

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

L(+)-Lactic Acid

Version 3.3

Revision Date 14.07.2016

Print Date 27.05.2017

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

1.1 Product identifier

Trade name : L(+)-Lactic Acid
Substance name : L(+)-lactic acid aqueous solution
Molecular formula : C3-H6-O3
Chemical identity : S(+)-2-Hydroxypropanoic acid
CAS-No. : 79-33-4
EC-No. : 201-196-2
REACH No. : 01-2119474164-39-0004

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

Use of the Sub-
stance/Mixture : Food/ feedstuff additives, Pharmaceutical substance, Personal care, Cleaning agent, Biocidal product, Industrial use, For further information see eSDS.
Recommended restrictions
on use : None known.

1.3 Details of the supplier of the safety data sheet

Gracefruit Limited
209 Glasgow Road
Longcroft
Bonnybridge
FK4 1QQ

01324 841353

1.4 Emergency telephone number

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin irritation, Category 2 H315: Causes skin irritation.

Eye irritation, Category 1 H318: Causes serious eye damage.

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2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements : H315 Causes skin irritation.
H318 Causes serious eye damage.

Precautionary statements : **Prevention:**
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ protective clothing/
eye protection/ face protection.

Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and
water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with wa-
ter for several minutes. Remove contact
lenses, if present and easy to do. Continue
rinsing.
P310 Immediately call a POISON
CENTER/doctor.
P321 Specific treatment (see supplemental first
aid instructions on this label).
P332 + P313 If skin irritation occurs: Get medical advice/
attention.
P362 + P364 Take off contaminated clothing and wash it
before reuse.

2.3 Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Mixture

Chemical name	CAS-No. EC-No. REACH No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [%]
Hazardous components :			
L(+)-lactic acid	79-33-4 201-196-2 01-2119474164-39-0004	Skin Irrit.2; H315 Eye Irrit.1; H318	>= 50
Non-hazardous ingredients :			
H2O	7732-18-5 231-791-2 REACH - Annex IV -		<= 50

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	Exemptions		
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For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
Show this safety data sheet to the doctor in attendance.
First aider needs to protect himself.
Wash contaminated clothing before re-use.
- If inhaled : If breathed in, move person into fresh air.
If symptoms persist, call a physician.
- In case of skin contact : In case of contact, immediately flush skin with soap and plenty of water.
If skin irritation persists, call a physician.
Take off contaminated clothing and shoes immediately.
- In case of eye contact : Protect unharmed eye.
If easy to do, remove contact lens, if worn.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- If swallowed : If swallowed, seek medical advice immediately and show this container or label.
Gently wipe or rinse the inside of the mouth with water.
If swallowed, DO NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : Severe eye irritation
Erythema
Skin disorders
- Risks : Causes skin irritation.
Causes serious eye damage.

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 : Water spray
Dry powder
Foam
Carbon dioxide (CO₂)

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Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Do not use a solid water stream as it may scatter and spread fire.
Hazardous decomposition products may be formed under fire conditions (see section 10).
Exposure to decomposition products may be a hazard to health.

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

Further information : Standard procedure for chemical fires.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
In the event of fire and/or explosion do not breathe fumes.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Refer to protective measures listed in sections 7 and 8.
Use personal protective equipment.
Avoid contact with skin and eyes.
Ensure adequate ventilation, especially in confined areas.
Avoid inhalation of vapour or mist.

6.2 Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.
Clean contaminated surface thoroughly.

6.4 Reference to other sections

For personal protection see section 8.
For disposal considerations see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Advice on safe handling : Avoid contact with skin and eyes.
Do not breathe vapours or spray mist.
Wear personal protective equipment.
- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
General industrial hygiene practice.
Avoid contact with skin, eyes and clothing.
When using do not eat, drink or smoke.
Wash hands before breaks and at the end of workday.
Follow the skin protection plan.
Take off all contaminated clothing immediately.
Wash contaminated clothing before re-use.
- Dust explosion class : Not applicable

7.2 Conditions for safe storage, including any incompatibilities

- Requirements for storage areas and containers : Store in original container.
Keep container tightly closed in a dry and well-ventilated place.
Keep in an area equipped with acid resistant flooring.
- Advice on common storage : Incompatible with bases.
- Storage temperature : > 5 °C
- Other data : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

- Specific use(s) : none

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

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

- L(+)-lactic acid : Water
Value: 1,3 mg/l

8.2 Exposure controls

Engineering measures

Provide adequate ventilation.

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Personal protective equipment

- Eye protection : Safety glasses
Ensure that eyewash stations and safety showers are close to the workstation location.
- Hand protection
Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work.
For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer.
- Skin and body protection : Wear suitable protective clothing.
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Respiratory protection : In the case of vapour formation use a respirator with an approved filter.
Half mask with a particle filter P2 (EN 143)
- Protective measures : Avoid contact with skin and clothing.
Wash thoroughly after handling.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Appearance : Aqueous solution
- Colour : colourless, light yellow
- Odour : characteristic
- Odour Threshold : Not relevant
- pH : < 2, (25 °C)
- Melting point/range : Not applicable
- Boiling point/boiling range : 110 - 130 °C
- Flash point : Not applicable
- Evaporation rate : Not applicable
- Flammability (solid, gas) : does not ignite
- Upper explosion limit : Not applicable
- Lower explosion limit : Not applicable
- Vapour pressure : No data available
- Vapour density : No data available
- Relative density : No data available
- Density : 1,1 - 1,25 g/cm³

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Water solubility : completely miscible

Ignition temperature : 400 °C

Thermal decomposition : No data available

Viscosity, dynamic : 5 - 60 mPa.s (25 °C)

Viscosity, kinematic : No data available

Explosive properties : Not applicable

Oxidizing properties : No data available

9.2 Other information

Molecular weight : 90,08 g/mol

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : No dangerous reaction known under conditions of normal use.
Hazardous decomposition products formed under fire conditions.

10.4 Conditions to avoid

Conditions to avoid : Temperature > 200 °C

10.5 Incompatible materials

Materials to avoid : Bases
Oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products : Build-up of dangerous/toxic fumes possible in cases of fire/high temperature.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

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Components:

L(+)-lactic acid:

Acute oral toxicity : LD50 Oral Rat: 3.730 mg/kg

LD50 Oral Mouse: 4.875 mg/kg

Acute dermal toxicity : LD50 Dermal Rabbit: > 2.000 mg/kg

Skin corrosion/irritation

Components:

L(+)-lactic acid:

: Species: Guinea pig
Result: Mild skin irritation

Species: Rabbit
Result: Severe skin irritation

Serious eye damage/eye irritation

Components:

L(+)-lactic acid:

: Species: Rabbit
Result: irritating

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

Components:

L(+)-lactic acid:

Germ cell mutagenicity- Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity

Components:

L(+)-lactic acid:

Carcinogenicity - Assessment : Animal testing did not show any carcinogenic effects.

Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

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No data available

Aspiration hazard

No data available

SECTION 12: Ecological information

12.1 Toxicity

Components:

L(+)-lactic acid:

- Toxicity to fish : LC50 : 320 mg/l
Exposure time: 48 h
- Toxicity to daphnia and other aquatic invertebrates : (Daphnia pulex (Water flea)): 240 mg/l
Exposure time: 48 h
- Toxicity to algae : EC50 (Scenedesmus capricornutum (fresh water algae)): 3.500 mg/l

12.2 Persistence and degradability

Components:

L(+)-lactic acid:

- Biodegradability : Kinetic:
28 d: 64 %
Method: OECD Test Guideline 301D
Readily biodegradable.
- Biochemical Oxygen Demand (BOD) : 0.45 mg/mg
Incubation time: 5 d
- 0.6 mg/mg
Incubation time: 20 d
- Chemical Oxygen Demand (COD) : 0.9 mg/mg

12.3 Bioaccumulative potential

Components:

L(+)-lactic acid:

- Bioaccumulation : The product is miscible in water and readily biodegradable in both water and soil. Accumulation is not expected.
- Partition coefficient: n-octanol/water : log Pow: -0,62

12.4 Mobility in soil

No data available

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12.5 Results of PBT and vPvB assessment

Components:

L(+)-lactic acid:

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

12.6 Other adverse effects

Product:

Additional ecological information : No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : In accordance with local and national regulations.
Do not dispose of waste into sewer.
Do not dispose of together with household waste.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADR : Not dangerous goods
RID : Not dangerous goods
IMDG : Not dangerous goods
IATA : Not dangerous goods

14.2 Proper shipping name

ADR : Not dangerous goods
RID : Not dangerous goods
IMDG : Not dangerous goods
IATA : Not dangerous goods

14.3 Transport hazard class

ADR : Not dangerous goods
RID : Not dangerous goods
IMDG : Not dangerous goods
IATA : Not dangerous goods

14.4 Packing group

ADR : Not dangerous goods
RID : Not dangerous goods
IMDG : Not dangerous goods
IATA : Not dangerous goods

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14.5 Environmental hazards

ADR : Not dangerous goods
RID : Not dangerous goods
IMDG : Not dangerous goods
IATA : Not dangerous goods

14.6 Special precautions for user

Not applicable

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

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Not applicable

The components of this product are reported in the following inventories:

EINECS : On the inventory, or in compliance with the inventory
TSCA : On TSCA Inventory
AICS : On the inventory, or in compliance with the inventory
DSL : All components of this product are on the Canadian DSL
NZIoC : On the inventory, or in compliance with the inventory
KECI : On the inventory, or in compliance with the inventory
ENCS : On the inventory, or in compliance with the inventory
PICCS : On the inventory, or in compliance with the inventory
IECSC : On the inventory, or in compliance with the inventory
REACH : Notification number: 01-2119474164-39-000

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

H315 : Causes skin irritation.
H318 : Causes serious eye damage.

Full text of other abbreviations

Eye Irrit. : Eye irritation
Skin Irrit. : Skin irritation

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to

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be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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

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Title of Exposure Scenario	Main User Groups	Sectors of end-use	Chemical product category	Process categories	Environmental Release Categories	Article categories	Ref.
Use in agriculture, forestry, fishery	SU 22	SU1, SU 22	PC9a, PC12, PC15, PC20, PC21	PROC3, PROC4, PROC8b, PROC9, PROC15	ERC2, ERC4, ERC8a, ERC9a		1
Use in mining	SU 22	SU2a, SU2b, SU 22		PROC2	ERC2, ERC4		2
Use in mining (without off-shore industries)	SU 22	SU2a, SU 3, SU 22	PC37	PROC2	ERC4		3
Industrial manufacturing without subsequent relevant service life	SU 3	SU 3	PC1, PC3, PC4, PC8, PC9a, PC9b, PC9c, PC14, PC15, PC20, PC21, PC24, PC25, PC31, PC35, PC38	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15, PROC16, PROC17, PROC18, PROC19, PROC20, PROC24, PROC26	ERC2, ERC4, ERC5, ERC6b, ERC7, ERC8a, ERC8b, ERC8d, ERC8e, ERC9a, ERC9b		4
Industrial manufacturing with subsequent relevant service life	SU 3	SU 3	PC9a, PC9b, PC9c, PC35	PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC11	ERC4, ERC5	AC1	5
Manufacture of pulp, paper and paper products	SU 3	SU6b		PROC4	ERC1		6
Manufacture of bulk, large scale chemicals (including petroleum products)	SU 3	SU8, SU 3	PC9a, PC15, PC19, PC20, PC21, PC35	PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9,	ERC2, ERC4, ERC6a, ERC6b, ERC9a		7

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				PROC15			
Manufacture of fine chemicals	SU 3	SU9, SU 3	PC9a, PC15, PC19, PC20, PC21, PC35, PC37	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC15, PROC21, PROC26	ERC2, ERC4, ERC6a, ERC6b, ERC6d, ERC9a		8
Manufacture of plastics products, including compounding and conversion	SU 3	SU 3	PC32	PROC5	ERC6c	AC13	9
Building and construction work	SU 3	SU19	PC0	PROC9	ERC5		10
Health services	SU 22	SU20	PC19, PC21	PROC9, PROC15			11
Formulation of preparations and/or re-packaging, without relevant subsequent service life	SU 3	SU 10, SU 3, SU 22	PC4, PC8, PC9a, PC14, PC15, PC17, PC19, PC20, PC21, PC24, PC25, PC28, PC29, PC31, PC35, PC37, PC38, PC39	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC14, PROC15, PROC18, PROC19, PROC26	ERC2, ERC4, ERC5, ERC6a, ERC6b, ERC7, ERC8a, ERC9a		12
Formulation of preparations and/or re-packaging, with relevant subsequent service life	SU 3	SU 3, SU 10, SU 22	PC9a, PC9c, PC9b, PC35	PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC11	ERC4, ERC5	AC1	13
Manufacture of food products, without relevant subsequent service life	SU 3	SU4	PC0, PC2, PC20, PC36, PC37	PROC3, PROC4, PROC5, PROC0	ERC2, ERC5, ERC6a		14
Manufacture of food products, with relevant subsequent service life	SU 3	SU4	PC0	PROC5	ERC3	AC 0	15

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Public domain, without relevant subsequent service life	SU 22	SU 22	PC12, PC19, PC21, PC24, PC25, PC31, PC34, PC35, PC39	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15, PROC17, PROC19, PROC20, PROC24	ERC2, ERC4, ERC5, ERC6b, ERC7, ERC8a, ERC8b, ERC8d, ERC8e, ERC8f, ERC9a, ERC9b		16
Public domain, with relevant subsequent service life	SU 22	SU 22		PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC16, PROC18, PROC19, PROC20	ERC8a, ERC8d, ERC8f, ERC9a, ERC9b, ERC10b		17
Private household, without relevant subsequent service life	SU 21	SU 21	PC1, PC2, PC3, PC4, PC8, PC9a, PC9b, PC9c, PC12, PC13, PC14, PC15, PC17, PC20, PC21, PC24, PC25, PC31, PC32, PC35, PC39		ERC1, ERC2, ERC4, ERC8a, ERC8c, ERC8d, ERC9a		18
Private household, with relevant subsequent service life	SU 21	SU 21	PC1, PC4, PC8, PC9b, PC9c, PC15,		ERC8a, ERC8d, ERC8f, ERC9a, ERC9b, ERC10b	AC02, AC1, AC2	19

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			PC20, PC24, PC31, PC35				
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1. Short title of Exposure Scenario: (Ref.: 1) Use in agriculture, forestry, fishery

Main User Groups	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	: SU1: Agriculture, forestry, fishery SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Chemical product category	: PC9a: Coatings and paints, thinners, paint removers PC12: Fertilizers PC15: Non-metal-surface treatment products PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21: Laboratory chemicals
Process categories	: PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises 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 ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC8a: Wide dispersive indoor use of processing aids in open systems ERC9a: Wide dispersive indoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC4, ERC8a, ERC9a: Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles, Wide dispersive indoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Amount used

EU tonnage : 58000 t/a

Technical conditions and measures / Organizational measures

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Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

2.2 Contributing scenario controlling worker exposure for: PROC3, PROC4, PROC8b, PROC9, PROC15: Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Use as laboratory reagent

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.

Rubber gloves

Face-shield

Boots

Chemical resistant apron

Long sleeved clothing

Note

Local effects

Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment	Specific conditions	Compartment	Value	Level of Exposure	RCR
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	Method					
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario: (Ref.: 2) Use in mining

Main User Groups	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	: SU2a: Mining, (without offshore industries) SU2b: Offshore industries SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	: PROC2: Use in closed, continuous process with occasional controlled exposure
Environmental Release Categories	: ERC2: Formulation of preparations ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC4: Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Amount used

EU tonnage : 58000 t/a

Technical conditions and measures / Organizational measures

Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

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

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

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Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.

Rubber gloves

Face-shield

Boots

Chemical resistant apron

Long sleeved clothing

Note

Local effects

Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

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The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario: (Ref.: 3) Use in mining (without offshore industries)

Main User Groups	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	: SU2a: Mining, (without offshore industries) SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Chemical product category	: PC37: Water treatment chemicals
Process categories	: PROC2: Use in closed, continuous process with occasional controlled exposure
Environmental Release Categories	: ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure for: **ERC4: Industrial use of processing aids in processes and products, not becoming part of articles**

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Amount used

EU tonnage : 58000 t/a

Technical conditions and measures / Organizational measures

Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

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

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

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Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.

Rubber gloves

Face-shield

Boots

Chemical resistant apron

Long sleeved clothing

Note

Local effects

Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario: (Ref.: 4) Industrial manufacturing without subsequent relevant service life

- Main User Groups : **SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
- Sectors of end-use : **SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
- Chemical product category : **PC1:** Adhesives, sealants
PC3: Air care products
PC4: Anti-Freeze and de-icing products
PC8: Biocidal products (e.g. Disinfectants, pest control)
PC9a: Coatings and paints, thinners, paint removers
PC9b: Fillers, putties, plasters, modelling clay
PC9c: Finger paints
PC14: Metal surface treatment products, including galvanic and electroplating products
PC15: Non-metal-surface treatment products
PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents
PC21: Laboratory chemicals
PC24: Lubricants, greases, release products
PC25: Metal working fluids
PC31: Polishes and wax blends
PC35: Washing and cleaning products (including solvent based products)
PC38: Welding and soldering products (with flux coatings or flux cores.), flux products
- Process categories : **PROC1:** Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
PROC6: Calendering operations
PROC7: Industrial spraying
PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC10: Roller application or brushing
PROC11: Non industrial spraying
PROC13: Treatment of articles by dipping and pouring
PROC14: Production of preparations or articles by tableting,

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compression, extrusion, pelletisation

PROC15: Use as laboratory reagent

PROC16: Using material as fuel sources, limited exposure to unburned product to be expected

PROC17: Lubrication at high energy conditions and in partly open process

PROC18: Greasing at high energy conditions

PROC19: Hand-mixing with intimate contact and only PPE available

PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems

PROC24: High (mechanical) energy work-up of substances bound in materials and/ or articles

PROC26: Handling of solid inorganic substances at ambient temperature

Environmental Release Categories : **ERC2:** Formulation of preparations
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
ERC5: Industrial use resulting in inclusion into or onto a matrix
ERC6b: Industrial use of reactive processing aids
ERC7: Industrial use of substances in closed systems
ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8b: Wide dispersive indoor use of reactive substances in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems
ERC8e: Wide dispersive outdoor use of reactive substances in open systems
ERC9a: Wide dispersive indoor use of substances in closed systems
ERC9b: Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC4, ERC5, ERC6b, ERC7, ERC8a, ERC8b, ERC8d, ERC8e, ERC9a, ERC9b: Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix, Industrial use of reactive processing aids, Industrial use of substances in closed systems, Wide dispersive indoor use of processing aids in open systems, Wide dispersive indoor use of reactive substances in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive outdoor use of reactive substances in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Amount used

EU tonnage : 58000 t/a

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Technical conditions and measures / Organizational measures

Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15, PROC16, PROC17, PROC18, PROC19, PROC20, PROC24, PROC26:
Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Calendaring operations, Industrial spraying, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Roller application or brushing, Non industrial spraying, Treatment of articles by dipping and pouring, Production of preparations or articles by tableting, compression, extrusion, pelletisation, Use as laboratory reagent, Using material as fuel sources, limited exposure to unburned product to be expected, Lubrication at high energy conditions and in partly open process, Greasing at high energy conditions, Hand-mixing with intimate contact and only PPE available, Heat and pressure transfer fluids in dispersive, professional use but closed systems, High (mechanical) energy work-up of substances bound in materials and/ or articles, Handling of solid inorganic substances at ambient temperature

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.
Rubber gloves
Face-shield

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Boots
Chemical resistant apron
Long sleeved clothing

Note

Local effects
Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.
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1. Short title of Exposure Scenario: (Ref.: 5) Industrial manufacturing with subsequent relevant service life

Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Chemical product category	: PC9a: Coatings and paints, thinners, paint removers PC9b: Fillers, putties, plasters, modelling clay PC9c: Finger paints PC35: Washing and cleaning products (including solvent based products)
Process categories	: 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 PROC11: Non industrial spraying
Article categories	: AC1: Vehicles
Environmental Release Categories	: ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC5: Industrial use resulting in inclusion into or onto a matrix

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

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Amount used

EU tonnage : 58000 t/a

Technical conditions and measures / Organizational measures

Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not rele-

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vant.

2.2 Contributing scenario controlling worker exposure for: PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC11: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Industrial spraying, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Roller application or brushing, Non industrial spraying

Product (article) characteristic

Remarks : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.

Rubber gloves

Face-shield

Boots

Chemical resistant apron

Long sleeved clothing

Note

Local effects

Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used		All compartments			

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to conclude
safe use.

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario: (Ref.: 6) Manufacture of pulp, paper and paper products

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
Process categories	: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
Environmental Release Categories	: ERC1: Manufacture of substances

2.1 Contributing scenario controlling environmental exposure for: ERC1: Manufacture of substances

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Amount used

EU tonnage : 58000 t/a

Technical conditions and measures / Organizational measures

Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

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

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated

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clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.

Rubber gloves

Face-shield

Boots

Chemical resistant apron

Long sleeved clothing

Note

Local effects

Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario: (Ref.: 7) Manufacture of bulk, large scale chemicals (including petroleum products)

- Main User Groups : **SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
- Sectors of end-use : **SU8:** Manufacture of bulk, large scale chemicals (including petroleum products)
SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
- Chemical product category : **PC9a:** Coatings and paints, thinners, paint removers
PC15: Non-metal-surface treatment products
PC19: Intermediate
PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents
PC21: Laboratory chemicals
PC35: Washing and cleaning products (including solvent based products)
- Process categories : **PROC3:** Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15: Use as laboratory reagent
- Environmental Release Categories : **ERC2:** Formulation of preparations
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b: Industrial use of reactive processing aids
ERC9a: Wide dispersive indoor use of substances in closed systems

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2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC4, ERC6a, ERC6b, ERC9a: Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of reactive processing aids, Wide dispersive indoor use of substances in closed systems

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Amount used

EU tonnage : 58000 t/a

Technical conditions and measures / Organizational measures

Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

2.2 Contributing scenario controlling worker exposure for: PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15: Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/ or significant contact), Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Use as laboratory reagent

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

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

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Breathing apparatus only if aerosol or dust is formed.
Rubber gloves
Face-shield
Boots
Chemical resistant apron
Long sleeved clothing

Note

Local effects
Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario: (Ref.: 8) Manufacture of fine chemicals

- Main User Groups : **SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
- Sectors of end-use : **SU9:** Manufacture of fine chemicals
SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
- Chemical product category : **PC9a:** Coatings and paints, thinners, paint removers
PC15: Non-metal-surface treatment products
PC19: Intermediate
PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents
PC21: Laboratory chemicals
PC35: Washing and cleaning products (including solvent based products)
PC37: Water treatment chemicals
- Process categories : **PROC1:** Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
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
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
PROC26: Handling of solid inorganic substances at ambient temperature
- Environmental Release Categories : **ERC2:** Formulation of preparations
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b: Industrial use of reactive processing aids
ERC6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
ERC9a: Wide dispersive indoor use of substances in closed systems

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2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC4, ERC6a, ERC6b, ERC6d, ERC9a: Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of reactive processing aids, Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers, Wide dispersive indoor use of substances in closed systems

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Amount used

EU tonnage : 58000 t/a

Technical conditions and measures / Organizational measures

Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC15, PROC21, PROC26: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact), Calendring operations, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Use as laboratory reagent, Low energy manipulation of substances bound in materials and/ or articles, Handling of solid inorganic substances at ambient temperature

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

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Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.

Rubber gloves

Face-shield

Boots

Chemical resistant apron

Long sleeved clothing

Note

Local effects

Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

The immediate downstream user is required to evaluate

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whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

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1. Short title of Exposure Scenario: (Ref.: 9) Manufacture of plastics products, including compounding and conversion

Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Chemical product category	: PC32: Polymer preparations and compounds
Process categories	: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
Article categories	: AC13: Plastic articles
Environmental Release Categories	: ERC6c: Industrial use of monomers for manufacture of thermoplastics

2.1 Contributing scenario controlling environmental exposure for: ERC6c: Industrial use of monomers for manufacture of thermoplastics

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Amount used

EU tonnage : 58000 t/a

Technical conditions and measures / Organizational measures

Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

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

Product (article) characteristic

Remarks : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

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Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.

Rubber gloves

Face-shield

Boots

Chemical resistant apron

Long sleeved clothing

Note

Local effects

Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario: (Ref.: 10) 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
Chemical product category	: PC0: Other: building and construction preparations
Process categories	: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Environmental Release Categories	: ERC5: Industrial use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure for: ERC5: Industrial use resulting in inclusion into or onto a matrix

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Amount used

EU tonnage : 58000 t/a

Technical conditions and measures / Organizational measures

Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

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

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

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Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.

Rubber gloves

Face-shield

Boots

Chemical resistant apron

Long sleeved clothing

Note

Local effects

Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

The immediate downstream user is required to evaluate

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whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario: (Ref.: 11) Health services

Main User Groups	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	: SU20: Health services
Chemical product category	: PC19: Intermediate PC21: Laboratory chemicals
Process categories	: PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent

2.2 Contributing scenario controlling worker exposure for: PROC9, PROC15: Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Use as laboratory reagent

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.
Rubber gloves
Face-shield
Boots
Chemical resistant apron
Long sleeved clothing

Note

Local effects
Risk Management Measures are based on qualitative risk characterisation.

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3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario: (Ref.: 12) Formulation of preparations and/or re-packaging, without relevant subsequent service life

- 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)
SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
- Chemical product category : **PC4:** Anti-Freeze and de-icing products
PC8: Biocidal products (e.g. Disinfectants, pest control)
PC9a: Coatings and paints, thinners, paint removers
PC14: Metal surface treatment products, including galvanic and electroplating products
PC15: Non-metal-surface treatment products
PC17: Hydraulic fluids
PC19: Intermediate
PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents
PC21: Laboratory chemicals
PC24: Lubricants, greases, release products
PC25: Metal working fluids
PC28: Perfumes, fragrances
PC29: Pharmaceuticals
PC31: Polishes and wax blends
PC35: Washing and cleaning products (including solvent based products)
PC37: Water treatment chemicals
PC38: Welding and soldering products (with flux coatings or flux cores.), flux products
PC39: Cosmetics, personal care products
- Process categories : **PROC1:** Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
PROC7: Industrial spraying
PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small con-

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tainers (dedicated filling line, including weighing)
PROC10: Roller application or brushing
PROC11: Non industrial spraying
PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation
PROC15: Use as laboratory reagent
PROC18: Greasing at high energy conditions
PROC19: Hand-mixing with intimate contact and only PPE available
PROC26: Handling of solid inorganic substances at ambient temperature

Environmental Release Categories : **ERC2:** Formulation of preparations
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
ERC5: Industrial use resulting in inclusion into or onto a matrix
ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b: Industrial use of reactive processing aids
ERC7: Industrial use of substances in closed systems
ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC9a: Wide dispersive indoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC4, ERC5, ERC6a, ERC6b, ERC7, ERC8a, ERC9a: Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of reactive processing aids, Industrial use of substances in closed systems, Wide dispersive indoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Amount used

EU tonnage : 58000 t/a

Technical conditions and measures / Organizational measures

Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

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2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC14, PROC15, PROC18, PROC19, PROC26: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Industrial spraying, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Roller application or brushing, Non industrial spraying, Production of preparations or articles by tableting, compression, extrusion, pelletisation, Use as laboratory reagent, Greasing at high energy conditions, Hand-mixing with intimate contact and only PPE available, Handling of solid inorganic substances at ambient temperature

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.

Rubber gloves

Face-shield

Boots

Chemical resistant apron

Long sleeved clothing

Note

Local effects

Risk Management Measures are based on qualitative risk characterisation.

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3. Exposure estimation and reference to its source**Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.
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1. Short title of Exposure Scenario: (Ref.: 13) Formulation of preparations and/or re-packaging, with relevant subsequent service life

Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Chemical product category	: PC9a: Coatings and paints, thinners, paint removers PC9c: Finger paints PC9b: Fillers, putties, plasters, modelling clay PC35: Washing and cleaning products (including solvent based products)
Process categories	: 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 PROC11: Non industrial spraying
Article categories	: AC1: Vehicles
Environmental Release Categories	: ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC5: Industrial use resulting in inclusion into or onto a matrix

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

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Amount used

EU tonnage : 58000 t/a

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Technical conditions and measures / Organizational measures

Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

2.2 Contributing scenario controlling worker exposure for: PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC11: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Industrial spraying, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Roller application or brushing, Non industrial spraying

Product (article) characteristic

Remarks : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.

Rubber gloves

Face-shield

Boots

Chemical resistant apron

Long sleeved clothing

Note

Local effects

Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Contributing	Exposure As-	Specific	Compartment	Value	Level of	RCR
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Scenario	Assessment Method	conditions			Exposure	
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario: (Ref.: 14) Manufacture of food products, without relevant subsequent service life

Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	: SU4: Manufacture of food products
Chemical product category	: PC0: Other: not specified PC2: Adsorbents PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents PC36: Water softeners PC37: Water treatment chemicals
Process categories	: PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) PROC0: Other Process or activity
Environmental Release Categories	: ERC2: Formulation of preparations ERC5: Industrial use resulting in inclusion into or onto a matrix ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC5, ERC6a: Formulation of preparations, Industrial use resulting in inclusion into or onto a matrix, Industrial use resulting in manufacture of another substance (use of intermediates)

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Amount used

EU tonnage : 58000 t/a

Technical conditions and measures / Organizational measures

Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

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2.2 Contributing scenario controlling worker exposure for: PROC0, PROC3, PROC4, PROC5: Other Process or activity, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/ or significant contact)

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.

Rubber gloves

Face-shield

Boots

Chemical resistant apron

Long sleeved clothing

Note

Local effects

Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.		All compartments			

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Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario: (Ref.: 15) Manufacture of food products, with relevant subsequent service life

Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	: SU4: Manufacture of food products
Chemical product category	: PC0: Other: not specified
Process categories	: PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
Article categories	: AC 0: Other Articles
Environmental Release Categories	: ERC3: Formulation in materials

2.1 Contributing scenario controlling environmental exposure for: ERC3: Formulation in materials

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Amount used

EU tonnage : 58000 t/a

Technical conditions and measures / Organizational measures

Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

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

Product (article) characteristic

Remarks : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

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Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.

Rubber gloves

Face-shield

Boots

Chemical resistant apron

Long sleeved clothing

Note

Local effects

Risk Management Measures are based on qualitative risk characterisation.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

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The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario: (Ref.: 16) Public domain, without relevant subsequent service life

- Main User Groups : **SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
- Sectors of end-use : **SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
- Chemical product category : **PC12:** Fertilizers
PC19: Intermediate
PC21: Laboratory chemicals
PC24: Lubricants, greases, release products
PC25: Metal working fluids
PC31: Polishes and wax blends
PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids
PC35: Washing and cleaning products (including solvent based products)
PC39: Cosmetics, personal care products
- Process categories : **PROC1:** Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
PROC7: Industrial spraying
PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC10: Roller application or brushing
PROC11: Non industrial spraying
PROC13: Treatment of articles by dipping and pouring
PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation
PROC15: Use as laboratory reagent
PROC17: Lubrication at high energy conditions and in partly open process
PROC19: Hand-mixing with intimate contact and only PPE available
PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems
PROC24: High (mechanical) energy work-up of substances bound in materials and/ or articles

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Environmental Release Categories : **ERC2:** Formulation of preparations
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
ERC5: Industrial use resulting in inclusion into or onto a matrix
ERC6b: Industrial use of reactive processing aids
ERC7: Industrial use of substances in closed systems
ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8b: Wide dispersive indoor use of reactive substances in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems
ERC8e: Wide dispersive outdoor use of reactive substances in open systems
ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix
ERC9a: Wide dispersive indoor use of substances in closed systems
ERC9b: Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC4, ERC5, ERC6b, ERC7, ERC8a, ERC8b, ERC8d, ERC8e, ERC8f, ERC9a, ERC9b: Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix, Industrial use of reactive processing aids, Industrial use of substances in closed systems, Wide dispersive indoor use of processing aids in open systems, Wide dispersive indoor use of reactive substances in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive outdoor use of reactive substances in open systems, Wide dispersive outdoor use resulting in inclusion into or onto a matrix, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Amount used

EU tonnage : 58000 t/a

Technical conditions and measures / Organizational measures

Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

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2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15, PROC17, PROC19, PROC20, PROC24: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Industrial spraying, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Roller application or brushing, Non industrial spraying, Treatment of articles by dipping and pouring, Production of preparations or articles by tableting, compression, extrusion, pelletisation, Use as laboratory reagent, Lubrication at high energy conditions and in partly open process, Hand-mixing with intimate contact and only PPE available, Heat and pressure transfer fluids in dispersive, professional use but closed systems, High (mechanical) energy work-up of substances bound in materials and/ or articles

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.

Rubber gloves

Face-shield

Boots

Chemical resistant apron

Long sleeved clothing

Note

Local effects

Risk Management Measures are based on qualitative risk characterisation.

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3. Exposure estimation and reference to its source**Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario: (Ref.: 17) Public domain, with relevant subsequent service life

Main User Groups	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	: PROC8a: Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC16: Using material as fuel sources, limited exposure to unburned product to be expected PROC18: Greasing at high energy conditions PROC19: Hand-mixing with intimate contact and only PPE available PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems
Environmental Release Categories	: ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC9a: Wide dispersive indoor use of substances in closed systems ERC9b: Wide dispersive outdoor use of substances in closed systems ERC10b: Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing)

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d, ERC8f, ERC9a, ERC9b, ERC10b: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive outdoor use resulting in inclusion into or onto a matrix, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems, Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing)

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Amount used

EU tonnage : 58000 t/a

Technical conditions and measures / Organizational measures

Remarks : No RMMs applicable. No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC16, PROC18, PROC19, PROC20: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Roller application or brushing, Non industrial spraying, Treatment of articles by dipping and pouring, Using material as fuel sources, limited exposure to unburned product to be expected, Greasing at high energy conditions, Hand-mixing with intimate contact and only PPE available, Heat and pressure transfer fluids in dispersive, professional use but closed systems

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Technical conditions and measures

Ensure adequate ventilation, especially in confined areas. Avoid temperatures above 200°C.

Organisational measures to prevent /limit releases, dispersion and exposure

Do not eat, drink or smoke when using this product. Avoid skin contact. Remove and wash contaminated clothing before re-use.

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

Breathing apparatus only if aerosol or dust is formed.
Rubber gloves
Face-shield
Boots
Chemical resistant apron
Long sleeved clothing

Note

Local effects
Risk Management Measures are based on qualitative risk characterisation.

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3. Exposure estimation and reference to its source**Environment**

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Qualitative approach used to conclude safe use.				

All PROCs : All PROCs mentioned in section 1.

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario: (Ref.: 18) Private household, without relevant subsequent service life

- Main User Groups : **SU 21:** Consumer uses: Private households (= general public = consumers)
- Sectors of end-use : **SU 21:** Consumer uses: Private households (= general public = consumers)
- Chemical product category : **PC1:** Adhesives, sealants
PC2: Adsorbents
PC3: Air care products
PC4: Anti-Freeze and de-icing products
PC8: Biocidal products (e.g. Disinfectants, pest control)
PC9a: Coatings and paints, thinners, paint removers
PC9b: Fillers, putties, plasters, modelling clay
PC9c: Finger paints
PC12: Fertilizers
PC13: Fuels
PC14: Metal surface treatment products, including galvanic and electroplating products
PC15: Non-metal-surface treatment products
PC17: Hydraulic fluids
PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents
PC21: Laboratory chemicals
PC24: Lubricants, greases, release products
PC25: Metal working fluids
PC31: Polishes and wax blends
PC32: Polymer preparations and compounds
PC35: Washing and cleaning products (including solvent based products)
PC39: Cosmetics, personal care products
- Environmental Release Categories : **ERC1:** Manufacture of substances
ERC2: Formulation of preparations
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix
ERC8d: Wide dispersive outdoor use of processing aids in open systems
ERC9a: Wide dispersive indoor use of substances in closed systems

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2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC4, ERC8a, ERC8c, ERC8d, ERC9a: Manufacture of substances, Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles, Wide dispersive indoor use of processing aids in open systems, Wide dispersive indoor use resulting in inclusion into or onto a matrix, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%. Maximum in consumer products No hazard to the environment. Environmental exposure assessment for this scenario is not relevant.

Amount used

EU tonnage : 58000 t/a

2.2 Contributing scenario controlling consumer exposure for: PC1, PC2, PC3, PC4, PC8, PC9a, PC9b, PC9c, PC12, PC13, PC14, PC15, PC17, PC20, PC21, PC24, PC25, PC31, PC32, PC35, PC39: Adhesives, sealants, Adsorbents, Air care products, Anti-Freeze and de-icing products, Biocidal products (e.g. Disinfectants, pest control), Coatings and paints, thinners, paint removers, Fillers, putties, plasters, modelling clay, Finger paints, Fertilizers, Fuels, Metal surface treatment products, including galvanic and electroplating products, Non-metal-surface treatment products, Hydraulic fluids, Products such as pH-regulators, flocculants, precipitants, neutralization agents, Laboratory chemicals, Lubricants, greases, release products, Metal working fluids, Polishes and wax blends, Polymer preparations and compounds, Washing and cleaning products (including solvent based products), Cosmetics, personal care products

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%. Maximum in consumer products No health hazard below this concentration.

3. Exposure estimation and reference to its source

Environment

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Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.				

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario: (Ref.: 19) Private household, with relevant subsequent service life

- Main User Groups : **SU 21:** Consumer uses: Private households (= general public = consumers)
- Sectors of end-use : **SU 21:** Consumer uses: Private households (= general public = consumers)
- Chemical product category : **PC1:** Adhesives, sealants
PC4: Anti-Freeze and de-icing products
PC8: Biocidal products (e.g. Disinfectants, pest control)
PC9b: Fillers, putties, plasters, modelling clay
PC9c: Finger paints
PC15: Non-metal-surface treatment products
PC20: Products such as pH-regulators, flocculants, precipitants, neutralization agents
PC24: Lubricants, greases, release products
PC31: Polishes and wax blends
PC35: Washing and cleaning products (including solvent based products)
- Article categories : **AC02:** Other (intended to be released): not specified
AC1: Vehicles
AC2: Machinery, mechanical appliances, electrical/ electronic articles
- Environmental Release Categories : **ERC8a:** Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems
ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix
ERC9a: Wide dispersive indoor use of substances in closed systems
ERC9b: Wide dispersive outdoor use of substances in closed systems
ERC10b: Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing)

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d, ERC8f, ERC9a, ERC9b, ERC10b: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive outdoor use resulting in inclusion into or onto a matrix, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems, Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing)

Product characteristics

- Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%. Maximum in consumer products No hazard to the envi-

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Environment. Environmental exposure assessment for this scenario is not relevant.

Amount used
EU tonnage

: 58000 t/a

2.2 Contributing scenario controlling consumer exposure for: PC1, PC4, PC8, PC9b, PC9c, PC15, PC20, PC24, PC31, PC35: Adhesives, sealants, Anti-Freeze and de-icing products, Biocidal products (e.g. Disinfectants, pest control), Fillers, putties, plasters, modelling clay, Finger paints, Non-metal-surface treatment products, Products such as pH-regulators, flocculants, precipitants, neutralization agents, Lubricants, greases, re-release products, Polishes and wax blends, Washing and cleaning products (including solvent based products)

Product (article) characteristic

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%. Maximum in consumer products No health hazard below this concentration.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.		All compartments			

Remarks: Environmental exposure assessment for this scenario is not relevant.
No hazard to the environment.

Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
	Qualitative approach used to conclude safe use.				

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

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The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.