

Revision Date 07/12/2018
Date of the previous version 16/01/2017

SAFETY DATA SHEET
Version 5.0 - EN

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Name	L-lactic acid
Trade name	PURAC® 50-100 PURAC® 80 FG PURAC® 88-LT, 88-T PURAC® FCC 50, FCC 80, FCC 85, FCC 88 PURAC® FIT Plus 90 PURAC® HiPure 51, HiPure 90 PURAC® HS 50, HS 80, HS 88, HS 90, HS 93, HS 95, HS 100 PURAC® PF 90 PURAC® PH 91 PURAC® UltraPure 50, UltraPure 90 PURAC® Vin PURAC® DEX 185

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

Recommended Use	Food additive, Specialty chemical See annex for more detailed information.
Uses advised against	No information available.

1.3. Details of the supplier of the safety data sheet

Purac Biochem bv
Arkelsedijk 46
NL-4206 AC Gorinchem
The Netherlands
Tel.: +31 183 695695
Fax: +31 183 695604
E-mail: sds@corbion.com

1.4. Emergency telephone number

UK National Health Service (NHS) call 111 or, in life-threatening emergencies, call 999

WAL National Health Service (NHS) call 0845 46 47

IE National Poisons Information Centre
+353 1 809 2566 or +353 1 837 9964 (only for healthcare professionals)

Purac Biochem
+31 183 695695

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to EU
Regulation 1272/2008/EC

Skin corrosion/irritation	Category 2 - H315
Serious eye damage/eye irritation	Category 1 - H318

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

L-lactic acid

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2.2 Label elements



Signal word

Danger

Hazard Statements

H315 - Causes skin irritation
H318 - Causes serious eye damage

Precautionary Statements

P280 - Wear protective gloves/protective clothing/eye protection/face protection
P302 + P352 - IF ON SKIN: Wash with plenty of water and soap
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER/doctor
P362 - Take off contaminated clothing

Contains

S-lactic acid

2.3 Other hazards

This product does not meet the criteria for PBT or vPvB in accordance with Annex XIII of REACH.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Chemical name	EC-No	CAS-No	Weight %	Classification (1272/2008/EC)	REACH Registration Number
S-lactic acid	201-196-2	79-33-4	>= 50	Skin Irrit. 2 H315 Eye Dam. 1 H318	01-2119474164-39-000

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

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General advice	Keep person warm and at rest. When symptoms persist or in all cases of doubt seek medical advice. Wash contaminated clothing before reuse.
Eye contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Consult a physician.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Consult a physician.
Ingestion	Rinse mouth. Get medical attention immediately if symptoms occur.
Inhalation	Move to fresh air. Get medical attention immediately if symptoms occur.
Protection of first-aiders	Use personal protective equipment. Avoid contact with skin, eyes and clothing.

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

Main symptoms	If in eyes: Burning feeling, Redness, Pain. If on skin: Itching, Redness.
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4.3. Indication of any immediate medical attention and special treatment needed

Notes to physician	Treat symptomatically. If breathing is difficult, give oxygen. Keep victim under observation. Symptoms may be delayed.
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SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media	Water spray, Foam, Dry powder, Carbon dioxide (CO ₂).
Unsuitable Extinguishing Media	Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Special Hazard	None in particular.
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5.3. Advice for firefighters

Fire fighting measures	Evacuate non-essential personnel. Move containers from fire area if you can do it without risk. Keep containers and surroundings cool with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for fire-fighters	Wear self-contained breathing apparatus and protective suit.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Do not touch or walk through spilled material. Avoid contact with skin, eyes and clothing. Avoid breathing vapours or mists. Use personal protective equipment. Ensure adequate ventilation.

6.2. Environmental precautions

Should not be released into the environment. Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up

Large amounts: Prevent further leakage or spillage if safe to do so. Dike to collect large spills. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water. Small amounts: Wipe up with absorbent material (e.g. cloth, fleece). After cleaning, flush away traces with water. Never return spills in original containers for re-use.

6.4. Reference to other sections

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Avoid breathing vapours or mists. Ensure adequate ventilation. Wear personal protective equipment. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. See annex for more detailed information.

7.2. Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Keep containers tightly closed in a cool, well-ventilated place. Incompatible with oxidising agents.

7.3. Specific end use(s)

Exposure scenario See annex.

Other information Not available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure Limits	Contains no substances with occupational exposure limit values.
Biological Limit Values	Not established.
Recommended monitoring procedures	No information available.
Derived No Effect Level (DNEL)	Not determined.

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Marine water	Intermittent release	Sewage treatment plant	Freshwater sediment	Marine sediment	Soil	Oral
S-lactic acid	1.3 mg/L			10 mg/L				

8.2. Exposure controls

Appropriate engineering controls	Ensure adequate ventilation, especially in confined areas. Keep at temperatures below 200 °C / 392 °F. Ensure that eyewash stations and safety showers are close to the workstation location. See annex for more detailed information.
Individual protection measures, such as personal protective equipment	
Eye protection	Face-shield (EN166).
Hand Protection	Protective gloves (EN374): Butyl rubber. Glove thickness: 0.5 mm . Break through time: >8 hours. Unsuitable materials: Natural Rubber, Nitrile rubber, Fluorinated rubber, PVC.
Skin and body protection	Long sleeved clothing. Chemical resistant apron. Boots.
Respiratory protection	Aerosol or mist formation: In case of insufficient ventilation wear suitable respiratory equipment (APF).
Recommended Filter Type	A, Brown.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice. Workers must be trained in the proper use and handling of this product as required under applicable regulations. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Wash contaminated clothing before re-use.
Environmental Exposure Controls	The product should not be allowed to enter drains, water courses or the soil.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state @20°C	Liquid
Appearance	Clear
Colour	Colourless / Yellowish
Odour	Characteristic
pH	< 1.2 (@25 °C)
Melting/freezing point	No information available
Boiling point/boiling range	120-130 °C / 249-266 °F (@ 1013 hPa)
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	No information available
Flammability Limits in Air	No information available
Explosive limits	Not applicable
Vapour pressure	Not applicable
Vapour density	Not applicable
Relative density	No information available
Solubility	
Water solubility	Miscible
Partition Coefficient (n-octanol/water)	-0.62
Autoignition temperature	> 400 °C / > 752 °F (solution 93 % w/w)
Decomposition temperature	> 200 °C / > 392 °F
Viscosity, dynamic	5-60 mPa.s (@25°C)
Explosive properties	Not applicable
Oxidising properties	Not applicable

9.2 Other information

Density	1.2 g/cm³
Surface tension	44-50 mN/m (@ 50-90%)

SECTION 10: STABILITY AND REACTIVITY**10.1. Reactivity**

None known.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No information available.

10.4. Conditions to avoid

Temperatures above 200 °C / 392 °F.

10.5. Incompatible materials

Oxidizing agents.

10.6. Hazardous decomposition products

None under normal use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

Ingestion

No known effect.

Skin contact

No known effect (LD50 Dermal, Rabbit: >2000 mg/kg).

Inhalation

No known effect.

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
S-lactic acid	3543 mg/kg (Rat, female) 4936 mg/kg (Rat, male)	2000 mg/kg (Rabbit)	>7.94 mg/L (Rat) 4h mist

Skin corrosion/irritation

Mixture: Causes skin irritation.

Serious eye damage/irritation

Mixture: Causes serious eye damage.

Chemical name	Skin corrosion/irritation	Serious eye damage/irritation
S-lactic acid	OECD 404, In vivo, Rabbit, solution (88 %) Result: Irritating	CEET, Ex vivo, solution (88 %) Result: Severe eye irritation

Respiratory or skin sensitisation

No known effect.

Germ cell mutagenicity

Not known to cause heritable genetic damage.

Carcinogenicity

Contains no ingredient listed as a carcinogen.

Reproductive toxicity

Not known to cause birth defects or have a deleterious effect on a developing fetus. Not known to adversely affect reproductive functions and organs.

STOT-single exposure

No known effect.

STOT-repeated exposure

No known effect.

Aspiration hazard

No known effect.

L-lactic acid

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SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Contains no substances known to be hazardous for the environment.

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
S-lactic acid	EC50: >2.8 g/L 72h Pseudokirchnerella subcapitata EC50: 3.5 g/L 72h Pseudokirchnerella subcapitata	LC50: 130 mg/L 96h Oncorhynchus mykiss LC50: 320 mg/L 96h Danio rerio	LC50: >88.2 mg/L 3h	EC50: 130 mg/L 48h Daphnia magna EC50: 250 mg/L 48h Daphnia magna

12.2. Persistence and degradability

Readily biodegradable.

12.3. Bioaccumulative potential

Does not bioaccumulate.

Chemical name	Log P _{ow}	Bioconcentration factor (BCF)
S-lactic acid	-0.62	

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

This product is not considered to be persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB).

12.6. Other adverse effects

Hazard to the ozone layer: No.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: TRANSPORT INFORMATION

According to: ADR, RID, ADN, IMDG, IATA/ICAO.

14.1. UN number

Not regulated.

14.2. UN proper shipping name

Not regulated.

14.3. Transport hazard class(es)

Not regulated.

14.4. Packing group

Not regulated.

14.5 Environmental hazards

Not applicable.

14.6 Special precautions for user

Not applicable.

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

Not applicable.

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

Restrictions on use	None.
Other Regulations	No information available.
WGK Classification	Water endangering class = 1 (self classification)

15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance. See annex for more detailed information.

SECTION 16: OTHER INFORMATION**Full text of H-Statements referred to under sections 2 and 3**

H315 - Causes skin irritation
H318 - Causes serious eye damage

Revision Note

Indication of the changes made to the previous version of the SDS: Company Logo.

Training Advice

Workers must be trained in the proper use and handling of this product as required under applicable regulations.

Abbreviations and acronyms

REACH: Registration, Evaluation, Authorisation and Restriction of Chemical substances
EC: European Commission
STOT: Specific Target Organ Toxicity
PBT: Persistent, Bioaccumulative, Toxic
vPvB: very Persistent and very Bioaccumulating
PROC: Process Category
ADR: Accord européen relatif au transport international des marchandises Dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ADN: Accord européen relatif au transport international des marchandises Dangereuses par voies de Navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
IMDG: International Maritime Dangerous Goods Code
ICAO: International Civil Aviation Organization

SDS No.

CO00006

Subformat

COEU

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006 and Regulation (EC) No. 2015/830. Label element according to Regulation (EC) No 1272/2008.

Disclaimer

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

End of Safety Data Sheet

READER'S GUIDE

Generic Exposure Scenario GES1: Production, transport and downstream use of lactic acid: acid is a non-toxic substance that is a basic metabolic and energetic building block in practically all life-forms, from bacteria to primates. It is not labeled for environmental effects or ecotoxicity, and is also not labeled for any human effects, with the exception of skin and eye irritation (Lactic acid is classified for skin as Skin Irrit. 2 and for eyes as Eye Dam. 1). Note that the skin and eye irritation potential of lactic acid is a pH effect - buffered lactic acid, even up to 70% aqueous solutions is not irritating.

As such, no risk assessment for the environment is required, and no environmental exposure assessment is necessary. For human health, lactic acid is not labeled for any 'dose-effect' endpoint, and thus no quantitative risk assessment is necessary or possible.

Lactic acid is labeled for skin and eye irritation. Under the current classification and labeling requirements for preparations, preparations containing less than 10% lactic acid do not have to be classified and labeled for skin irritation, and preparations containing less than 5% lactic acid do not have to be classified for eye irritation.

No end use products are made from PURAC's lactic acid that contains more than 5% lactic acid, therefore no end use product has to be classified based solely on the presence of lactic acid.

Intermediate formulations and products, relevant in the preparation of any PURAC-supported end use product, such as aqueous dilutions of lactic acid, may contain more than 5% lactic acid, and thus may have to be labeled for irritation.

In all production, storage and transportation conditions and processes, regardless of use, where PURAC's lactic acid, pure or as dilutions or formulations containing $\geq 5\%$ lactic acid, is handled, i.e. where there would be a potential for human exposure to a 'dangerous substance or preparation', Risk Management Measures are already prescribed, and enforced, that exclude any possible skin and eye exposure to lactic acid. In all identified downstream uses where lactic acid, and its dilutions or formulations containing $\geq 5\%$ lactic acid are handled (such as the receipt of transported lactic acid, the storage of lactic acid, the introduction of lactic acid in any relevant process, the preparation, handling and storage of any intermediate dilution or formulation, all the way down to dilutions and products containing $< 5\%$ lactic acid), i.e. where there would be a potential for human exposure to a 'dangerous substance or preparation', Risk Management Measures are already prescribed, and enforced, that exclude any possible skin and eye exposure to lactic acid.

As such, a generic exposure scenario for all identified uses of lactic acid can be defined:

- For the environment, no hazards are identified, and no exposure assessment is required.
- For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0.

The generic Exposure Scenario GES1 is covering following identified uses:

- F-1 Agriculture, forestry, fishery
- F-2 Mining
- F-4 Industrial Manufacturing (all)
- F-7 Manufacture of bulk, large scale chemicals (including petroleum products)
- F-8 Manufacture of fine chemicals
- F-12 Formulation [mixing] of preparations and/or re-packaging
- F-14/F-15 Manufacture of food products
- IW-1 Agriculture, forestry, fishery
- IW-2 Mining
- IW-3 Mining (without offshore industries)
- IW-4/IW-5 Industrial Manufacturing (all)
- IW-7 Manufacture of bulk, large scale chemicals (including petroleum products)
- IW-8 Manufacture of fine chemicals
- IW-9 Manufacture of plastics products, including compounding and conversion
- IW-10 Building and construction work
- IW-11 Health services
- IW-12/IW-13 Formulation [mixing] of preparations and/or re-packaging
- IW-14 Manufacture of food products
- PW-16/PW-17 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
- C-18/C-19 Consumer uses: Private households
- SL-5 Industrial Manufacturing (all)
- SL-9 Manufacture of plastics products, including compounding and conversion
- SL-13 Formulation [mixing] of preparations and/or re-packaging
- SL-15 Manufacture of food products
- SL-17 Articles: Public domain (administration, education, entertainment, services, craftsmen)
- SL-19 Articles: Private households

1. EXPOSURE SCENARIO

Exposure scenario

GES1

Title

Production, transport and downstream use of D-lactide (pure substance or 5% in a mixture)

Use Descriptor

Use Descriptor	
Exposure scenario	M-6
Title	Manufacturing
Environmental release categories	ERC1 - Manufacture of substances
Process categories	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises

Exposure scenario	F-1
Title	Agriculture, forestry, fishery
Environmental release categories	ERC2 - Formulation of mixtures 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
Product category	PC9a - Coatings and paints, thinners, paint removers PC12 - Fertilisers PC15 - Non-metal-surface treatment products PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific PC21 - Laboratory chemicals
Process categories	PROC3 - Use in closed batch process (synthesis or formulation); Industrial setting PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 - Use as laboratory reagent

Exposure scenario	F-2
Title	Mining
Environmental release categories	ERC2 - Formulation of mixtures ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
Process categories	PROC2 - Use in closed, continuous process with occasional controlled exposure (e.g. sampling)

Exposure scenario	F-4
Title	Industrial Manufacturing (all)
Subsequent service life relevant to this use	No
Environmental release categories	ERC2 - Formulation of mixtures 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
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 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, other unspecific PC21 - Laboratory chemicals PC24 - Lubricants, Greases and 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, flux products
Process categories	PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure (e.g. sampling) PROC3 - Use in closed batch process (synthesis or formulation); Industrial setting PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of mixtures and articles (multi-stage and/or significant contact) PROC6 - Calendering operations PROC7 - Industrial spraying PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or mixture 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 mixtures or articles by tableting, compression, extrusion, pelletisation PROC15 - Use as laboratory reagent PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected; Industrial or non-industrial setting 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 use but closed systems PROC24 - High (mechanical) energy work-up of massive metals or substances bound in materials and/or articles PROC 26 - Handling of solid inorganic substances at ambient temperature
Exposure scenario	F-7
Title	Manufacture of bulk, large scale chemicals (including petroleum products)
Environmental release categories	ERC2 - Formulation of mixtures 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
Product category	PC9a - Coatings and paints, thinners, paint removers PC15 - Non-metal-surface treatment products PC19 - Intermediates PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)
Process categories	PROC3 - Use in closed batch process (synthesis or formulation); Industrial setting PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of mixtures and articles (multi-stage

	and/or significant contact) PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 - Use as laboratory reagent
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Exposure scenario	F-8
Title	Manufacture of fine chemicals
Environmental release categories	ERC2 - Formulation of mixtures 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
Product category	PC9a - Coatings and paints, thinners, paint removers PC15 - Non-metal-surface treatment products PC19 - Intermediates PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific 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 (e.g. sampling) PROC3 - Use in closed batch process (synthesis or formulation); Industrial setting PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of mixtures and articles (multi-stage and/or significant contact) PROC6 - Calendaring operations PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 - Use as laboratory reagent PROC21 - Low energy manipulation of substances in form of massive metal or bound in other materials and/or articles PROC 26 - Handling of solid inorganic substances at ambient temperature

Exposure scenario	F-12
Title	Formulation [mixing] of preparations and/or re-packaging
Subsequent service life relevant to this use	No
Environmental release categories	ERC2 - Formulation of mixtures 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
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 - Intermediates PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific PC21 - Laboratory chemicals PC24 - Lubricants, Greases and 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, 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 (e.g. sampling) PROC3 - Use in closed batch process (synthesis or formulation); Industrial setting PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of mixtures and articles (multi-stage and/or significant contact) PROC7 - Industrial spraying PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 - Roller application or brushing PROC11 - Non industrial spraying PROC14 - Production of mixtures 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 PROC 26 - Handling of solid inorganic substances at ambient temperature

Exposure scenario	F-14
Title	Manufacture of food products
Subsequent service life relevant to this use	No
Environmental release categories	ERC2 - Formulation of mixtures ERC5 - Industrial use resulting in inclusion into or onto a matrix ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Product category	PC0 - Other Products PC2 - Adsorbents PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific PC36 - Water softeners PC37 - Water treatment chemicals
Process categories	PROC0 - Other Process or activity PROC3 - Use in closed batch process (synthesis or formulation); Industrial setting PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of mixtures and articles (multi-stage and/or significant contact)

Exposure scenario	F-15
Title	Manufacture of food products
Subsequent service life relevant to this use	Yes
Environmental release categories	ERC3 - Formulation in materials
Product category	PC0 - Other Products
Process categories	PROC5 - Mixing or blending in batch processes for formulation of mixtures and articles (multi-stage and/or significant contact)

Exposure scenario	IW-1
Title	Agriculture, forestry, fishery
Sector of use	SU1 - Agriculture, forestry, fishery
Environmental release categories	ERC2 - Formulation of mixtures 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
Product category	PC9a - Coatings and paints, thinners, paint removers PC12 - Fertilisers PC15 - Non-metal-surface treatment products PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecified PC21 - Laboratory chemicals
Process categories	PROC3 - Use in closed batch process (synthesis or formulation); Industrial setting PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 - Use as laboratory reagent

Exposure scenario	IW-2
Title	Use in mining
Sector of use	SU2a - Mining, (without offshore industries) SU2b - Offshore industries
Environmental release categories	ERC2 - Formulation of mixtures ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
Process categories	PROC2 - Use in closed, continuous process with occasional controlled exposure (e.g. sampling)

Exposure scenario	IW-3
Title	Mining (without offshore industries)
Sector of use	SU2a - Mining, (without offshore industries)
Environmental release categories	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
Product category	PC37 - Water treatment chemicals
Process categories	PROC2 - Use in closed, continuous process with occasional controlled exposure (e.g. sampling)

Exposure scenario	IW-4
Title	Industrial Manufacturing (all)
Subsequent service life relevant to this use	No
Environmental release categories	ERC2 - Formulation of mixtures 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
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 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, other

	<p>unspecific</p> <p>PC21 - Laboratory chemicals</p> <p>PC24 - Lubricants, Greases and Release Products</p> <p>PC25 - Metal working fluids</p> <p>PC31 - Polishes and wax blends</p> <p>PC35 - Washing and cleaning products (including solvent based products)</p> <p>PC38 - Welding and soldering products, flux products</p>
Process categories	<p>PROC1 - Use in closed process, no likelihood of exposure</p> <p>PROC2 - Use in closed, continuous process with occasional controlled exposure (e.g. sampling)</p> <p>PROC3 - Use in closed batch process (synthesis or formulation); Industrial setting</p> <p>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC5 - Mixing or blending in batch processes for formulation of mixtures and articles (multi-stage and/or significant contact)</p> <p>PROC6 - Calendering operations</p> <p>PROC7 - Industrial spraying</p> <p>PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities</p> <p>PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC10 - Roller application or brushing</p> <p>PROC11 - Non industrial spraying</p> <p>PROC13 - Treatment of articles by dipping and pouring</p> <p>PROC14 - Production of mixtures or articles by tableting, compression, extrusion, pelletisation</p> <p>PROC15 - Use as laboratory reagent</p> <p>PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected; Industrial or non-industrial setting</p> <p>PROC17 - Lubrication at high energy conditions and in partly open process</p> <p>PROC18 - Greasing at high energy conditions</p> <p>PROC19 - Hand-mixing with intimate contact and only PPE available</p> <p>PROC20 - Heat and pressure transfer fluids in dispersive use but closed systems</p> <p>PROC24 - High (mechanical) energy work-up of massive metals or substances bound in materials and/or articles</p> <p>PROC25 - Hot work operations with metals</p>

Exposure scenario	IW-5
Title	Industrial Manufacturing (all)
Subsequent service life relevant to this use	Yes
Environmental release categories	<p>ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles</p> <p>ERC5 - Industrial use resulting in inclusion into or onto a matrix</p>
Product category	<p>PC9a - Coatings and paints, thinners, paint removers</p> <p>PC9b - Fillers, Putties</p> <p>PC9c - Finger paints</p> <p>PC35 - Washing and cleaning products (including solvent based products)</p>
Process categories	<p>PROC5 - Mixing or blending in batch processes for formulation of mixtures and articles (multi-stage and/or significant contact)</p> <p>PROC7 - Industrial spraying</p> <p>PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities</p> <p>PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC10 - Roller application or brushing</p> <p>PROC11 - Non industrial spraying</p>

Exposure scenario	IW-7
Title	Manufacture of bulk, large scale chemicals (including petroleum products)
Sector of use	SU8 - Manufacture of bulk, large scale chemicals (including petroleum products)
Environmental release categories	<p>ERC2 - Formulation of mixtures</p> <p>ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles</p> <p>ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)</p>

	ERC6b - Industrial use of reactive processing aids ERC9a - Wide dispersive indoor use of substances in closed systems
Product category	PC9a - Coatings and paints, thinners, paint removers PC15 - Non-metal-surface treatment products PC19 - Intermediates PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)
Process categories	PROC3 - Use in closed batch process (synthesis or formulation); Industrial setting PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of mixtures and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 - Use as laboratory reagent

Exposure scenario	IW-8
Title	Manufacture of fine chemicals
Sector of use	SU9 - Manufacture of fine chemicals
Environmental release categories	ERC2 - Formulation of mixtures 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
Product category	PC9a - Coatings and paints, thinners, paint removers PC15 - Non-metal-surface treatment products PC19 - Intermediates PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific 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 (e.g. sampling) PROC3 - Use in closed batch process (synthesis or formulation); Industrial setting PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of mixtures and articles (multi-stage and/or significant contact) PROC6 - Calendering operations PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC21 - Low energy manipulation of substances in form of massive metal or bound in other materials and/or articles PROC 26 - Handling of solid inorganic substances at ambient temperature

Exposure scenario	IW-9
Title	Manufacture of plastics products, including compounding and conversion
Environmental release categories	ERC6c - Industrial use of monomers for manufacture of thermoplastics
Product category	PC32 - Polymer Mixtures and Compounds
Process categories	PROC5 - Mixing or blending in batch processes for formulation of mixtures and articles (multi-stage and/or significant contact)

Exposure scenario	IW-10
Title	Building and construction work
Sector of use	SU19 - Building and construction work
Environmental release categories	ERC5 - Industrial use resulting in inclusion into or onto a matrix
Product category	PC0 - Other Products
Process categories	PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Exposure scenario	IW-11
Title	Health services
Sector of use	SU20 - Health services
Product category	PC19 - Intermediates PC21 - Laboratory chemicals
Process categories	PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 - Use as laboratory reagent

Exposure scenario	IW-12
Title	Formulation [mixing] of preparations and/or re-packaging
Subsequent service life relevant to this use	No
Sector of use	SU10 - Formulation [mixing] of preparations and/or re-packaging
Environmental release categories	ERC2 - Formulation of mixtures 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
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 - Intermediates PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific PC21 - Laboratory chemicals PC24 - Lubricants, Greases and 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, 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 (e.g. sampling) PROC3 - Use in closed batch process (synthesis or formulation); Industrial setting PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of mixtures and articles (multi-stage and/or significant contact) PROC7 - Industrial spraying PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

	PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 - Roller application or brushing PROC11 - Non industrial spraying PROC14 - Production of mixtures 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 PROC 26 - Handling of solid inorganic substances at ambient temperature
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Exposure scenario	IW-13
Title	Formulation [mixing] of preparations and/or re-packaging
Subsequent service life relevant to this use	Yes
Sector of use	SU10 - Formulation [mixing] of preparations and/or re-packaging
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
Product category	PC9a - Coatings and paints, thinners, paint removers PC9b - Fillers, Putties PC9c - Finger paints PC35 - Washing and cleaning products (including solvent based products)
Process categories	PROC5 - Mixing or blending in batch processes for formulation of mixtures and articles (multi-stage and/or significant contact) PROC7 - Industrial spraying PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC10 - Roller application or brushing PROC11 - Non industrial spraying

Exposure scenario	IW-14
Title	Manufacture of food products
Subsequent service life relevant to this use	No
Sector of use	SU4 - Manufacture of food products
Environmental release categories	ERC2 - Formulation of mixtures ERC5 - Industrial use resulting in inclusion into or onto a matrix ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Product category	PC0 - Other Products PC2 - Adsorbents PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific PC36 - Water softeners PC37 - Water treatment chemicals
Process categories	PROC0 - Other Process or activity PROC3 - Use in closed batch process (synthesis or formulation); Industrial setting PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of mixtures and articles (multi-stage and/or significant contact)

Exposure scenario	PW-16
Title	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Subsequent service life relevant to this use	No
Environmental release categories	ERC2 - Formulation of mixtures 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

	<p>ERC8b - Wide dispersive indoor use of reactive substances in open systems</p> <p>ERC8d - Wide dispersive outdoor use of processing aids in open systems</p> <p>ERC8e - Wide dispersive outdoor use of reactive substances in open systems</p> <p>ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix</p> <p>ERC9a - Wide dispersive indoor use of substances in closed systems</p> <p>ERC9b - Wide dispersive outdoor use of substances in closed systems</p>
Product category	<p>PC12 - Fertilisers</p> <p>PC19 - Intermediates</p> <p>PC21 - Laboratory chemicals</p> <p>PC24 - Lubricants, Greases and Release Products</p> <p>PC25 - Metal working fluids</p> <p>PC31 - Polishes and wax blends</p> <p>PC34 - Textile dyes, finishing and impregnating products including bleaches and other processing aids</p> <p>PC35 - Washing and cleaning products (including solvent based products)</p> <p>PC39 - Cosmetics, personal care products</p>
Process categories	<p>PROC1 - Use in closed process, no likelihood of exposure</p> <p>PROC2 - Use in closed, continuous process with occasional controlled exposure (e.g. sampling)</p> <p>PROC3 - Use in closed batch process (synthesis or formulation); Industrial setting</p> <p>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC5 - Mixing or blending in batch processes for formulation of mixtures and articles (multi-stage and/or significant contact)</p> <p>PROC7 - Industrial spraying</p> <p>PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities</p> <p>PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC10 - Roller application or brushing</p> <p>PROC11 - Non industrial spraying</p> <p>PROC13 - Treatment of articles by dipping and pouring</p> <p>PROC14 - Production of mixtures or articles by tableting, compression, extrusion, pelletisation</p> <p>PROC15 - Use as laboratory reagent</p> <p>PROC17 - Lubrication at high energy conditions and in partly open process</p> <p>PROC19 - Hand-mixing with intimate contact and only PPE available</p> <p>PROC20 - Heat and pressure transfer fluids in dispersive use but closed systems</p> <p>PROC24 - High (mechanical) energy work-up of massive metals or substances bound in materials and/or articles</p>
Exposure scenario	PW-17
Title	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Subsequent service life relevant to this use	Yes
Environmental release categories	<p>ERC8a - Wide dispersive indoor use of processing aids in open systems</p> <p>ERC8d - Wide dispersive outdoor use of processing aids in open systems</p> <p>ERC8f - Wide dispersive outdoor use resulting in inclusion into or onto a matrix</p> <p>ERC9a - Wide dispersive indoor use of substances in closed systems</p> <p>ERC9b - Wide dispersive outdoor use of substances in closed systems</p>
Process categories	<p>PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities</p> <p>PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC10 - Roller application or brushing</p> <p>PROC11 - Non industrial spraying</p> <p>PROC13 - Treatment of articles by dipping and pouring</p> <p>PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected; Industrial or non-industrial setting</p> <p>PROC18 - Greasing at high energy conditions</p> <p>PROC19 - Hand-mixing with intimate contact and only PPE available</p> <p>PROC20 - Heat and pressure transfer fluids in dispersive use but closed systems</p>

Exposure scenario	C-18
Title	Consumer uses: Private households
Subsequent service life relevant to this use	No
Environmental release categories	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
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 PC9c - Finger paints PC12 - Fertilisers 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, other unspecific PC21 - Laboratory chemicals PC24 - Lubricants, Greases and Release Products PC25 - Metal working fluids PC31 - Polishes and wax blends PC32 - Polymer Mixtures and Compounds PC35 - Washing and cleaning products (including solvent based products) PC39 - Cosmetics, personal care products

Exposure scenario	C-19
Title	Consumer uses: Private households
Subsequent service life relevant to this use	Yes
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
Product category	PC1 - Adhesives, sealants PC4 - Anti-freeze and de-icing products PC8 - Biocidal Products (e.g. disinfectants, pest control) PC9b - Fillers, Putties PC9c - Finger paints PC15 - Non-metal-surface treatment products PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific PC24 - Lubricants, Greases and Release Products PC31 - Polishes and wax blends PC35 - Washing and cleaning products (including solvent based products)

Exposure scenario	SL-5
Title	Industrial Manufacturing (all)
Subsequent service life relevant to this use	Yes
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
Article categories	AC1 - Vehicles

Exposure scenario	SL-9
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Title	Manufacture of plastics products, including compounding and conversion
Environmental release categories	ERC6c - Industrial use of monomers for manufacture of thermoplastics
Article categories	AC13 - Plastic articles

Exposure scenario	SL-13
Title	Formulation [mixing] of preparations and/or re-packaging
Subsequent service life relevant to this use	Yes
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
Article categories	AC1 - Vehicles

Exposure scenario	SL-15
Title	Manufacture of food products
Subsequent service life relevant to this use	Yes
Environmental release categories	ERC3 - Formulation in materials
Article categories	AC0 - Other Articles

Exposure scenario	SL-17
Title	Articles: Public domain (administration, education, entertainment, services, craftsmen)
Subsequent service life relevant to this use	Yes
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
Article categories	AC1 - Vehicles AC0 - Other Articles

Exposure scenario	SL-19
Title	Articles: Private households
Subsequent service life relevant to this use	Yes
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
Article categories	AC1 - Vehicles AC2 - Machinery, mechanical appliances, electrical/electronic articles AC0 - Other Articles

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1 Contributing Scenario - Environment

Control of environmental exposure	
Environmental Release Category	All
Other operational conditions of use affecting environmental exposure	As no environmental hazard was identified no environmental-related exposure assessment and risk characterisation was performed

2.2 Contributing Scenario - Worker & Consumer

Control of worker exposure	
Process category	All
Product (article) characteristics	Liquid
Frequency and duration of use	Covers daily exposures up to 8 hours
Technical conditions and measures to control dispersion from source towards the worker	Ensure adequate ventilation, especially in confined areas Avoid temperatures above 200 °C / 392 °F
Conditions and measures related to personal protection, hygiene and health evaluation	When using do not eat, drink or smoke Avoid contact with skin Wear protective gloves/protective clothing/eye protection/face protection Wear breathing apparatus if exposed to vapours/dusts/aerosols Wear suitable gloves tested to EN 374 Wear suitable face shield Long sleeved clothing Chemical resistant apron Boots Take off contaminated clothing and wash it before reuse
Other conditions affecting worker exposure	Keep container tightly closed Keep in properly labelled containers

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

Not determined.

4. GUIDANCE TO DU TO EVALUATE WHETHER HE WORKS INSIDE THE BOUNDARIES SET BY THE ES

Environmental Exposure Controls

Used EUSES model	Not applicable.
Non-standard assumptions	No information available.
Risk assessment	Not applicable.
Predicted No Effect Concentration (PNEC)	See section 8 for more information.

Control of worker exposure

ECETOC TRA	Exposure: Not determined. Available hazard data do not enable the derivation of a DNEL for irritant effects.
Risk assessment	Risk management measures are based on qualitative risk characterization. Derivation of Risk management measures [RMM] Only for: Eye protection - Concentration <5% Skin protection - Concentration <10%
Derived No Effect Level (DNEL)	Not Determined.

Guidance to check compliance with the exposure scenario

No information available.

Annex No. COE00009 /COES

DISTRIBUTOR COMPANY INFORMATION			
name	BRENNTAG N.V.	BRENNTAG Nederland B.V.	BRENNTAG SOUTH AFRICA (PTY) LTD
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activities	Distribution and export of chemicals and ingredients		
VAT number	BE0405317567	NL001375945B01	4740102209
emergency number(24/365)	+32 (0)56 77 69 44	+31 (0)78 6544 944	+27 (0)21 0201800
management systems: certifications	ISO 9001, ISO 14001, ISO 22000, FSSC 22000, GMP+ Feed, ESAD	ISO 9001, ISO 14001, ISO 22000, FSSC 22000, OHSAS 18001, GMP+ Feed, ESAD, AEO	ISO 9001, FSSC 22000