Other adverse effects

Data for the product
Additional ecological information

Result : Do not flush into surface water or sanitary sewer system.

MALIC ACID / BAG 25 KG FD/R**SECTION 13: Disposal considerations****13.1. Waste treatment methods**

- Product : Eliminate waste in conditions authorized by the regulations. Store waste in containers provided for this purpose. Do not dump in drains, water sheets or the ground.
- Contaminated packaging : Dispose of as unused product.
- European Waste Catalogue Number : No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

SECTION 14: Transport information

Not dangerous goods for ADR, RID, IMDG and IATA.

14.1. UN number or ID number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packaging group

Not applicable.

14.5. Environmental hazards

Not applicable.

14.6. Special precautions for user

Not applicable.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

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Data for the product

Other regulations : Only persons, who are thoroughly instructed in the dangerous properties and the necessary safety precautions of the substance, are allowed to work with it.

Component:	DL-malic acid	CAS-No. 617-48-1
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EU. REACH, Annex XVII, : ; The substance/mixture does not fall under this legislation.
Marketing and Use
Restrictions (Regulation
1907/2006/EC)

EU. Directive : ; The substance/mixture does not fall under this legislation.
2012/18/EU (SEVESO
III) on major accident
hazards involving
dangerous substances,
Annex I

Component:	DL-malic acid	CAS-No. 617-48-1
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Notification status

DL-malic acid:

Regulatory List	Notification	Notification number
DSL	YES	
EINECS	YES	210-514-9
ENCS (JP)	YES	(2)-1442
IECSC	YES	
ISHL (JP)	YES	(2)-1442
JEX (JP)	YES	(2)-1442
KECI (KR)	YES	KE-22994
ONT INV	YES	
TCSI	YES	
TSCA RC	YES	6915-15-7
VN INVL	YES	

15.2. Chemical safety assessment

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

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H319 Causes serious eye irritation.

Abbreviations and Acronyms

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AU AIICL	Australia. Industrial Chemicals Act (AIIC) List
BCF	bioconcentration factor
BOD	biochemical oxygen demand
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	carcinogenic, mutagenic or toxic to reproduction
COD	chemical oxygen demand
DNEL	derived no-effect level
DSL	Canada. Environmental Protection Act, Domestic Substances List
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
ENCS (JP)	Japan. Kashin-Hou Law List
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
IECSC	China. Inventory of Existing Chemical Substances
INSQ	Mexico. National Inventory of Chemical Substances
ISHL (JP)	Japan. Inventory of Industrial Safety & Health
KECI (KR)	Korea. Existing Chemicals Inventory
LC50	median lethal concentration
LOAEC	lowest observed adverse effect concentration
LOAEL	lowest observed adverse effect level
LOEL	lowest observed effect level
NDSL	Canada. Environmental Protection Act. Non-Domestic Substances List
NLP	no-longer polymer
NOAEC	no observed adverse effect concentration
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
NZIOC	New Zealand. Inventory of Chemicals
OECD	Organisation for Economic Cooperation and Development
OEL	occupational exposure limit
ONT INV	Canada. Ontario Inventory List
PBT	persistent, bioaccumulative and toxic
PHARM (JP)	Japan. Pharmacopoeia Listing
PICCS (PH)	Philippines. Inventory of Chemicals and Chemical Substances
PNEC	predicted no-effect concentration
REACH Auth. No.:	REACH Authorisation Number
REACH AuthAppC. No.	REACH Authorisation Application Consultation Number
UK REACH Auth. No.:	UK REACH Authorisation Number
UK REACH AuthAppC.	UK REACH Authorisation Application Consultation Number

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No.	
UK REACH-Reg.No	UK REACH Registration Number
STOT	specific target organ toxicity
SVHC	substance of very high concern
TCSI	Taiwan. Existing Chemicals Inventory
TH INV	Thailand. Existing Chemicals Inventory from FDA
TSCA	US. Toxic Substances Control Act

Further information

Key literature references and sources for data	:	Supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.
Methods used for product classification	:	The classification for human health, physical and chemical hazards and environmental hazards were derived from a combination of calculation methods and if available test data.
Hints for trainings	:	The workers have to be trained regularly on the safe handling of the products based on the information provided in the Safety Data Sheet and the local conditions of the workplace. National regulations for the training of workers in the handling of hazardous materials must be adhered to.
Other information	:	The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship. The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

|| Indicates updated section.

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No.	Short title	REACH Auth. No.:/ REACH AuthAp pC. No.	Main User Group (SU)	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Environment al Release Category (ERC)	Article Category (AC)	Specified
1	Use as an intermediate	NA	3	NA	NA	1, 2, 3, 4, 8a, 8b, 15	6a	NA	ES1504 7
2	Formulation & (re)packing (liquid)	NA	3	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 15	2	NA	ES1504 5
3	Polymer production	NA	3	11, 12	NA	5, 8a, 8b, 14, 24	5	NA	ES1509 5
4	Use in resin pastes	NA	22	10, 11, 12, 19	NA	5, 8a, 10, 11	8c, 8f	NA	ES1509 7
5	Use in resin pastes	NA	21	NA	1, 32	NA	8c, 8f	NA	ES1510 0
6	Formulation of coatings and adhesives	NA	3	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 15	2	NA	ES1508 1
7	Use in coatings	NA	3	6b, 7, 16, 17	NA	2, 5, 7, 8a, 8b, 10, 13	5	NA	ES1508 3
8	Use in coatings	NA	22	15, 17, 19	NA	8a, 10, 11	8c, 8f	NA	ES1509 0
9	Use in coatings	NA	21	NA	9a, 14, 38	NA	8c, 8f	NA	ES1509 2
10	Formulation of cleaning agents	NA	3	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 15, 21	2	NA	ES1504 9
11	Use in cleaning agents	NA	3	10	NA	2, 4, 5, 8a, 8b, 14, 21	7	NA	ES1505 1
12	Use in cleaning agents	NA	22	NA	NA	5, 8a, 8b, 21	8a	NA	ES1505 4
13	Use in cleaning agents	NA	21	NA	2, 20, 35, 36, 37, 40	NA	8a	NA	ES1505 6
14	Use in laboratories	NA	22	5, 6b, 11, 12, 13, 17, 19, 24	NA	2, 4, 8a, 9, 15	8b, 8e	NA	ES1510 2
15	Formulation in building and construction work	NA	3	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 15	2	NA	ES1507 3
16	Use in metal surface treatment.	NA	3	NA	NA	2, 8a, 8b, 13	5	NA	ES1508 7
17	Formulation of cosmetic products	NA	3	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 15	2	NA	ES1506 5
18	Use in cosmetics	NA	21	NA	29, 39	NA	8b, 8e	NA	ES1506 7
19	Formulation of dyes for textile	NA	3	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 15	2	NA	ES1506 9
20	Use of dyes for textile	NA	3	5, 6b	NA	2, 5, 7,	6b	NA	ES1507

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						8a, 8b, 10, 13			1
21	Use in building and construction work	NA	3	19	NA	2, 3, 5, 6, 8a, 8b	7	NA	ES1507 5
22	Use in building and construction work	NA	22	19	NA	5, 8a, 14, 24	8c, 8f	NA	ES1507 7
23	Use in building and construction work	NA	21	NA	0	NA	8c, 8f	NA	ES1507 9

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1. Short title of Exposure Scenario 1: Use as an intermediate

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises 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 PROC15: Use as laboratory reagent
Environmental Release Categories	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

2.1 Contributing scenario controlling environmental exposure for: ERC6a

Amount used	Daily amount per site	< 0,45 ton(s)/day
	Annual amount per site	< 100 ton(s)/year
	Fraction of EU tonnage used in region:	1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	One hand, face side only. 240 cm ² (PROC1, PROC3, PROC15)
	Exposed skin area	Two hands face side only. 480 cm ² (PROC2, PROC4)
	Exposed skin area	Two hands 960 cm ² (PROC8a, PROC8b)
Other operational conditions affecting workers exposure	Indoor use	
	Process temperature < melting point	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC1, PROC2, PROC4, PROC15)	
	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC3, PROC8a, PROC8b)	
Conditions and measures related to personal protection, hygiene	Wear eye protection/ face protection.	
	Wear chemically resistant gloves. (Efficiency: 80 %)(PROC1, PROC2, PROC4,	

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and health evaluation	PROC15)
	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 90 %)(PROC3, PROC8a, PROC8b)

2.3 Contributing scenario controlling worker exposure for: PROC5, PROC8a, PROC8b, PROC9, PROC13, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 10%
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	Face and both hands and arms. 960 cm ²
Conditions and measures related to personal protection, hygiene and health evaluation	Wear personal protective equipment.	

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	exposure estimate	0,057mg/L	0,572
---	---	Marine water	exposure estimate	0,006mg/L	0,572
---	---	Sewage treatment plant (STP)	exposure estimate	0,57mg/L	0,19
---	---	Indirect exposure to humans via the environment	Inhalation	0,004mg/m ³	< 0,01
---	---	Indirect exposure to humans via the environment	Oral worker exposure	0,555mg/kg bw/day	0,046

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC15: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2	---	Worker - inhalative, long-term	0,01mg/m ³	< 0,01
PROC1, PROC2	---	Worker - inhalative, short-term	0,04mg/m ³	< 0,01
PROC1	---	Worker - dermal, long-term - systemic	0,007mg/kg bw/day	< 0,01
PROC1	---	Worker - dermal, long-term - local	0,002mg/cm ²	< 0,01
PROC2	---	Worker - dermal, long-term - systemic	0,274mg/kg bw/day	0,137
PROC2	---	Worker - dermal, long-term - local	0,04mg/cm ²	0,04
PROC3, PROC8b, PROC15	---	Worker - inhalative, long-term	0,1mg/m ³	0,019

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PROC3, PROC8b, PROC15	---	Worker - inhalative, short-term	0,4mg/m ³	< 0,01
PROC3	---	Worker - dermal, long- term - systemic	0,138mg/kg bw/day	0,069
PROC3	---	Worker - dermal, long- term - local	0,04mg/cm ²	0,04
PROC4, PROC8a	---	Worker - inhalative, long- term	0,5mg/m ³	0,094
PROC4, PROC8a	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC4, PROC8a, PROC8b	---	Worker - dermal, long- term - systemic	1,372mg/kg bw/day	0,686
PROC4, PROC5	---	Worker - dermal, long- term - local	0,2mg/cm ²	0,2
PROC8a, PROC8b	---	Worker - dermal, long- term - local	0,1mg/cm ²	0,1
PROC15	---	Worker - dermal, long- term - systemic	0,068mg/cm ²	0,034
PROC15	---	Worker - dermal, long- term - local	0,02mg/cm ²	0,02

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 2: Formulation & (re)packing (liquid)

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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
Environmental Release Categories	ERC2: Formulation of preparations

2.1 Contributing scenario controlling environmental exposure for: ERC2

Amount used	Daily amount per site	< 0,45 ton(s)/day
	Annual amount per site	< 100 ton(s)/year
	Fraction of EU tonnage used in region:	1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	One hand, face side only. 240 cm ² (PROC1, PROC3, PROC15)
	Exposed skin area	Two hands face side only. 480 cm ² (PROC2, PROC4, PROC5, PROC9)
	Exposed skin area	Two hands 960 cm ² (PROC8a, PROC8b)
Other operational conditions affecting workers exposure	Indoor use	
	Process temperature < melting point	
Technical conditions and measures to control dispersion	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC1, PROC2, PROC4, PROC15)	

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from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC3, PROC5, PROC8a, PROC8b, PROC9)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 80 %)(PROC1, PROC2, PROC4, PROC15)
	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 90 %)(PROC3, PROC5, PROC8a, PROC8b, PROC9)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	exposure estimate	0,057mg/L	0,572
---	---	Marine water	exposure estimate	0,006mg/L	0,572
---	---	Sewage treatment plant (STP)	exposure estimate	0,57mg/L	0,19
---	---	Indirect exposure to humans via the environment	Inhalation	0,002mg/m ³	< 0,01
---	---	Indirect exposure to humans via the environment	Oral worker exposure	0,278mg/kg bw/day	0,046

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2	---	Worker - inhalative, long-term	0,01mg/m ³	< 0,01
PROC1, PROC2	---	Worker - inhalative, short-term	0,04mg/m ³	< 0,01
PROC1	---	Worker - dermal, long-term - systemic	0,007mg/kg bw/day	< 0,01
PROC1	---	Worker - dermal, long-term - local	0,002mg/cm ²	< 0,01
PROC2	---	Worker - dermal, long-term - systemic	0,274mg/kg bw/day	0,137
PROC2	---	Worker - dermal, long-term - local	0,04mg/cm ²	0,04
PROC3, PROC8b, PROC9, PROC15	---	Worker - inhalative, long-term	0,1mg/m ³	0,019
PROC3, PROC8b, PROC9, PROC15	---	Worker - inhalative, short-term	0,4mg/m ³	< 0,01
PROC3, PROC15	---	Worker - dermal, long-term - systemic	0,069mg/kg bw/day	0,034
PROC3,	---	Worker - dermal, long-	0,02mg/cm ²	0,02

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PROC15		term - local		
PROC4, PROC5, PROC8a	---	Worker - inhalative, long-term	0,5mg/m ³	0,094
PROC4, PROC5, PROC8a	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC4, PROC5, PROC8a, PROC8b	---	Worker - dermal, long-term - systemic	1,372mg/kg bw/day	0,686
PROC4, PROC5	---	Worker - dermal, long-term - local	0,2mg/cm ²	0,2
PROC8a, PROC8b, PROC9	---	Worker - dermal, long-term - local	0,1mg/cm ²	0,1
PROC9	---	Worker - dermal, long-term - systemic	0,686mg/kg bw/day	0,343

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 3: Polymer production

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU11: Manufacture of rubber products SU12: Manufacture of plastics products, including compounding and conversion
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 PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation PROC24: High (mechanical) energy work-up of substances bound in materials and/ or articles
Environmental Release Categories	ERC5: Industrial use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC5

Amount used	Daily amount per site	< 0,7 ton(s)/day
	Annual amount per site	< 150 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC5, PROC8a, PROC8b, PROC14, PROC24

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	Two hands face side only. 480 cm ² (PROC5, PROC14)
	Exposed skin area	Two hands 960 cm ² (PROC8a, PROC8b)
	Exposed skin area	Two hands and upper wrists 1980 cm ² (PROC24)
Other operational conditions affecting workers exposure	Indoor use(PROC5, PROC8a, PROC8b, PROC14)	
	Assumes activities are at ambient temperature.(PROC5, PROC8a, PROC8b, PROC14)	
	Indoor use(PROC24)	
	Process temperature < melting point(PROC24)	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC5, PROC8a, PROC8b, PROC14)	
	Provide local exhaust ventilation (LEV). (Efficiency: 80 %)(PROC24)	
Conditions and measures related	Wear eye protection/ face protection.	

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to personal protection, hygiene and health evaluation

Wear chemically resistant gloves. (Efficiency: 90 %)(PROC5, PROC8a, PROC8b, PROC14)

Wear eye protection/ face protection. (Efficiency: 90 %)(PROC24)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	exposure estimate	0,089mg/L	0,889
---	---	Marine water	exposure estimate	0,009mg/L	0,889
---	---	Sewage treatment plant (STP)	exposure estimate	0,886mg/L	0,295
---	---	Indirect exposure to humans via the environment	Inhalation	0,000114mg/m ³	< 0,01
---	---	Indirect exposure to humans via the environment	Oral worker exposure	0,018mg/kg bw/day	< 0,01

Workers

PROC5, PROC8a, PROC8b, PROC14, PROC24: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC5, PROC8a	---	Worker - inhalative, long-term	0,5mg/m ³	0,094
PROC5, PROC8a	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC5, PROC8a, PROC8b	---	Worker - dermal, long-term - systemic	1,371mg/cm ²	0,686
PROC5	---	Worker - dermal, long-term - local	0,2mg/kg bw/day	0,2
PROC8a, PROC8b	---	Worker - dermal, long-term - local	0,1mg/cm ²	0,1
PROC8b, PROC14	---	Worker - inhalative, long-term	0,1mg/m ³	0,019
PROC8b, PROC14	---	Worker - inhalative, short-term	0,4mg/m ³	< 0,01
PROC14	---	Worker - dermal, long-term - systemic	0,343mg/kg bw/day	0,172
PROC14	---	Worker - dermal, long-term - local	0,05mg/cm ²	0,05
PROC24	---	Worker - inhalative, long-term	2mg/m ³	0,375
PROC24	---	Worker - inhalative, short-term	8mg/m ³	0,077
PROC24	---	Worker - dermal, long-term - systemic	0,283mg/kg bw/day	0,142
PROC24	---	Worker - dermal, long-term - local	0,01mg/cm ²	0,01

MALIC ACID / BAG 25 KG FD/R**4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 4: Use in resin pastes

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) SU11: Manufacture of rubber products SU12: Manufacture of plastics products, including compounding and conversion SU19: Building and construction work
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 PROC10: Roller application or brushing PROC11: Non industrial spraying
Environmental Release Categories	ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC8f

Amount used	Daily amount for wide dispersive uses	< 0,055 kg/day
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC5, PROC8a

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	Two hands face side only. 480 cm ² (PROC5)
	Exposed skin area	Two hands 960 cm ² (PROC8a)
Other operational conditions affecting workers exposure	Indoor use (PROC5, PROC8a)	
	Assumes activities are at ambient temperature. (PROC5, PROC8a)	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour) (PROC5, PROC8a)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection.	
	Wear chemically resistant gloves. (Efficiency: 90 %) (PROC5, PROC8a)	

2.3 Contributing scenario controlling worker exposure for: PROC10, PROC11

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Frequency and duration of use	Exposure duration	< 4 h (PROC10)

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	Exposure duration	< 1 h(PROC11)
Human factors not influenced by risk management	Exposed skin area	Two hands 960 cm ² (PROC10)
	Exposed skin area	Two hands and upper wrists 1500 cm ² (PROC11)
Other operational conditions affecting workers exposure	Indoor use(PROC10, PROC11)	
	Assumes activities are at ambient temperature.(PROC10, PROC11)	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC10, PROC11)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection.	
	Wear chemically resistant gloves. (Efficiency: 90 %)(PROC10, PROC11)	

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8f	---	Fresh water	exposure estimate	0,00027mg/L	< 0,01
ERC8f	---	Marine water	exposure estimate	0,000026mg/L	< 0,01
ERC8f	---	Sewage treatment plant (STP)	exposure estimate	0,000035mg/L	< 0,01
ERC8f	---	Indirect exposure to humans via the environment	Inhalation	< 0,0000001mg/m ³	< 0,01
ERC8f	---	Indirect exposure to humans via the environment	Oral worker exposure	0,000073mg/kg bw/day	< 0,01

For the other ERCs described in the section 1 of this Exposure Scenario: No information available.

Workers

PROC5, PROC8a, PROC10, PROC11: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC5	---	Worker - inhalative, long-term	1mg/m ³	0,188
PROC5	---	Worker - inhalative, short-term	4mg/m ³	0,038
PROC5, PROC8a	---	Worker - dermal, long-term - systemic	1,371mg/cm ²	0,686
PROC5	---	Worker - dermal, long-term - local	0,2mg/kg bw/day	0,2
PROC8a	---	Worker - inhalative, long-term	0,5mg/m ³	0,094
PROC8a	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC8a	---	Worker - dermal, long-term - local	0,1mg/cm ²	0,1
PROC10	---	Worker - inhalative, long-term	0,18mg/m ³	0,034
PROC10	---	Worker - inhalative, short-term	1,2mg/m ³	0,012

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PROC10	---	Worker - dermal, long-term - systemic	0,988mg/kg bw/day	0,494
PROC10	---	Worker - dermal, long-term - local	0,072mg/cm ²	0,072
PROC11	---	Worker - inhalative, long-term	0,12mg/m ³	0,023
PROC11	---	Worker - inhalative, short-term	2,4mg/m ³	0,023
PROC11	---	Worker - dermal, long-term - systemic	1,286mg/kg bw/day	0,643
PROC11	---	Worker - dermal, long-term - local	0,06mg/kg bw/day	0,06

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 5: Use in resin pastes

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC1: Adhesives, sealants PC32: Polymer preparations and compounds
Environmental Release Categories	ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC8f

Amount used	Daily amount for wide dispersive uses	< 0,0275 kg/day
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling consumer exposure for: PC1: Glues DIY-use (carpet glue, tile glue, wood parquet glue)

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 5%.
Amount used	Amount used per event	10 g
Frequency and duration of use	Exposure duration	6 h
	Frequency of use	1 Times per day

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8f	---	Fresh water	exposure estimate	0,00027mg/L	< 0,01
ERC8f	---	Marine water	exposure estimate	0,000026mg/L	< 0,01
ERC8f	---	Sewage treatment plant (STP)	exposure estimate	0,0000174mg/L	< 0,01
ERC8f	---	Indirect exposure to humans via the environment	Inhalation	< 0,0000001mg/m ³	< 0,01
ERC8f	---	Indirect exposure to humans via the environment	Oral worker exposure	0,000073mg/kg bw/day	< 0,01

For the other ERCs described in the section 1 of this Exposure Scenario: No information available.

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Consumers

PC1: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC1	---	Consumer inhalation, long term	0,005mg/m ³	0,014
PC1	---	Consumer dermal - systemic	3,573mg/kg bw/day	0,596

Oral exposure is regarded to be not relevant. For the other PCs described in the section 1 of this Exposure Scenario: No information available.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
 Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.
 Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
 Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 6: Formulation of coatings and adhesives

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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
Environmental Release Categories	ERC2: Formulation of preparations

2.1 Contributing scenario controlling environmental exposure for: ERC2

Amount used	Daily amount per site	< 0,7 ton(s)/day
	Annual amount per site	< 150 ton(s)/year
	Fraction of EU tonnage used in region:	1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	One hand, face side only. 240 cm ² (PROC1, PROC3, PROC15)
	Exposed skin area	Two hands face side only. 480 cm ² (PROC2, PROC4, PROC5, PROC9)
	Exposed skin area	Two hands 960 cm ² (PROC8a, PROC8b)
Other operational conditions affecting workers exposure	Indoor use	
	Process temperature < melting point	
Technical conditions and measures to control dispersion	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC1, PROC2, PROC4, PROC15)	

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from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC3, PROC5, PROC8a, PROC8b, PROC9)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 80 %)(PROC1, PROC2, PROC4, PROC15)
	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 90 %)(PROC3, PROC5, PROC8a, PROC8b, PROC9)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	exposure estimate	0,045mg/L	0,446
---	---	Marine water	exposure estimate	0,004mg/L	0,446
---	---	Sewage treatment plant (STP)	exposure estimate	0,443mg/L	0,148
---	---	Indirect exposure to humans via the environment	Inhalation	0,00068mg/m ³	< 0,01
---	---	Indirect exposure to humans via the environment	Oral worker exposure	0,101mg/kg bw/day	0,017

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2	---	Worker - inhalative, long-term	0,01mg/m ³	< 0,01
PROC1, PROC2	---	Worker - inhalative, short-term	0,04mg/m ³	< 0,01
PROC1	---	Worker - dermal, long-term - systemic	0,007mg/kg bw/day	< 0,01
PROC1	---	Worker - dermal, long-term - local	0,002mg/cm ²	< 0,01
PROC2	---	Worker - dermal, long-term - systemic	0,274mg/kg bw/day	0,137
PROC2	---	Worker - dermal, long-term - local	0,04mg/cm ²	0,04
PROC3, PROC8b, PROC9, PROC15	---	Worker - inhalative, long-term	0,1mg/m ³	0,019
PROC3, PROC8b, PROC9, PROC15	---	Worker - inhalative, short-term	0,4mg/m ³	< 0,01
PROC3, PROC15	---	Worker - dermal, long-term - systemic	0,069mg/kg bw/day	0,034
PROC3,	---	Worker - dermal, long-	0,02mg/cm ²	0,02

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PROC15		term - local		
PROC4, PROC5, PROC8a	---	Worker - inhalative, long-term	0,5mg/m ³	0,094
PROC4, PROC5, PROC8a	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC4, PROC5, PROC8a, PROC8b	---	Worker - dermal, long-term - systemic	1,372mg/kg bw/day	0,686
PROC4, PROC5	---	Worker - dermal, long-term - local	0,2mg/cm ²	0,2
PROC8a, PROC8b, PROC9	---	Worker - dermal, long-term - local	0,1mg/cm ²	0,1
PROC9	---	Worker - dermal, long-term - systemic	0,686mg/kg bw/day	0,343

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 7: Use in coatings

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU6b: Manufacture of pulp, paper and paper products SU7: Printing and reproduction of recorded media SU16: Manufacture of computer, electronic and optical products, electrical equipment SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
Process categories	PROC2: Use in closed, continuous process with occasional controlled exposure PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) 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 PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	ERC5: Industrial use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC5

Process water		
Amount used	Daily amount per site	< 0,7 ton(s)/day
	Annual amount per site	< 150 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling environmental exposure for: ERC5

Process solvent		
Amount used	Daily amount per site	< 0,1 ton(s)/day
	Annual amount per site	< 150 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %

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	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.3 Contributing scenario controlling worker exposure for: PROC2, PROC5, PROC7, PROC8a, PROC10, PROC13

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	Two hands face side only. 480 cm ² (PROC2, PROC5, PROC7, PROC13)
	Exposed skin area	Two hands 960 cm ² (PROC8a, PROC10)
	Exposed skin area	Two hands and upper wrists 1500 cm ² (PROC7)
Other operational conditions affecting workers exposure	Indoor use	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC2, PROC5, PROC7, PROC8a, PROC13)	
	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC10)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection.	
	Wear chemically resistant gloves. (Efficiency: 90 %)(PROC2, PROC5, PROC7, PROC8a, PROC13)	
	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 95 %)(PROC10)	

2.4 Contributing scenario controlling worker exposure for: PROC8b

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	Two hands and upper wrists 1500 cm ² (PROC8b)
Other operational conditions affecting workers exposure	Indoor use	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC8b)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection.	
	Wear chemically resistant gloves. (Efficiency: 95 %)(PROC8b)	

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	Process water	Fresh water	exposure estimate	0,00026mg/L	< 0,01
---	Process water	Marine water	exposure estimate	0,000025mg/L	< 0,01
---	Process water	Sewage treatment plant (STP)	exposure estimate	0mg/L	< 0,01
---	Process water	Indirect exposure to humans via the	Inhalation	0,002mg/m ³	< 0,01

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		environment			
---	Process water	Indirect exposure to humans via the environment	Oral worker exposure	0,283mg/kg bw/day	0,047
---	Process solvent	Fresh water	exposure estimate	0,002mg/L	0,022
---	Process solvent	Marine water	exposure estimate	0,00021mg/L	0,022
---	Process solvent	Sewage treatment plant (STP)	exposure estimate	0,019mg/L	< 0,01
---	Process solvent	Indirect exposure to humans via the environment	Inhalation	< 0,0000001mg/m ³	< 0,01
---	Process solvent	Indirect exposure to humans via the environment	Oral worker exposure	0,00026mg/kg bw/day	< 0,01

Workers

PROC2, PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC13: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC2	---	Worker - inhalative, long-term	0,01mg/m ³	< 0,01
PROC2	---	Worker - inhalative, short-term	0,04mg/m ³	< 0,01
PROC2	---	Worker - dermal, long-term - systemic	0,137mg/kg bw/day	0,068
PROC2	---	Worker - dermal, long-term - local	0,02mg/cm ²	0,02
PROC5, PROC8a, PROC10	---	Worker - inhalative, long-term	0,5mg/m ³	0,066
PROC5, PROC8a, PROC10	---	Worker - inhalative, short-term	2mg/m ³	0,013
PROC5, PROC8a, PROC10, PROC13	---	Worker - dermal, long-term - systemic	1,371mg/cm ²	0,686
PROC5, PROC13	---	Worker - dermal, long-term - local	0,2mg/cm ²	0,2
PROC7	---	Worker - inhalative, long-term	0,05mg/m ³	< 0,01
PROC7	---	Worker - inhalative, short-term	0,2mg/m ³	< 0,01
PROC7	---	Worker - dermal, long-term - systemic	0,107mg/kg bw/day	0,054
PROC7	---	Worker - dermal, long-term - local	0,005mg/cm ²	< 0,01
PROC8a, PROC10	---	Worker - dermal, long-term - local	0,1mg/cm ²	0,1
PROC13	---	Worker - inhalative, long-term	0,1mg/m ³	0,019

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PROC13	---	Worker - inhalative, short-term	0,4mg/m ³	< 0,01
PROC8b	---	Worker - inhalative, long-term	0,06mg/m ³	0,011
PROC8b	---	Worker - inhalative, short-term	0,24mg/m ³	< 0,01
PROC8b	---	Worker - dermal, long-term - systemic	0,823mg/kg bw/day	0,411
PROC8b	---	Worker - dermal, long-term - local	0,06mg/cm ²	0,06

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 8: Use in coatings

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU15: Manufacture of fabricated metal products, except machinery and equipment SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU19: Building and construction work
Process categories	PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC10: Roller application or brushing PROC11: Non industrial spraying
Environmental Release Categories	ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC8f

Amount used	Daily amount for wide dispersive uses	< 0,055 kg/day
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC10, PROC11

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Frequency and duration of use	Exposure duration	< 8 h(PROC8a)
	Exposure duration	< 4 h(PROC10)
	Exposure duration	< 1 h(PROC11)
Human factors not influenced by risk management	Exposed skin area	Two hands 960 cm ² (PROC8a, PROC10)
	Exposed skin area	Two hands and upper wrists 1500 cm ² (PROC11)
Other operational conditions affecting workers exposure	Indoor use(PROC8a, PROC10, PROC11)	
	Assumes activities are at ambient temperature.(PROC8a, PROC10, PROC11)	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC8a, PROC10, PROC11)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 90 %)(PROC8a, PROC10, PROC11)	

3. Exposure estimation and reference to its source

Environment

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Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8f	---	Fresh water	exposure estimate	0,00027mg/L	< 0,01
ERC8f	---	Marine water	exposure estimate	0,000026mg/L	< 0,01
ERC8f	---	Sewage treatment plant (STP)	exposure estimate	0,000035mg/L	< 0,01
ERC8f	---	Indirect exposure to humans via the environment	Inhalation	< 0,0000001mg/m ³	< 0,01
ERC8f	---	Indirect exposure to humans via the environment	Oral worker exposure	0,000073mg/kg bw/day	< 0,01

For the other ERCs described in the section 1 of this Exposure Scenario: No information available.

Workers

PROC8a, PROC10, PROC11: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC8a	---	Worker - inhalative, long-term	0,3mg/m ³	0,056
PROC8a	---	Worker - inhalative, short-term	1,2mg/m ³	0,012
PROC8a	---	Worker - dermal, long-term - systemic	0,823mg/cm ²	0,411
PROC8a, PROC11	---	Worker - dermal, long-term - local	0,06mg/kg bw/day	0,06
PROC10	---	Worker - inhalative, long-term	0,18mg/m ³	0,034
PROC10	---	Worker - inhalative, short-term	1,2mg/m ³	0,012
PROC10	---	Worker - dermal, long-term - systemic	0,988mg/kg bw/day	0,494
PROC10	---	Worker - dermal, long-term - local	0,072mg/cm ²	0,072
PROC11	---	Worker - inhalative, long-term	0,12mg/m ³	0,023
PROC11	---	Worker - inhalative, short-term	2,4mg/m ³	0,023
PROC11	---	Worker - dermal, long-term - systemic	1,286mg/kg bw/day	0,643

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 9: Use in coatings

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC9a: Coatings and paints, thinners, paint removers PC14: Metal surface treatment products, including galvanic and electroplating products PC38: Welding and soldering products (with flux coatings or flux cores.), flux products
Environmental Release Categories	ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC8f

Amount used	Daily amount for wide dispersive uses	< 0,0275 kg/day
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling consumer exposure for: PC9a: Waterborne latex wall paint

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 5%.
Amount used	Amount used per event	1300 g
Frequency and duration of use	Exposure duration	2,2 h
	Frequency of use	1 Times per day

2.3 Contributing scenario controlling consumer exposure for: PC9a: Solvent rich, high solid, water borne paint

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 5%.
Amount used	Amount used per event	1000 g
Frequency and duration of use	Exposure duration	2,2 h
	Frequency of use	1 Times per day

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8f	---	Fresh water	exposure estimate	0,00027mg/L	< 0,01
ERC8f	---	Marine water	exposure estimate	0,000026mg/L	< 0,01

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ERC8f	---	Sewage treatment plant (STP)	exposure estimate	0,000017mg/L	< 0,01
ERC8f	---	Indirect exposure to humans via the environment	Inhalation	< 0,0000001mg/m ³	< 0,01
ERC8f	---	Indirect exposure to humans via the environment	Oral worker exposure	0,000073mg/kg bw/day	< 0,01

For the other ERCs described in the section 1 of this Exposure Scenario: No information available.

Consumers

PC9a: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC9a	---	Consumer inhalation, long term	0,022mg/m ³	0,014
PC9a	---	Consumer dermal - systemic	3,573mg/kg bw/day	0,596

Oral exposure is regarded to be not relevant. For the other PCs described in the section 1 of this Exposure Scenario: No information available.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
 Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.
 Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
 Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 10: Formulation of cleaning agents

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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 PROC21: Low energy manipulation of substances bound in materials and/ or articles
Environmental Release Categories	ERC2: Formulation of preparations

2.1 Contributing scenario controlling environmental exposure for: ERC2

Amount used	Daily amount per site	< 0,7 ton(s)/day
	Annual amount per site	< 150 ton(s)/year
	Fraction of EU tonnage used in region:	1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15, PROC21

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	One hand, face side only. 240 cm ² (PROC1, PROC3, PROC15)
	Exposed skin area	Two hands face side only. 480 cm ² (PROC2, PROC4, PROC5, PROC9)
	Exposed skin area	Two hands 960 cm ² (PROC8a, PROC8b)
	Exposed skin area	Two hands and upper wrists 1980 cm ² (PROC21)
Other operational conditions	Indoor use	

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affecting workers exposure	Process temperature < melting point
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC1, PROC2, PROC4, PROC15) Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC21)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 80 %)(PROC1, PROC2, PROC4, PROC15) Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 90 %)(PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC21)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	exposure estimate	0,089mg/L	0,889
---	---	Marine water	exposure estimate	0,009mg/L	0,889
---	---	Sewage treatment plant (STP)	exposure estimate	0,886mg/L	0,295
---	---	Indirect exposure to humans via the environment	Inhalation	0,003mg/m ³	< 0,01
---	---	Indirect exposure to humans via the environment	Oral worker exposure	0,417mg/kg bw/day	0,07

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15, PROC21: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2	---	Worker - inhalative, long-term	0,01mg/m ³	< 0,01
PROC1, PROC2	---	Worker - inhalative, short-term	0,04mg/m ³	< 0,01
PROC1	---	Worker - dermal, long-term - systemic	0,007mg/kg bw/day	< 0,01
PROC1	---	Worker - dermal, long-term - local	0,002mg/cm ²	< 0,01
PROC2	---	Worker - dermal, long-term - systemic	0,274mg/kg bw/day	0,137
PROC2	---	Worker - dermal, long-term - local	0,04mg/cm ²	0,04
PROC3, PROC8b, PROC9, PROC15	---	Worker - inhalative, long-term	0,1mg/m ³	0,019
PROC3, PROC8b, PROC9,	---	Worker - inhalative, short-term	0,4mg/m ³	< 0,01

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PROC15				
PROC3, PROC15	---	Worker - dermal, long-term - systemic	0,069mg/kg bw/day	0,034
PROC3, PROC15	---	Worker - dermal, long-term - local	0,02mg/cm ²	0,02
PROC4, PROC5, PROC8a	---	Worker - inhalative, long-term	0,5mg/m ³	0,094
PROC4, PROC5, PROC8a	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC4, PROC5, PROC8a, PROC8b	---	Worker - dermal, long-term - systemic	1,372mg/kg bw/day	0,686
PROC4, PROC5	---	Worker - dermal, long-term - local	0,2mg/cm ²	0,2
PROC8a, PROC8b, PROC9	---	Worker - dermal, long-term - local	0,1mg/cm ²	0,1
PROC9	---	Worker - dermal, long-term - systemic	0,686mg/kg bw/day	0,343
PROC21	---	Worker - inhalative, long-term	1mg/m ³	0,188
PROC21	---	Worker - inhalative, short-term	4mg/m ³	0,038
PROC21	---	Worker - dermal, long-term - systemic	0,283mg/kg bw/day	0,142
PROC21	---	Worker - dermal, long-term - local	0,01mg/cm ²	0,01

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 11: Use in cleaning agents

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)
Process categories	PROC2: Use in closed, continuous process with occasional controlled exposure 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 PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation PROC21: Low energy manipulation of substances bound in materials and/ or articles
Environmental Release Categories	ERC7: Industrial use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC7

Amount used	Daily amount per site	< 0,3 ton(s)/day
	Annual amount per site	< 75 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC2, PROC4, PROC5, PROC8a, PROC8b, PROC14, PROC21

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	Two hands face side only. 480 cm ² (PROC2, PROC4, PROC5, PROC14)
	Exposed skin area	Two hands 960 cm ² (PROC8a, PROC8b)
	Exposed skin area	Two hands and upper wrists 1980 cm ² (PROC21)
Other operational conditions affecting workers exposure	Indoor use	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC2, PROC4, PROC5, PROC8a, PROC8b, PROC14, PROC21)	
Conditions and measures related to personal protection, hygiene	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 90 %)(PROC2, PROC4, PROC5,	

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and health evaluation PROC8a, PROC8b, PROC14, PROC21)

2.3 Contributing scenario controlling worker exposure for: PROC8a

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	Two hands 960 cm ² (PROC8a)
Other operational conditions affecting workers exposure	Indoor use	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC8a)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 90 %)(PROC8a)	

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	exposure estimate	0,038mg/L	0,382
---	---	Marine water	exposure estimate	0,004mg/L	0,382
---	---	Sewage treatment plant (STP)	exposure estimate	0,38mg/L	0,127
---	---	Indirect exposure to humans via the environment	Inhalation	0,000057mg/m ³	< 0,01
---	---	Indirect exposure to humans via the environment	Oral worker exposure	0,009mg/kg bw/day	< 0,01

Workers

PROC2, PROC4, PROC5, PROC8a, PROC8b, PROC14, PROC21: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC2	---	Worker - inhalative, long-term	0,01mg/m ³	< 0,01
PROC2	---	Worker - inhalative, short-term	0,04mg/m ³	< 0,01
PROC2	---	Worker - dermal, long-term - systemic	0,137mg/kg bw/day	0,068
PROC2	---	Worker - dermal, long-term - local	0,02mg/cm ²	0,02
PROC4, PROC5	---	Worker - inhalative, long-term	0,5mg/m ³	0,094
PROC4, PROC5	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC4	---	Worker - dermal, long-term - systemic	0,686mg/kg bw/day	0,343

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PROC4, PROC8a, PROC8b	See section 2.2	Worker - dermal, long-term - local	0,1mg/cm ²	0,1
PROC5, PROC8a, PROC8b	See section 2.2	Worker - dermal, long-term - systemic	1,371mg/cm ²	0,686
PROC5	---	Worker - dermal, long-term - local	0,2mg/cm ²	0,2
PROC8a	See section 2.2	Worker - inhalative, long-term	0,35mg/m ³	0,066
PROC8a	See section 2.2	Worker - inhalative, short-term	1,4mg/m ³	0,013
PROC8b, PROC14	---	Worker - inhalative, long-term	0,1mg/m ³	0,019
PROC8b, PROC14	---	Worker - inhalative, short-term	0,4mg/m ³	< 0,01
PROC14	---	Worker - dermal, long-term - systemic	0,343mg/kg bw/day	0,172
PROC14	---	Worker - dermal, long-term - local	0,05mg/cm ²	0,05
PROC21	---	Worker - inhalative, long-term	1mg/m ³	0,188
PROC21	---	Worker - inhalative, short-term	4mg/m ³	0,038
PROC21	---	Worker - dermal, long-term - systemic	0,283mg/kg bw/day	0,142
PROC21	---	Worker - dermal, long-term - local	0,01mg/cm ²	0,01
PROC8a	See section 2.3	Worker - inhalative, long-term	0,3mg/m ³	0,056
PROC8a	See section 2.3	Worker - inhalative, short-term	1,2mg/m ³	0,012
PROC8a	See section 2.3	Worker - dermal, long-term - systemic	0,823mg/kg bw/day	0,411
PROC8a	See section 2.3	Worker - dermal, long-term - local	0,06mg/cm ²	0,06

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 12: Use in cleaning agents

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
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 PROC21: Low energy manipulation of substances bound in materials and/ or articles
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a

Amount used	Daily amount for wide dispersive uses	< 0,0055 kg/day
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC5, PROC8a, PROC8b, PROC21

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	Two hands face side only. 480 cm ² (PROC5)
	Exposed skin area	Two hands 960 cm ² (PROC8a, PROC8b)
	Exposed skin area	Two hands and upper wrists 1980 cm ² (PROC21)
Other operational conditions affecting workers exposure	Indoor use	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC5, PROC8a, PROC8b, PROC21)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 90 %)(PROC5, PROC8a, PROC8b, PROC21)	

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	exposure	0,000299mg/L	< 0,01

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			estimate		
---	---	Marine water	exposure estimate	0,0000287mg/L	< 0,01
---	---	Sewage treatment plant (STP)	exposure estimate	0,000348mg/L	< 0,01
---	---	Indirect exposure to humans via the environment	Inhalation	< 0,0000001mg/m ³	< 0,01
---	---	Indirect exposure to humans via the environment	Oral worker exposure	0,0000729mg/kg bw/day	< 0,01

Workers

PROC5, PROC8a, PROC8b, PROC21: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC5	---	Worker - inhalative, long-term	1mg/m ³	0,188
PROC5	---	Worker - inhalative, short-term	4mg/m ³	0,038
PROC5, PROC8a, PROC8b	---	Worker - dermal, long-term - systemic	1,371mg/cm ²	0,686
PROC5	---	Worker - dermal, long-term - local	0,2mg/kg bw/day	0,2
PROC8a, PROC8b	---	Worker - inhalative, long-term	0,5mg/m ³	0,094
PROC8a, PROC8b	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC8a, PROC8b	---	Worker - dermal, long-term - local	0,1mg/cm ²	0,1
PROC21	---	Worker - dermal, long-term - systemic	0,283mg/kg bw/day	0,142
PROC21	---	Worker - dermal, long-term - local	0,01mg/cm ²	0,01
PROC21	---	Worker - inhalative, long-term	3mg/m ³	0,563
PROC21	---	Worker - inhalative, short-term	12mg/m ³	0,115

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 13: Use in cleaning agents

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC2: Adsorbents PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents PC35: Washing and cleaning products PC36: Water softeners PC37: Water treatment chemicals PC40: Extraction agents
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a

Amount used	Daily amount for wide dispersive uses	< 0,035 kg/day
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling consumer exposure for: PC35: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 5%.
Amount used	Amount used per event	10 g
Frequency and duration of use	Exposure duration	0,33 h
	Frequency of use	1 Times per day

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	exposure estimate	0,00049mg/L	< 0,01
---	---	Marine water	exposure estimate	0,000047mg/L	< 0,01
---	---	Sewage treatment plant (STP)	exposure estimate	0,002mg/L	< 0,01
---	---	Indirect exposure to humans via the environment	Inhalation	< 0,0000001mg/m ³	< 0,01
---	---	Indirect exposure	Oral worker	0,000073mg/k	< 0,01

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		to humans via the environment	exposure	g bw/day	
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Consumers

PC35: Cleaners, liquids: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC35: Cleaners, liquids	---	Consumer inhalation, long term	0,021mg/m ³	0,013
PC35: Cleaners, liquids	---	Consumer dermal - systemic	3,573mg/kg bw/day	0,596

Oral exposure is regarded to be not relevant.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
 Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.
 Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
 Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 14: Use in laboratories

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU5: Manufacture of textiles, leather, fur SU6b: Manufacture of pulp, paper and paper products SU11: Manufacture of rubber products SU12: Manufacture of plastics products, including compounding and conversion SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU19: Building and construction work SU24: Scientific research and development
Process categories	PROC2: Use in closed, continuous process with occasional controlled exposure PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent
Environmental Release Categories	ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8e

Amount used	Daily amount for wide dispersive uses	< 0,00055 kg/day
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC2, PROC4, PROC8a, PROC9, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	One hand, face side only. 240 cm ² (PROC15)
	Exposed skin area	Two hands face side only. 480 cm ² (PROC2, PROC4, PROC9)
	Exposed skin area	Two hands 960 cm ² (PROC8a)
Other operational conditions affecting workers exposure	Indoor use	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC2, PROC4, PROC8a, PROC9, PROC15)	

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

Wear eye protection/ face protection.
Wear chemically resistant gloves. (Efficiency: 90 %)(PROC2, PROC4, PROC8a, PROC9, PROC15)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	exposure estimate	0,00027mg/L	< 0,01
---	---	Marine water	exposure estimate	0,000026mg/L	< 0,01
---	---	Sewage treatment plant (STP)	exposure estimate	0,0000007mg/L	< 0,01
---	---	Indirect exposure to humans via the environment	Inhalation	< 0,0000001mg/m ³	< 0,01
---	---	Indirect exposure to humans via the environment	Oral worker exposure	0,000073mg/kg bw/day	< 0,01

For the other ERCs described in the section 1 of this Exposure Scenario: No information available.

Workers

PROC2, PROC4, PROC8a, PROC9, PROC15: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC2	---	Worker - inhalative, long-term	0,01mg/m ³	< 0,01
PROC2	---	Worker - inhalative, short-term	0,04mg/m ³	< 0,01
PROC2	---	Worker - dermal, long-term - systemic	0,137mg/kg bw/day	0,068
PROC2	---	Worker - dermal, long-term - local	0,02mg/cm ²	0,02
PROC4	---	Worker - inhalative, long-term	1mg/m ³	0,188
PROC4	---	Worker - inhalative, short-term	4mg/m ³	0,038
PROC4, PROC9	---	Worker - dermal, long-term - systemic	0,686mg/cm ²	0,038
PROC4, PROC8a, PROC9	---	Worker - dermal, long-term - local	0,1mg/cm ²	0,1
PROC8a, PROC9	---	Worker - inhalative, long-term	0,5mg/m ³	0,094
PROC8a, PROC9	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC8a	---	Worker - dermal, long-term - systemic	1,371mg/kg bw/day	0,686
PROC15	---	Worker - inhalative, long-term	0,1mg/m ³	0,019
PROC15	---	Worker - inhalative,	0,4mg/m ³	< 0,01

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		short-term		
PROC15	---	Worker - dermal, long-term - systemic	0,034mg/kg bw/day	0,017
PROC15	---	Worker - dermal, long-term - local	0,01mg/cm ²	0,01

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 15: Formulation in building and construction work

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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
Environmental Release Categories	ERC2: Formulation of preparations

2.1 Contributing scenario controlling environmental exposure for: ERC2

Amount used	Daily amount per site	< 0,7 ton(s)/day
	Annual amount per site	< 150 ton(s)/year
	Fraction of EU tonnage used in region:	1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	One hand, face side only. 240 cm ² (PROC1, PROC3, PROC15)
	Exposed skin area	Two hands face side only. 480 cm ² (PROC2, PROC4, PROC5, PROC9)
	Exposed skin area	Two hands 960 cm ² (PROC8a, PROC8b)
Other operational conditions affecting workers exposure	Indoor use	
	Process temperature < melting point	
Technical conditions and measures to control dispersion	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC1, PROC2, PROC4, PROC15)	

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from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC3, PROC5, PROC8a, PROC8b, PROC9)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 80 %)(PROC1, PROC2, PROC4, PROC15)
	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 90 %)(PROC3, PROC5, PROC8a, PROC8b, PROC9)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	exposure estimate	0,089mg/L	0,889
---	---	Marine water	exposure estimate	0,009mg/L	0,889
---	---	Sewage treatment plant (STP)	exposure estimate	0,886mg/L	0,295
---	---	Indirect exposure to humans via the environment	Inhalation	0,003mg/m ³	< 0,01
---	---	Indirect exposure to humans via the environment	Oral worker exposure	0,417mg/kg bw/day	0,07

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2	---	Worker - inhalative, long-term	0,01mg/m ³	< 0,01
PROC1, PROC2	---	Worker - inhalative, short-term	0,04mg/m ³	< 0,01
PROC1	---	Worker - dermal, long-term - systemic	0,007mg/kg bw/day	< 0,01
PROC1	---	Worker - dermal, long-term - local	0,002mg/cm ²	< 0,01
PROC2	---	Worker - dermal, long-term - systemic	0,274mg/kg bw/day	0,137
PROC2	---	Worker - dermal, long-term - local	0,04mg/cm ²	0,04
PROC3, PROC8b, PROC9, PROC15	---	Worker - inhalative, long-term	0,1mg/m ³	0,019
PROC3, PROC8b, PROC9, PROC15	---	Worker - inhalative, short-term	0,4mg/m ³	< 0,01
PROC3, PROC15	---	Worker - dermal, long-term - systemic	0,069mg/kg bw/day	0,034
PROC3,	---	Worker - dermal, long-	0,02mg/cm ²	0,02

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PROC15		term - local		
PROC4, PROC5, PROC8a	---	Worker - inhalative, long-term	0,5mg/m ³	0,094
PROC4, PROC5, PROC8a	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC4, PROC5, PROC8a, PROC8b	---	Worker - dermal, long-term - systemic	1,372mg/kg bw/day	0,686
PROC4, PROC5	---	Worker - dermal, long-term - local	0,2mg/cm ²	0,2
PROC8a, PROC8b, PROC9	---	Worker - dermal, long-term - local	0,1mg/cm ²	0,1
PROC9	---	Worker - dermal, long-term - systemic	0,686mg/kg bw/day	0,343

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 16: Use in metal surface treatment.

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC2: Use in closed, continuous process with occasional controlled exposure 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 PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	ERC5: Industrial use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC5

Amount used	Daily amount per site	< 0,05 ton(s)/day
	Annual amount per site	< 150 ton(s)/year
	Fraction of EU tonnage used in region:	1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Technical conditions and measures at process level to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%): (Degradation effectiveness: 95 %)
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC2, PROC8a, PROC13

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	Two hands face side only. 480 cm ² (PROC2, PROC13)
	Exposed skin area	Two hands 960 cm ² (PROC8a)
Other operational conditions affecting workers exposure	Indoor use (PROC2, PROC8a, PROC13)	
	Assumes activities are at ambient temperature. (PROC2, PROC8a, PROC13)	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour) (PROC2, PROC8a, PROC13)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 90 %) (PROC2, PROC8a, PROC13)	

2.3 Contributing scenario controlling worker exposure for: PROC8b

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Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 25 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	Two hands 960 cm ² (PROC8b)
Other operational conditions affecting workers exposure	Indoor use	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC8b)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 90 %)(PROC8b)	

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	exposure estimate	0,001mg/L	0,011
---	---	Marine water	exposure estimate	0,0001mg/L	0,01
---	---	Sewage treatment plant (STP)	exposure estimate	0,008mg/L	< 0,01
---	---	Indirect exposure to humans via the environment	Inhalation	< 0,0000001mg/m ³	< 0,01
---	---	Indirect exposure to humans via the environment	Oral worker exposure	0,00022mg/kg bw/day	< 0,01

Workers

PROC2, PROC8a, PROC8b, PROC13: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC2	---	Worker - inhalative, long-term	0,01mg/m ³	< 0,01
PROC2	---	Worker - inhalative, short-term	0,04mg/m ³	< 0,01
PROC2	---	Worker - dermal, long-term - systemic	0,137mg/cm ²	0,068
PROC2	---	Worker - dermal, long-term - local	0,02mg/kg bw/day	0,02
PROC8a	---	Worker - inhalative, long-term	0,5mg/m ³	0,094
PROC8a	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC8a, PROC13	---	Worker - dermal, long-term - systemic	1,371mg/kg bw/day	0,686
PROC8a	---	Worker - dermal, long-term - local	0,1mg/cm ²	0,1

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PROC13	---	Worker - inhalative, long-term	0,1mg/m ³	0,019
PROC13	---	Worker - inhalative, short-term	0,4mg/m ³	< 0,01
PROC13	---	Worker - dermal, long-term - local	0,2mg/cm ²	0,2
PROC8b	---	Worker - inhalative, long-term	0,06mg/m ³	0,011
PROC8b	---	Worker - inhalative, short-term	0,24mg/m ³	< 0,01
PROC8b	---	Worker - dermal, long-term - systemic	0,823mg/kg bw/day	0,411
PROC8b	---	Worker - dermal, long-term - local	0,06mg/cm ²	0,06

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 17: Formulation of cosmetic products

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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
Environmental Release Categories	ERC2: Formulation of preparations
Activity	This use is exempted from registration according to Art.2 (5)(6) of the REACH regulation (EC) No 1907/2006. Therefore, the conditions and measures described in this Exposure Scenario are only intended for a technical function of the substance

2.1 Contributing scenario controlling environmental exposure for: ERC2

Amount used	Daily amount per site	< 0,5 ton(s)/day
	Annual amount per site	< 150 ton(s)/year
	Fraction of EU tonnage used in region:	1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	One hand, face side only. 240 cm ² (PROC1, PROC3, PROC15)
	Exposed skin area	Two hands face side only. 480 cm ² (PROC2, PROC4, PROC5, PROC9)
	Exposed skin area	Two hands 960 cm ² (PROC8a, PROC8b)

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Other operational conditions affecting workers exposure	Indoor use
	Process temperature < melting point
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC1, PROC2, PROC4, PROC15)
	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC3, PROC5, PROC8a, PROC8b, PROC9)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 80 %)(PROC1, PROC2, PROC4, PROC15)
	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 90 %)(PROC3, PROC5, PROC8a, PROC8b, PROC9)

2.3 Contributing scenario controlling worker exposure for: PROC5, PROC8a, PROC8b

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 50%
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	Face and both hands and arms. 960 cm ²
Conditions and measures related to personal protection, hygiene and health evaluation	Wear personal protective equipment.	

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	exposure estimate	0,003mg/L	0,034
---	---	Marine water	exposure estimate	0,00034mg/L	0,034
---	---	Sewage treatment plant (STP)	exposure estimate	0,032mg/L	0,011
---	---	Indirect exposure to humans via the environment	Inhalation	< 0,0000001mg/m ³	< 0,01
---	---	Indirect exposure to humans via the environment	Oral worker exposure	0,0001mg/kg bw/day	< 0,01

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2	---	Worker - inhalative, long-term	0,01mg/m ³	< 0,01
PROC1, PROC2	---	Worker - inhalative, short-term	0,04mg/m ³	< 0,01
PROC1	---	Worker - dermal, long-term - systemic	0,007mg/kg bw/day	< 0,01
PROC1	---	Worker - dermal, long-term - local	0,002mg/cm ²	< 0,01

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PROC2	---	Worker - dermal, long-term - systemic	0,274mg/kg bw/day	0,137
PROC2	---	Worker - dermal, long-term - local	0,04mg/cm ²	0,04
PROC3, PROC8b, PROC9, PROC15	---	Worker - inhalative, long-term	0,1mg/m ³	0,019
PROC3, PROC8b, PROC9, PROC15	---	Worker - inhalative, short-term	0,4mg/m ³	< 0,01
PROC3, PROC15	---	Worker - dermal, long-term - systemic	0,069mg/kg bw/day	0,034
PROC3, PROC15	---	Worker - dermal, long-term - local	0,02mg/cm ²	0,02
PROC4, PROC5, PROC8a	---	Worker - inhalative, long-term	0,5mg/m ³	0,094
PROC4, PROC5, PROC8a	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC4, PROC5, PROC8a, PROC8b	---	Worker - dermal, long-term - systemic	1,372mg/kg bw/day	0,686
PROC4, PROC5	---	Worker - dermal, long-term - local	0,2mg/cm ²	0,2
PROC8a, PROC8b, PROC9	---	Worker - dermal, long-term - local	0,1mg/cm ²	0,1
PROC9	---	Worker - dermal, long-term - systemic	0,686mg/kg bw/day	0,343

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 18: Use in cosmetics

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC29: Pharmaceuticals PC39: Cosmetics, personal care products
Environmental Release Categories	ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8e: Wide dispersive outdoor use of reactive substances in open systems
Activity	This use is exempted from registration according to Art.2 (5)(6) of the REACH regulation (EC) No 1907/2006. Therefore, the conditions and measures described in this Exposure Scenario are only intended for a technical function of the substance

2.1 Contributing scenario controlling environmental exposure for: ERC8e

Amount used	Daily amount for wide dispersive uses	< 0,082 kg/day
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling consumer exposure for: PC29, PC39

No consumer exposure assessment and risk characterisation is required according to Article 14 (2) of REACH Regulation 1907/2006 due to the low in-use concentration of the substance in the product of below 0,1%

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8e	---	Fresh water	exposure estimate	0,00027mg/L	< 0,01
ERC8e	---	Marine water	exposure estimate	0,000026mg/L	< 0,01
ERC8e	---	Sewage treatment plant (STP)	exposure estimate	0,00010mg/L	< 0,01
ERC8e	---	Indirect exposure to humans via the environment	Inhalation	< 0,0000001mg/m ³	< 0,01
ERC8e	---	Indirect exposure to humans via the environment	Oral worker exposure	0,000073mg/kg bw/day	< 0,01

For the other ERCs described in the section 1 of this Exposure Scenario: No information available.

Consumers

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No data available.

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 19: Formulation of dyes for textile

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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
Environmental Release Categories	ERC2: Formulation of preparations

2.1 Contributing scenario controlling environmental exposure for: ERC2

Amount used	Daily amount per site	< 0,7 ton(s)/day
	Annual amount per site	< 150 ton(s)/year
	Fraction of EU tonnage used in region:	1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	One hand, face side only. 240 cm ² (PROC1, PROC3, PROC15)
	Exposed skin area	Two hands face side only. 480 cm ² (PROC2, PROC4, PROC5, PROC9)
	Exposed skin area	Two hands 960 cm ² (PROC8a, PROC8b)
Other operational conditions affecting workers exposure	Indoor use	
	Process temperature < melting point	
Technical conditions and measures to control dispersion	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC1, PROC2, PROC4, PROC15)	

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from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC3, PROC5, PROC8a, PROC8b, PROC9)
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 80 %)(PROC1, PROC2, PROC4, PROC15)
	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 90 %)(PROC3, PROC5, PROC8a, PROC8b, PROC9)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	exposure estimate	0,089mg/L	0,889
---	---	Marine water	exposure estimate	0,009mg/L	0,889
---	---	Sewage treatment plant (STP)	exposure estimate	0,886mg/L	0,295
---	---	Indirect exposure to humans via the environment	Inhalation	0,003mg/m ³	< 0,01
---	---	Indirect exposure to humans via the environment	Oral worker exposure	0,417mg/kg bw/day	0,07

Workers

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2	---	Worker - inhalative, long-term	0,01mg/m ³	< 0,01
PROC1, PROC2	---	Worker - inhalative, short-term	0,04mg/m ³	< 0,01
PROC1	---	Worker - dermal, long-term - systemic	0,007mg/kg bw/day	< 0,01
PROC1	---	Worker - dermal, long-term - local	0,002mg/cm ²	< 0,01
PROC2	---	Worker - dermal, long-term - systemic	0,274mg/kg bw/day	0,137
PROC2	---	Worker - dermal, long-term - local	0,04mg/cm ²	0,04
PROC3, PROC8b, PROC9, PROC15	---	Worker - inhalative, long-term	0,1mg/m ³	0,019
PROC3, PROC8b, PROC9, PROC15	---	Worker - inhalative, short-term	0,4mg/m ³	< 0,01
PROC3, PROC15	---	Worker - dermal, long-term - systemic	0,069mg/kg bw/day	0,034
PROC3,	---	Worker - dermal, long-	0,02mg/cm ²	0,02

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PROC15		term - local		
PROC4, PROC5, PROC8a	---	Worker - inhalative, long-term	0,5mg/m ³	0,094
PROC4, PROC5, PROC8a	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC4, PROC5, PROC8a, PROC8b	---	Worker - dermal, long-term - systemic	1,372mg/kg bw/day	0,686
PROC4, PROC5	---	Worker - dermal, long-term - local	0,2mg/cm ²	0,2
PROC8a, PROC8b, PROC9	---	Worker - dermal, long-term - local	0,1mg/cm ²	0,1
PROC9	---	Worker - dermal, long-term - systemic	0,686mg/kg bw/day	0,343

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 20: Use of dyes for textile

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU5: Manufacture of textiles, leather, fur SU6b: Manufacture of pulp, paper and paper products
Process categories	PROC2: Use in closed, continuous process with occasional controlled exposure PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) 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 PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	ERC6b: Industrial use of reactive processing aids

2.1 Contributing scenario controlling environmental exposure for: ERC6b

Amount used	Daily amount per site	< 0,7 ton(s)/day
	Annual amount per site	< 150 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC2, PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC13

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	Two hands face side only. 480 cm ² (PROC2, PROC5, PROC13)
	Exposed skin area	Two hands 960 cm ² (PROC8a, PROC8b, PROC10)
	Exposed skin area	Two hands and upper wrists 1500 cm ² (PROC7)
Other operational conditions affecting workers exposure	Indoor use	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC2, PROC5, PROC8a, PROC8b, PROC13)	
	Provide local exhaust ventilation (LEV). (Efficiency: 95 %)(PROC7)	
	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC10)	
Conditions and measures related to personal protection, hygiene	Wear eye protection/ face protection.	
	Wear chemically resistant gloves. (Efficiency: 90 %)(PROC2, PROC5, PROC8a,	

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and health evaluation

PROC8b, PROC13)

Wear eye protection/ face protection.

Wear chemically resistant gloves. (Efficiency: 95 %)(PROC7)

Wear eye protection/ face protection.

Wear chemically resistant gloves. (Efficiency: 95 %)(PROC10)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	exposure estimate	0,089mg/L	0,889
---	---	Marine water	exposure estimate	0,009mg/L	0,889
---	---	Sewage treatment plant (STP)	exposure estimate	0,886mg/L	0,295
---	---	Indirect exposure to humans via the environment	Inhalation	0,00011mg/m ³	< 0,01
---	---	Indirect exposure to humans via the environment	Oral worker exposure	0,018mg/kg bw/day	< 0,01

Workers

PROC2, PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC13: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC2	---	Worker - inhalative, long-term	0,01mg/m ³	< 0,01
PROC2	---	Worker - inhalative, short-term	0,04mg/m ³	< 0,01
PROC2	---	Worker - dermal, long-term - systemic	0,137mg/kg bw/day	0,068
PROC2	---	Worker - dermal, long-term - local	0,02mg/cm ²	0,02
PROC5	---	Worker - inhalative, long-term	0,35mg/m ³	0,066
PROC5	---	Worker - inhalative, short-term	1,4mg/m ³	0,013
PROC5, PROC8a, PROC8b, PROC10, PROC13	---	Worker - dermal, long-term - systemic	1,371mg/cm ²	0,686
PROC5, PROC13	---	Worker - dermal, long-term - local	0,2mg/cm ²	0,2
PROC7	---	Worker - inhalative, long-term	0,035mg/m ³	< 0,01
PROC7	---	Worker - inhalative, short-term	0,14mg/m ³	< 0,01
PROC7	---	Worker - dermal, long-term - systemic	0,107mg/kg bw/day	0,054

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PROC7	---	Worker - dermal, long-term - local	0,005mg/cm ²	< 0,01
PROC8a, PROC10	---	Worker - inhalative, long-term	0,5mg/m ³	0,094
PROC8a, PROC10	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC8a, PROC8b, PROC10	---	Worker - dermal, long-term - local	0,1mg/cm ²	0,1
PROC8b, PROC13	---	Worker - inhalative, long-term	0,1mg/m ³	0,019
PROC8b, PROC13	---	Worker - inhalative, short-term	0,4mg/m ³	< 0,01

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 21: Use in building and construction work

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU19: Building and construction work
Process categories	PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC6: Calendaring operations 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
Environmental Release Categories	ERC7: Industrial use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC7

Amount used	Daily amount per site	< 0,7 ton(s)/day
	Annual amount per site	< 150 ton(s)/year
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC2, PROC3, PROC5, PROC6, PROC8a, PROC8b

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	One hand, face side only. 240 cm ² (PROC3)
	Exposed skin area	Two hands face side only. 480 cm ² (PROC2, PROC5)
	Exposed skin area	Two hands 960 cm ² (PROC6, PROC8a, PROC8b)
Other operational conditions affecting workers exposure	Indoor use	
	Assumes activities are at ambient temperature.	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC2, PROC3, PROC5, PROC8a, PROC8b)	
	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC6)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 90 %)(PROC2, PROC3, PROC5, PROC8a, PROC8b)	

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Wear eye protection/ face protection.
Wear chemically resistant gloves. (Efficiency: 95 %)(PROC6)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
---	---	Fresh water	exposure estimate	0,089mg/L	0,889
---	---	Marine water	exposure estimate	0,009mg/L	0,889
---	---	Sewage treatment plant (STP)	exposure estimate	0,886mg/L	0,295
---	---	Indirect exposure to humans via the environment	Inhalation	0,00011mg/m ³	< 0,01
---	---	Indirect exposure to humans via the environment	Oral worker exposure	0,018mg/kg bw/day	0,07

Workers

PROC2, PROC3, PROC5, PROC6, PROC8a, PROC8b: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC2	---	Worker - inhalative, long-term	0,01mg/m ³	< 0,01
PROC2	---	Worker - inhalative, short-term	0,04mg/m ³	< 0,01
PROC2	---	Worker - dermal, long-term - systemic	0,137mg/kg bw/day	0,068
PROC2, PROC3	---	Worker - dermal, long-term - local	0,02mg/cm ²	0,02
PROC3, PROC6	---	Worker - inhalative, long-term	0,1mg/m ³	0,019
PROC3, PROC6	---	Worker - inhalative, short-term	0,4mg/m ³	< 0,01
PROC3	---	Worker - dermal, long-term - systemic	0,069mg/kg bw/day	0,034
PROC5	---	Worker - inhalative, long-term	0,5mg/m ³	0,094
PROC5	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC5, PROC6, PROC8a, PROC8b	---	Worker - dermal, long-term - systemic	1,371mg/cm ²	0,686
PROC5	---	Worker - dermal, long-term - local	0,2mg/cm ²	0,2
PROC6, PROC8a, PROC8b	---	Worker - dermal, long-term - local	0,1mg/cm ²	0,1
PROC8a	---	Worker - inhalative, long-term	0,5mg/m ³	0,094

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PROC8a	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC8b	---	Worker - inhalative, long-term	0,07mg/m ³	0,013
PROC8b	---	Worker - inhalative, short-term	0,28mg/m ³	< 0,01

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 22: Use in building and construction work

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU19: Building and construction work
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 PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation PROC24: High (mechanical) energy work-up of substances bound in materials and/ or articles
Environmental Release Categories	ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC8f

Amount used	Daily amount for wide dispersive uses	< 0,082 kg/day
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling worker exposure for: PROC5, PROC8a, PROC14, PROC24

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 %.
Frequency and duration of use	Exposure duration	< 8 h
Human factors not influenced by risk management	Exposed skin area	Two hands face side only. 480 cm ² (PROC14)
	Exposed skin area	Two hands 960 cm ² (PROC5, PROC8a)
	Exposed skin area	Two hands and upper wrists 1980 cm ² (PROC24)
Other operational conditions affecting workers exposure	Indoor use(PROC5, PROC8a, PROC14)	
	Assumes activities are at ambient temperature.(PROC5, PROC8a, PROC14)	
	Indoor use(PROC24)	
	Process temperature < melting point(PROC24)	
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (1 to 3 air changes per hour)(PROC5, PROC8a, PROC14, PROC24)	
Conditions and measures related to personal protection, hygiene and health evaluation	Wear eye protection/ face protection. Wear chemically resistant gloves. (Efficiency: 90 %)(PROC5, PROC8a, PROC14, PROC24)	

3. Exposure estimation and reference to its source

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Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8f	---	Fresh water	exposure estimate	0,00027mg/L	< 0,01
ERC8f	---	Marine water	exposure estimate	0,000026mg/L	< 0,01
ERC8f	---	Sewage treatment plant (STP)	exposure estimate	0,000052mg/L	< 0,01
ERC8f	---	Indirect exposure to humans via the environment	Inhalation	< 0,0000001mg/m ³	< 0,01
ERC8f	---	Indirect exposure to humans via the environment	Oral worker exposure	0,000073mg/kg bw/day	< 0,01

For the other ERCs described in the section 1 of this Exposure Scenario: No information available.

Workers

PROC5, PROC8a, PROC14, PROC24: ECETOC TRA v3.0

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC5, PROC14	---	Worker - inhalative, long-term	1mg/m ³	0,188
PROC5, PROC14	---	Worker - inhalative, short-term	4mg/m ³	0,038
PROC5, PROC8a	---	Worker - dermal, long-term - systemic	1,371mg/cm ²	0,686
PROC5	---	Worker - dermal, long-term - local	0,2mg/kg bw/day	0,2
PROC8a	---	Worker - inhalative, long-term	0,5mg/m ³	0,094
PROC8a	---	Worker - inhalative, short-term	2mg/m ³	0,019
PROC8a	---	Worker - dermal, long-term - local	0,1mg/cm ²	0,1
PROC14	---	Worker - dermal, long-term - systemic	0,343mg/kg bw/day	0,172
PROC14	---	Worker - dermal, long-term - local	0,05mg/cm ²	0,05
PROC24	---	Worker - inhalative, long-term	2mg/m ³	0,375
PROC24	---	Worker - inhalative, short-term	8mg/m ³	0,077
PROC24	---	Worker - dermal, long-term - systemic	0,283mg/kg bw/day	0,142
PROC24	---	Worker - dermal, long-term - local	0,01mg/cm ²	0,01

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

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may

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be necessary to define appropriate site-specific risk management measures.
Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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1. Short title of Exposure Scenario 23: Use in building and construction work

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC0: Other
Environmental Release Categories	ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC8f

Amount used	Daily amount for wide dispersive uses	< 0,082 kg/day
	Fraction of EU tonnage used in region:	0,1
Environment factors not influenced by risk management	Flow rate of receiving surface water	18.000 m3/d
Conditions and measures related to sewage treatment plant	Type of Sewage Treatment Plant	Municipal sewage treatment plant
	Flow rate of sewage treatment plant effluent	2.000 m3/d
	Degradation efficiency	87,3 %
	Sludge Treatment	Application of the STP sludge on agricultural soil
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of waste in accordance with environmental legislation.

2.2 Contributing scenario controlling consumer exposure for: PC0

Use of substance containing construction materials

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 10%
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3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8f	---	Fresh water	exposure estimate	0,00027mg/L	< 0,01
ERC8f	---	Marine water	exposure estimate	0,000026mg/L	< 0,01
ERC8f	---	Sewage treatment plant (STP)	exposure estimate	0,000052mg/L	< 0,01
ERC8f	---	Indirect exposure to humans via the environment	Inhalation	< 0,0000001mg/m ³	< 0,01
ERC8f	---	Indirect exposure to humans via the environment	Oral worker exposure	0,000073mg/kg bw/day	< 0,01

For the other ERCs described in the section 1 of this Exposure Scenario: No information available.

Consumers

No data available.

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

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Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Predicted exposures are not expected to exceed the applicable exposure limits when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES