



OQEMA

SAFETY DATA SHEET ACETYL ACETONE

Commission Regulation (EU) No 2015/830 of 28 May 2015.

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

1.1. Product identifier

Product name	ACETYL ACETONE
Chemical name	PENTANE-2,4-DIONE
Product number	ACETYL, 2D
REACH registration number	01-2119458968-15-XXXX
REACH registration notes	The product has been REACH registered REACH registration only covers products which OQEMA have imported into Europe or sourced within Europe. If the product is sold directly outside Europe this is not covered under the pre-registration or registration. It is the responsibility of the subsequent importer into Europe to ensure their volume of product is covered under the REACH regulations.
CAS number	123-54-6
EU index number	606-029-00-0
EC number	204-634-0

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

Identified uses	Formulation of coatings and paints ERC02 PROC01 PROC02 PROC03 PROC04 PROC05 PROC08a PROC08b PROC09 PC09a Use at industrial site – intermediate use PROC01 PROC03 PROC08b PROC09 PROC02 PROC04 PROC05 PROC08a PC19 SU08 SU09 Industrial use of coatings ERC04 PROC8b PROC07 PROC10 PROC13 PROC14 PROC08a PROC01 PROC02 PROC03 PROC05 PC09a SU02b SU04 SU17 SU18 Non-intermediate use as a solvent/stabilizer in organic peroxide formulations or as part of a product functioning to increase the reactivity of a resin cure system ERC06b PROC01 PROC02 PROC03 PROC04 PROC05 PROC07 PROC08a PROC08b PROC09 PROC10 PROC11 PROC13 PROC14 PC32 SU10 Intermediate for industrial use under strictly controlled conditions. ERC06a PROC01 PROC02 PROC03 PROC08a PROC08b PROC09 PC19 SU08 SU09 Industrial uses: solvent ERC04 PROC01 PROC02 PROC03 PROC04 PROC05 PROC08a PROC08b PROC09 PC0 SU08 SU09 SU10 Professional use of coating ERC8a Wide dispersive indoor use of processing aids in open systems PROC02 PROC03 PROC05 PROC08a PROC08b PROC10 PROC11 PROC19 PC09a SU19 Professional use as laboratory reagent PROC15 PC21 SU24
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1.3. Details of the supplier of the safety data sheet

ACETYL ACETONE

Supplier Technical Department
 OQEMA LTD
 Winstons House
 Carterton
 Oxford
 OX18 3EZ
 +44 (0)1993 843081
 +44 (0)1993 841261
 regulatory.affairs@oqema.co.uk

1.4. Emergency telephone number

Emergency telephone EMERGENCY INFORMATION OUT OF OFFICE HOURS CONTACT CARECHEM 24: +44 (0)1270 502891

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

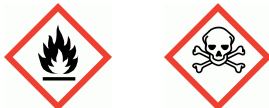
Classification (EC 1272/2008)

Physical hazards Flam. Liq. 3 - H226
Health hazards Acute Tox. 4 - H302 Acute Tox. 3 - H311 Acute Tox. 3 - H331
Environmental hazards Not Classified

2.2. Label elements

EC number 204-634-0

Pictogram



Signal word Danger

Hazard statements H226 Flammable liquid and vapour.
 H302 Harmful if swallowed.
 H311+H331 Toxic in contact with skin or if inhaled.

Precautionary statements P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P301+P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P311 Call a POISON CENTER/ doctor.

Contains PENTANE-2,4-DIONE

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Supplementary precautionary statements	P240 Ground/ bond container and receiving equipment.
	P241 Use explosion-proof electrical equipment.
	P242 Use only non-sparking tools.
	P243 Take precautionary measures against static discharge.
	P261 Avoid breathing vapour/ spray.
	P264 Wash contaminated skin thoroughly after handling.
	P270 Do not eat, drink or smoke when using this product.
	P271 Use only outdoors or in a well-ventilated area.
	P302+P352 IF ON SKIN: Wash with plenty of water.
	P321 Specific treatment (see medical advice on this label).
	P330 Rinse mouth.
	P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
	P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.
	P403+P233 Store in a well-ventilated place. Keep container tightly closed.
	P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.	
P501 Dispose of contents/ container in accordance with national regulations.	

2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

PENTANE-2,4-DIONE	>=99% w/w- <=100% w/w
CAS number: 123-54-6	EC number: 204-634-0
Classification	
Flam. Liq. 3 - H226	
Acute Tox. 4 - H302	
Acute Tox. 3 - H311	
Acute Tox. 3 - H331	

The full text for all hazard statements is displayed in Section 16.

Product name	ACETYL ACETONE
REACH registration number	01-2119458968-15-XXXX
REACH registration notes	The product has been REACH registered, REACH registration only covers products which OQEMA have imported into Europe or sourced within Europe. If the product is sold directly outside Europe this is not covered under the pre-registration or registration. It is the responsibility of the subsequent importer into Europe to ensure their volume of product is covered under the REACH regulations.
EU index number	606-029-00-0
CAS number	123-54-6
EC number	204-634-0

SECTION 4: First aid measures

4.1. Description of first aid measures

General information	No information available.
Inhalation	Move affected person to fresh air at once. If breathing stops, provide artificial respiration. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Place unconscious person on their side in the recovery position and ensure breathing can take place.

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Ingestion	DO NOT induce vomiting. Get medical attention immediately. Clearly identify substance when seeking medical advice. Danger of aspiration.
Skin contact	Wash skin thoroughly with soap and water. Immediately remove contaminated clothing. Get medical attention immediately.
Eye contact	Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes and get medical attention.
Protection of first aiders	No information available.

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

General information	NO DATA AVAILABLE
Inhalation	No information available.
Ingestion	No information available.
Skin contact	No information available.
Eye contact	No information available.

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

Notes for the doctor	no data available
Specific treatments	No information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Foam. Carbon dioxide (CO ₂). Powder. Water spray, fog or mist.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards	N/A combustion products/resulting gases. Heating may cause expansion or decomposition leading to violent rupture of containers
Hazardous combustion products	No information available.

5.3. Advice for firefighters

Protective actions during firefighting	Use respiratory protection independant of recirculated air.
Special protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Wear protective clothing as described in Section 8 of this safety data sheet. No smoking, sparks, flames or other sources of ignition near spillage. Avoid inhalation of spray mist and contact with skin and eyes. Avoid inhalation of dust and vapours.
For non-emergency personnel	No information available.
For emergency responders	No information available.

6.2. Environmental precautions

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Environmental precautions Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Eliminate all sources of ignition. No smoking, sparks, flames or other sources of ignition near spillage. Provide adequate ventilation. Observe local bye-laws. Absorb with a liquid binding material and dispose of according to regulations.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. See Section 11 for additional information on health hazards. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Keep away from heat, sparks and open flame. Ensure adequate ventilation. Cool endangered container(s) with water. Forms explosive mixtures with air, also in empty, uncleaned containers. Avoid prolonged or repeated exposure. Avoid contact with eyes, skin and clothing. Do not breathe vapour/dust.

Advice on general occupational hygiene No information available.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Keep container tightly closed. Keep away from heat, sparks and open flame. Do not store in iron containers.

Storage class Flammable liquid storage.

7.3. Specific end use(s)

Specific end use(s) No information available.

Usage description Not available

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

No information available.

Ingredient comments No information available.

Biological limit values No information available.

DNEL Industry - Inhalation; Long term systemic effects: 84 mg/m³
 Industry - Dermal; Long term systemic effects: 12 mg/kg/day
 Industry - Inhalation; Long term local effects: low hazard, no threshold derived
 Consumer - Dermal; Long term systemic effects: no threshold derived, low hazard
 Consumer - Oral; Long term systemic effects: 7 mg/kg/day

DMEL No information available.

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PNEC	<ul style="list-style-type: none"> - Fresh water; 0.2 mg/l - Marine water; 0.02 mg/l - STP; 1.32 mg/l - Sediment (Freshwater); 1.909 mg/kg - Sediment (Marinewater); 0.191 mg/kg - Soil; 0.193 mg/kg
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8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate general and local exhaust ventilation.

Personal protection

No information available.

Eye/face protection

The following protection should be worn: Chemical splash goggles. Personal protective equipment for eye and face protection should comply with European Standard EN166.

Hand protection

Wear protective gloves. To protect hands from chemicals, gloves should comply with European Standard EN374. Butyl rubber. Thickness: > 0.3 mm The selected gloves should have a breakthrough time of at least 0.5 hours. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use of the user. It must not be construed as offering an approval for any specific use scenario.

Other skin and body protection

Do not eat, drink or smoke while working. Provide eyewash station and safety shower. Wear apron or protective clothing in case of contact. Body protection must be chosen depending on activity and possible exposure, eg. apron, protecting boots, chemical-protection suit (according to DIN-EN 465).

Hygiene measures

Use engineering controls to reduce air contamination to permissible exposure level. Provide eyewash station and safety shower.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi purpose combination or type ABEK (EN 14387). If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH or CEN

Thermal hazards

No information available.

Environmental exposure controls

No information available.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Colourless to pale yellow.
Odour	Pleasant, agreeable.
Odour threshold	Not available. Not available.

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pH	Not available. pH (diluted solution): 6
Melting point	-15°C EU Method A.1
Initial boiling point and range	139.5°C @ 101325 Pa EU method A.2
Flash point	35°C CC (Closed cup). EU METHOD A.9
Evaporation rate	Not available.
Evaporation factor	Not available.
Flammability (solid, gas)	No specific test data are available.
Upper/lower flammability or explosive limits	Not flammable. EU A.12
Other flammability	Not available.
Vapour pressure	7.9 hPa @ 20°C 21.8 hPa @ 38°C 40.4 hPa @ 50°C EU method A4
Vapour density	Not available.
Relative density	0.975 @ 20°C EU A3
Bulk density	Not available.
Solubility(ies)	154000 mg/l water @ 20°C klimisch rating: 1 EU A.6 2009
Partition coefficient	log Pow: 0.68 EU A.8 method 2009 klimisch rating 1
Auto-ignition temperature	383°C EU METHOD A15 klimisch rating: 1 2009
Decomposition Temperature	Not available.
Viscosity	0.762 mPa s @ 20degC°C
Explosive properties	Not considered to be explosive.
Explosive under the influence of a flame	No information available.
Oxidising properties	Does not meet the criteria for classification as oxidising.
Comments	No information available.
<u>9.2. Other information</u>	
Other information	No information available.
Refractive index	Not available.
Particle size	Scientifically unjustified.
Molecular weight	100.11
Volatility	No information available.
Saturation concentration	Not available.
Critical temperature	Not available.
Volatile organic compound	Not available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity no information available

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10.2. Chemical stability

Stability Stable at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Will not polymerise.

10.4. Conditions to avoid

Conditions to avoid Avoid excessive heat for prolonged periods of time. Avoid exposure to high temperatures or direct sunlight. Avoid contact with strong oxidising agents. Avoid contact with strong reducing agents.

10.5. Incompatible materials

Materials to avoid Strong reducing agents. Strong oxidising agents. Strong bases.

10.6. Hazardous decomposition products

Hazardous decomposition products Carbon monoxide (CO). Carbon dioxide (CO₂).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological effects No information available.

Other health effects No information available.

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 570.0

Species Rat

Notes (oral LD₅₀) 1985 KLIMISCH RATING 1

ATE oral (mg/kg) 500.0

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 790.0

Species Rat

Notes (dermal LD₅₀) KLIMISCH RATING 1 1985

ATE dermal (mg/kg) 790.0

Acute toxicity - inhalation

Species Rat

Notes (inhalation LC₅₀) KLIMISCH RATING 1 1984 OECD 403 standard acute method

ATE inhalation (gases ppm) 1,224.0

Skin corrosion/irritation

Animal data KLIMISCH RATING 1 1985 in vivo Slightly irritating. Dose: 0.5ml, 4 hours, Rabbit

Human skin model test Not available.

Extreme pH No information available.

Serious eye damage/irritation

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Serious eye damage/irritation	Slightly irritating. 1985 klimisch rating 1 in vivo Dose: 0.1ml, 14 days, Rabbit
<u>Respiratory sensitisation</u>	
Respiratory sensitisation	No information available.
<u>Skin sensitisation</u>	
Skin sensitisation	Local Lymph Node Assay (LLNA) - Mouse: Not sensitising. KLIMISCH RATING 1 2009 OECD 429 Not sensitising.
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	KLIMISCH RATING 1 1985 OECD471 Gene mutation: Negative. 1985 OECD479 KLIMISCH RATING 1 DNA damage and/or repair: Positive. KLIMISCH RATING 1 1985 OECD476 Gene mutation: Negative. KLIMISCH RATING 1 1985 OECD473 Chromosome aberration: Inconclusive.
Genotoxicity - in vivo	KLIMISCH RATING 1 2011 DNA damage and/or repair: Negative. KLIMISCH RATING 1 1993 EPA OPPTS 870.5395 micronucleus test: Negative.
<u>Carcinogenicity</u>	
Carcinogenicity	Not available.
Target organ for carcinogenicity	No information available.
IARC carcinogenicity	No information available.
NTP carcinogenicity	No information available.
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	Not available.
Reproductive toxicity - development	Fetotoxicity: - NOAEC: 50 ppm, Inhalation, Rat 1986 KLIMISCH RATING 1 OECD 414
<u>Specific target organ toxicity - single exposure</u>	
STOT - single exposure	Not available.
Target organs	No information available.
<u>Specific target organ toxicity - repeated exposure</u>	
STOT - repeated exposure	NOAEL 244 mg/kg/day , Dermal, Rabbit klimisch 2 1995 Klimisch rating 2 1984 LOAEC 805 ppm, Inhalation, Rat
Target organs	No information available.
<u>Aspiration hazard</u>	
Aspiration hazard	Not available.
<u>Toxicokinetics</u>	
Toxicokinetics	No information available.
General information	No information available.
Inhalation	Vapours have a narcotic effect. Symptoms following overexposure may include the following: Headache. Fatigue. Dizziness. Nausea, vomiting.
Ingestion	Harmful: possible risk of irreversible effects if swallowed.
Skin contact	Harmful: possible risk of irreversible effects in contact with skin. May be absorbed through the skin.
Eye contact	Irritation of eyes and mucous membranes.

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Acute and chronic health hazards	No information available.
Route of entry	No information available.
Target organs	No information available.
Medical symptoms	No information available.
Medical considerations	No information available.

SECTION 12: Ecological Information

Ecotoxicity No information available.

12.1. Toxicity

Toxicity No information available.

Acute toxicity - fish LC50, 96 hours: 104 mg/l, Pimephales promelas (Fat-head Minnow) 1980
 klimisch rating 1
 OECD 203
 LC50, 96 hours: 175 mg/l, Pimephales promelas (Fat-head Minnow) 1982
 klimisch rating 1

Acute toxicity - aquatic invertebrates EC50, 48 hours: 25.9 mg/l, Daphnia magna
 klimisch rating 1
 2010
 OECD 202

Acute toxicity - aquatic plants EC50, 72 hours: 8.36 mg/l, Scenedesmus subspicatus
 klimisch rating 1
 2010
 OECD 201

Acute toxicity - microorganisms EC50, 3 hours: 107.6 mg/l, Activated sludge
 klimisch rating 1
 2010
 OECD 209

Acute toxicity - terrestrial No information available.

Chronic toxicity - fish early life stage klimisch rating 1
 2012
 OECD 210
 NOEC, 34 days: 10 mg/l, Pimephales promelas (Fat-head Minnow)
 LOEC, 34 days: 22 mg/l, Pimephales promelas (Fat-head Minnow)

Short term toxicity - embryo and sac fry stages No information available.

Chronic toxicity - aquatic invertebrates klimisch rating 1
 2012
 OECD 211
 NOEC, 21 days: 18 mg/l, Daphnia magna

Toxicity to soil No information available.

Toxicity to terrestrial plants No information available.

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12.2. Persistence and degradability

Persistence and degradability Degree of elimination: >70% in 28 days Assessment: Good biodegradability

Phototransformation Air - Half-life : 14 days
 klimisch rating 2
 2000
 Calculated
 Soil - : 81 days
 klimisch rating 2
 1988
 Calculation method.

Stability (hydrolysis) Not available.

Biodegradation Water - Degradation (%) >83: 28 days
 1992
 klimisch rating 2
 OECD 301C
 The substance is readily biodegradable.

Biological oxygen demand No information available.

Chemical oxygen demand No information available.

12.3. Bioaccumulative potential

Bioaccumulative potential The product is not bioaccumulating. BCF: 3.16, Calculated klimisch rating 2 2000

Partition coefficient log Pow: 0.68 EU A.8 method 2009 klimisch rating 1

12.4. Mobility in soil

Mobility No information available.

Adsorption/desorption coefficient Not available.

Henry's law constant Not available.

Surface tension 72 mN/m @ 20 DEG C°C klimisch rating 1 2009 EU method A5

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

Other adverse effects Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information No information available.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. Fully empty containers (no tear drops/powder rest/scraped carefully) Containers may be recycled or re-used. Observe local/national bye-laws

Waste class No information available.

SECTION 14: Transport information

14.1. UN number

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UN No. (ADR/RID)	2310
UN No. (IMDG)	2310
UN No. (ICAO)	2310
UN No. (ADN)	2310

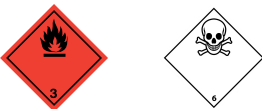
14.2. UN proper shipping name

Proper shipping name (ADR/RID)	PENTANE-2,4-DIONE
Proper shipping name (IMDG)	PENTANE-2,4-DIONE
Proper shipping name (ICAO)	PENTANE-2,4-DIONE
Proper shipping name (ADN)	PENTANE-2,4-DIONE

14.3. Transport hazard class(es)

ADR/RID class	3
ADR/RID subsidiary risk	6.1
ADR/RID classification code	FT1
ADR/RID label	3
IMDG class	3
IMDG subsidiary risk	6.1
ICAO class/division	3
ICAO subsidiary risk	6.1
ADN class	3
ADN subsidiary risk	6.1

Transport labels



14.4. Packing group

ADR/RID packing group	III
IMDG packing group	III
ADN packing group	III
ICAO packing group	III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

EmS	F-E, S-D
ADR transport category	3
Emergency Action Code	•2Y

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Hazard Identification Number 36
(ADR/RID)

Tunnel restriction code (D/E)

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

SECTION 15: Regulatory information

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

National regulations No information available.

EU legislation Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).
Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).

Guidance No information available.

Health and environmental listings No information available.

Authorisations (Title VII Regulation 1907/2006) No information available.

Restrictions (Title VIII Regulation 1907/2006) No information available.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

No information available.

Canada - DSL/NDSL

No information available.

US - TSCA

No information available.

US - TSCA 12(b) Export Notification

No information available.

Australia - AICS

No information available.

Japan - MITI

No information available.

Korea - KECI

No information available.

China - IECSC

No information available.

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Philippines – PICCS

No information available.

New Zealand - NZIOC

No information available.

Taiwan - NECI

No information available.

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet	<p>ERC2 Formulation into mixture</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> <p>ERC6b Industrial use of reactive processing aids</p> <p>ERC8a Wide dispersive indoor use of processing aids in open systems</p> <p>PROC1 Use in closed process, no likelihood of exposure</p> <p>PROC2 Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3 Use in closed batch process (synthesis or formulation)</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 preparations* and articles (multistage and/or significant contact)</p> <p>PROC7 Industrial spraying</p> <p>PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p>PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation 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 preparations* or articles by tableting, compression, extrusion, pelletisation</p> <p>PROC19 Hand-mixing with intimate contact and only PPE available</p> <p>SU2b : Offshore industries</p> <p>SU4: Manufacture of food products</p> <p>SU8 : Manufacture of bulk, large scale chemicals (including petroleum products)</p> <p>SU9: Manufacture of fine chemicals</p> <p>SU10 : Formulation [mixing] of preparations and/or re-packaging (excluding alloys)</p> <p>SU17 : General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment</p> <p>SU18 : Manufacture of furniture</p> <p>SU19 : Building and construction work</p> <p>SU24 : Scientific research and development</p> <p>PC9a Coatings and paints, thinners, paint removers</p> <p>PC19 : Intermediate</p> <p>PC21 : Laboratory chemicals</p> <p>PC32 : Polymer preparations and compounds</p>
General information	No information available.
Key literature references and sources for data	Material Safety Data Sheet, Misc. manufacturers.

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Classification procedures according to Regulation (EC) 1272/2008	No information available.
Training advice	No information available.
Revision comments	Revision due to amendment of contents in section: 2, 3, 8, 9, 11, 12, 15, 16.
Revision date	31/05/2018
Revision	002
Supersedes date	01/12/2014
SDS number	10038
SDS status	Approved.
Hazard statements in full	H226 Flammable liquid and vapour. H302 Harmful if swallowed. H311 Toxic in contact with skin. H331 Toxic if inhaled.

This 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. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

Exposure Scenario

Scenario Number	Title
1	Use as a solvent
2	Use as an intermediate (no SCC applied)
3	Formulation of coatings and paints
4	Industrial use of coatings
5	Professional use of coatings
6	Non-intermediate use as a solvent/stabilizer in organic peroxide formulations or as part of a product functioning to increase the reactivity of a resin cure system. These uses can include standard activities such as receipt/storage of raw materials, raw material assembly/charging, synthesis/blending, filtering, manufacturing equipment cleaning, waste management, manufacturing equipment maintenance, storage and delivery of finished products and associated laboratory activities
7	Use as a laboratory reagent

Scenario 1: USE B - Use as a solvent (ES1)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.

The following scenarios contribute to the scenario *USE B - Use as a solvent*.

The corresponding release to the environment, exposure of workers and consumers resulting from these contributing scenarios is summarized in chapter 10.2 ff.

Free short title	USE B - Use as a solvent (ES1)
Systematic title based on use descriptor	ERC 4; PROC 1, 2, 3, 4, 5, 8A, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 4 Industrial use of processing aids

Name(s) of contributing worker scenarios and corresponding PROCs	<p>PROC 1 - Use in closed process, no likelihood of exposure</p> <p>PROC 2 - Use in closed, continuous process with occasional controlled exposure</p> <p>PROC 3 - Use in closed batch process (synthesis or formulation)</p> <p>PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact)</p> <p>PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities</p> <p>PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities</p> <p>PROC 9 - Transfer of chemicals into small containers (dedicated filling line)</p>
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Contributing Scenario (1) controlling environmental exposure for ERC 4

Operational conditions

Annual site tonnage	500 to/year
Daily amount used at site	666.667 kg/day
Release times per year	300 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	98 %
Release fraction to wastewater from process	2 %
Release fraction to soil from process	0 %
Fraction tonnage to region	100 %
Fraction used at main source	40 % (<i>justification: Based on marketing estimations</i>)
STP	yes
River flow rate	18000 m ³ /day
Municipal sewage treatment plant discharge	2000000 L/day

Risk management measures

SpERC	ESVOC SpERC 4.3a.v1 - Uses in Coatings: Industrial (SU3)
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Contributing Scenario (2) controlling industrial worker exposure for PROC 1 (PC 0)

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Product characteristics	
Physical state	liquid

Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (3) controlling industrial worker exposure for PROC 2 (PC 0)	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (4) controlling industrial worker exposure for PROC 3 (PC 0)	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Product characteristics	

Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	1 - 4 hours
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (5) controlling industrial worker exposure for PROC 4 (PC 0)	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	1 - 4 hours
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (6) controlling industrial worker exposure for PROC 5 (PC 0)	
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)

Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 mins to 1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (7) controlling industrial worker exposure for PROC 8A (PC 0)	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 mins to 1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (8) controlling industrial worker exposure for PROC 8B (PC 0)	

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 mins to 1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (9) controlling industrial worker exposure for PROC 9 (PC 0)	
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 mins to 1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

Scenario 2: USE C - Use as a intermediate (no SCC applied) (ES2)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.

The following scenarios contribute to the scenario *USE C - Use as a intermediate (no SCC applied)*.

The corresponding release to the environment, exposure of workers and consumers resulting from these contributing scenarios is summarized in chapter 10.3 ff.

Free short title	USE C - Use as a intermediate (no SCC applied) (ES3)
Systematic title based on use descriptor	ERC 6A; PROC 1, 2, 3, 4, 5, 8A, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 6a Industrial use of intermediates
Name(s) of contributing worker scenarios and corresponding PROCs	<p>PROC 1 - Use in closed process, no likelihood of exposure</p> <p>PROC 2 - Use in closed, continuous process with occasional controlled exposure</p> <p>PROC 3 - Use in closed batch process (synthesis or formulation)</p> <p>PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact)</p> <p>PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities</p> <p>PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities</p> <p>PROC 9 - Transfer of chemicals into small containers (dedicated filling line)</p>
Contributing Scenario (1) controlling environmental exposure for ERC 6A	
Operational conditions	
Annual site tonnage	500 to/year
Daily amount used at site	833.333 kg/day
Release times per year	300 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.020 %
Release fraction to wastewater from process	1 %

Release fraction to soil from process	0.100 %
Fraction tonnage to region	100 %
Fraction used at main source	50 % (<i>justification: Based on marketing estimations.</i>)
STP	yes
River flow rate	18000 m ³ /day
Municipal sewage treatment plant discharge	2000000 L/day
Risk management measures	
SpERC	ESVOC SpERC 6.1a.v1 - Manufacture of substances: Industrial (SU8, SU9)
Contributing Scenario (2) controlling industrial worker exposure for PROC 1 (PC 19)	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (3) controlling industrial worker exposure for PROC 2 (PC 19)	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	

Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (4) controlling industrial worker exposure for PROC 3 (PC 19)	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	1 - 4 hours
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (5) controlling industrial worker exposure for PROC 4 (PC 19)	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	1 - 4 hours
Frequency of use	5 days / week

Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (6) controlling industrial worker exposure for PROC 5 (PC 19)	
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 mins to 1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (7) controlling industrial worker exposure for PROC 8A (PC 19)	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 mins to 1 hour

Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (8) controlling industrial worker exposure for PROC 8B (PC 19)	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 mins to 1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (9) controlling industrial worker exposure for PROC 9 (PC 19)	
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	

Duration of activity	15 mins to 1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

Scenario 4: USE D - Formulation of coatings and paints (ES3)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.

The following scenarios contribute to the scenario *USE D - Formulation of coatings and paints*.

The corresponding release to the environment, exposure of workers and consumers resulting from these contributing scenarios is summarized in chapter 10.4 ff.

Free short title	USE D - Formulation of coatings and paints
Systematic title based on use descriptor	ERC 2; PROC 1, 2, 3, 4, 5, 8A, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 2 Formulation of preparations

Name(s) of contributing worker scenarios and corresponding PROCs	<p>PROC 1 - Use in closed process, no likelihood of exposure</p> <p>PROC 2 - Use in closed, continuous process with occasional controlled exposure</p> <p>PROC 3 - Use in closed batch process (synthesis or formulation)</p> <p>PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact)</p> <p>PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities</p> <p>PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities</p> <p>PROC 9 - Transfer of chemicals into small containers (dedicated filling line)</p>
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Contributing Scenario (1) controlling environmental exposure for ERC 2

Operational conditions

Annual site tonnage	750 to/year
Daily amount used at site	3,333.333 kg/day
Release times per year	225 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.600 %
Release fraction to wastewater from process	0 %
Release fraction to soil from process	0 %
Fraction tonnage to region	100 %
Fraction used at main source	100 %
STP	yes
River flow rate	18000 m ³ /day
Municipal sewage treatment plant discharge	2000000 L/day

Risk management measures

SpERC	CEPE SPERC 2.2a2.v1 - CEPE - Formulation of Liquid Coatings and Inks (where specific use not known) - Large Scale (>100 tpa solvent use) - VOC
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Contributing Scenario (2) controlling industrial worker exposure for PROC 1 (PC 9a)

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %

Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (3) controlling industrial worker exposure for PROC 2 (PC 9a)	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (4) controlling industrial worker exposure for PROC 3 (PC 9a)	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Product characteristics	
Physical state	liquid

Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	1 - 4 hours
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (5) controlling industrial worker exposure for PROC 4 (PC 9a)	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	1 - 4 hours
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (6) controlling industrial worker exposure for PROC 5 (PC 9a)	
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)
Product characteristics	

Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 mins to 1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (7) controlling industrial worker exposure for PROC 8A (PC 9a)	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 mins to 1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (8) controlling industrial worker exposure for PROC 8B (PC 9a)	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities

Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 mins to 1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (9) controlling industrial worker exposure for PROC 9 (PC 9a)	
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 mins to 1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

Scenario 4: USE E - Industrial use of coatings (ES4)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.

The following scenarios contribute to the scenario *USE E - Industrial use of coatings*.

The corresponding release to the environment, exposure of workers and consumers resulting from these contributing scenarios is summarized in chapter 10.5 ff.

Free short title	USE E - Industrial use of coatings
Systematic title based on use descriptor	ERC 4; PROC 8B, 7, 10, 13, 14, 1, 2, 3, 5, 8A
Name of contributing environmental scenario and corresponding ERC	ERC 4 Industrial use of processing aids
Name(s) of contributing worker scenarios and corresponding PROCs	<p>PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities</p> <p>PROC 7 - Industrial spraying</p> <p>PROC 10 - Roller application or brushing</p> <p>PROC 13 - Treatment of articles by dipping and pouring</p> <p>PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation</p> <p>PROC 1 - Use in closed process, no likelihood of exposure</p> <p>PROC 2 - Use in closed, continuous process with occasional controlled exposure</p> <p>PROC 3 - Use in closed batch process (synthesis or formulation)</p> <p>PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact)</p> <p>PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities</p>
Contributing Scenario (1) controlling environmental exposure for ERC 4	
Operational conditions	
Annual site tonnage	500 to/year
Daily amount used at site	227.273 kg/day
Release times per year	220 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	80 %
Release fraction to wastewater from process	2 %

Release fraction to soil from process	0 %
Fraction tonnage to region	10 %
Fraction used at main source	100 %
STP	yes
River flow rate	18000 m ³ /day
Municipal sewage treatment plant discharge	2000000 L/day
Risk management measures	
SpERC	CEPE SPERC 4.na.v1 - CEPE - Other spray coating - Volatiles / Abatement
Contributing Scenario (2) controlling industrial worker exposure for PROC 8B (PC 9a)	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	5-25%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	1 - 4 hours
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (3) controlling industrial worker exposure for PROC 7 (PC 9a)	
Name of contributing scenario	7 - Industrial spraying
Product characteristics	
Physical state	liquid
Concentration in substance	5-25%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	

Exposed skin surface	1,500 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 95 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (4) controlling industrial worker exposure for PROC 10 (PC 9a)	
Name of contributing scenario	10 - Roller application or brushing
Product characteristics	
Physical state	liquid
Concentration in substance	5-25%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (5) controlling industrial worker exposure for PROC 13 (PC 9a)	
Name of contributing scenario	13 - Treatment of articles by dipping and pouring
Product characteristics	
Physical state	liquid
Concentration in substance	5-25%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week

Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (6) controlling industrial worker exposure for PROC 14 (PC 9a)	
Name of contributing scenario	14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation
Product characteristics	
Physical state	liquid
Concentration in substance	5-25%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (7) controlling industrial worker exposure for PROC 1 (PC 9a)	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)

Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (8) controlling industrial worker exposure for PROC 2 (PC 9a)	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (9) controlling industrial worker exposure for PROC 3 (PC 9a)	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	

Duration of activity	1 - 4 hours
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (10) controlling industrial worker exposure for PROC 5 (PC 9a)	
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 mins to 1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (11) controlling industrial worker exposure for PROC 8A (PC 9a)	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium

Frequency and duration of use	
Duration of activity	15 mins to 1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

Scenario 5: USE F - Professional use of coatings (ES5)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.

The following scenarios contribute to the scenario *USE F - Professional use of coatings*.

The corresponding release to the environment, exposure of workers and consumers resulting from these contributing scenarios is summarized in chapter 10.6 ff.

Free short title	USE F - Professional use of coatings
Systematic title based on use descriptor	ERC 8A; PROC 10, 11, 19, 2, 3, 5, 8A, 8B
Name of contributing environmental scenario and corresponding ERC	ERC 8a Wide dispersive indoor use of processing aids in open systems

<p>Name(s) of contributing worker scenarios and corresponding PROCs</p>	<p>PROC 10 - Roller application or brushing</p> <p>PROC 11 - Non industrial spraying</p> <p>PROC 19 - Hand-mixing with intimate contact (only PPE available)</p> <p>PROC 2 - Use in closed, continuous process with occasional controlled exposure</p> <p>PROC 3 - Use in closed batch process (synthesis or formulation)</p> <p>PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact)</p> <p>PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities</p> <p>PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities</p> <p>PROC 10 - Roller application or brushing</p> <p>PROC 11 - Non industrial spraying</p> <p>PROC 19 - Hand-mixing with intimate contact (only PPE available)</p> <p>PROC 2 - Use in closed, continuous process with occasional controlled exposure</p> <p>PROC 3 - Use in closed batch process (synthesis or formulation)</p> <p>PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact)</p> <p>PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities</p> <p>PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities</p>
<p>Contributing Scenario (1) controlling environmental exposure for ERC 8A</p>	
<p>Operational conditions</p>	
<p>Annual site tonnage</p>	<p>250 to/year</p>
<p>Daily amount used at site</p>	<p>0.200 kg/day</p>
<p>Release times per year</p>	<p>250 days/year</p>
<p>Local freshwater dilution factor</p>	<p>10</p>
<p>Local marine water dilution factor</p>	<p>100</p>
<p>Release fraction to air from process</p>	<p>96.8 %</p>
<p>Release fraction to wastewater from process</p>	<p>3 %</p>

Release fraction to soil from process	0 %
Fraction tonnage to region	10 %
Fraction used at main source	0.200 %
STP	yes
River flow rate	18000 m ³ /day
Municipal sewage treatment plant discharge	2000000 L/day
Risk management measures	
SpERC	AIRC SPERC 8a.1.v1 - BFL/ZKF - Vehicle Refinishing - Volatiles/Solvents
Contributing Scenario (2) controlling professional worker exposure for PROC 10 (PC 9a)	
Name of contributing scenario	10 - Roller application or brushing
Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
ABEK gas mask filter as respiratory protection equipment	90 (<i>justification: Use of gas mask filter ABEK is requested to ensure 90% respiratory protection.</i>)
Contributing Scenario (3) controlling professional worker exposure for PROC 11 (PC 9a)	
Name of contributing scenario	11 - Non industrial spraying
Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week

Human factors not influenced by risk management	
Exposed skin surface	1,500 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
ABEK gas mask filter as respiratory protection equipment	90 (<i>justification: Use of gas mask filter ABEK is requested to ensure 90% respiratory protection.</i>)
Use of external/measured value inhalation	The inhalative exposure value was estimated by using Stoffenmanager 5.0 a Tier 1+ model for inhalation. As only worst-case assumptions were applied the 75th percentile was considered as appropriate for risk assessment purposes. A complete and detailed report of all input variables and results used can be found in appendix I.
Contributing Scenario (4) controlling professional worker exposure for PROC 19 (PC 9a)	
Name of contributing scenario	19 - Hand-mixing with intimate contact (only PPE available)
Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	less than 15 mins
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	1,980 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Contributing Scenario (5) controlling professional worker exposure for PROC 2 (PC 9a)	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure

Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Contributing Scenario (6) controlling professional worker exposure for PROC 3 (PC 9a)	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Contributing Scenario (7) controlling professional worker exposure for PROC 5 (PC 9a)	

Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)
Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
ABEK gas mask filter as respiratory protection equipment	90 (<i>justification: Use of gas mask filter ABEK is requested to ensure 90% respiratory protection.</i>)
Contributing Scenario (8) controlling professional worker exposure for PROC 8A (PC 9a)	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	

Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
ABEK gas mask filter as respiratory protection equipment	90 (<i>justification: Use of gas mask filter ABEK is requested to ensure 90% respiratory protection.</i>)
Contributing Scenario (9) controlling professional worker exposure for PROC 8B (PC 9a)	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Contributing Scenario (10) controlling professional worker exposure for PROC 10 (PC 9a)	
Name of contributing scenario	10 - Roller application or brushing
Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	outdoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	

Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Contributing Scenario (11) controlling professional worker exposure for PROC 11 (PC 9a)	
Name of contributing scenario	11 - Non industrial spraying
Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	1,500 cm ²
Other given operational conditions affecting workers exposure	
Location	outdoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
ABEK gas mask filter as respiratory protection equipment	90 (<i>justification: Use of gas mask filter ABEK is requested to ensure 90% respiratory protection.</i>)
Contributing Scenario (12) controlling professional worker exposure for PROC 19 (PC 9a)	
Name of contributing scenario	19 - Hand-mixing with intimate contact (only PPE available)
Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	less than 15 mins
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	1,980 cm ²
Other given operational conditions affecting workers exposure	
Location	outdoors

Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Contributing Scenario (13) controlling professional worker exposure for PROC 2 (PC 9a)	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	outdoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Contributing Scenario (14) controlling professional worker exposure for PROC 3 (PC 9a)	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm ²
Other given operational conditions affecting workers exposure	

Location	outdoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Contributing Scenario (15) controlling professional worker exposure for PROC 5 (PC 9a)	
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)
Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	outdoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Contributing Scenario (16) controlling professional worker exposure for PROC 8A (PC 9a)	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²

Other given operational conditions affecting workers exposure	
Location	outdoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Contributing Scenario (17) controlling professional worker exposure for PROC 8B (PC 9a)	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	1-5%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	outdoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

Scenario 6: USE H - Non-intermediate use as a solvent/stabilizer in organic peroxide formulations or as part of a product functioning to increase the reactivity of a resin cure system. These uses can include standard activities such as receipt/storage of raw materials, raw material assembly/charging, synthesis/blending, filtering, manufacturing equipment cleaning, waste management, manufacturing equipment maintenance, storage and delivery of finished products and associated laboratory activities (ES6)

This scenario is described by the following combinations of use descriptors. The corresponding contributing

scenarios are described in the respective subchapters.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.

The following scenarios contribute to the scenario *USE H - Non-intermediate use as a solvent/stabilizer in organic peroxide formulations or as part of a product functioning to increase the reactivity of a resin cure system. These uses can include standard activities such as receipt/storage of raw materials, raw material assembly/charging, synthesis/blending, filtering, manufacturing equipment cleaning, waste management, manufacturing equipment maintenance, storage and delivery of finished products and associated laboratory activities.*

The corresponding release to the environment, exposure of workers and consumers resulting from these contributing scenarios is summarized in chapter 10.7 ff.

Free short title	USE H - Non-intermediate use as a solvent/stabilizer in organic peroxide formulations or as part of a product functioning to increase the reactivity of a resin cure system. These uses can include standard activities such as receipt/storage of raw materials, raw material assembly/charging, synthesis/blending, filtering, manufacturing equipment cleaning, waste management, manufacturing equipment maintenance, storage and delivery of finished products and associated laboratory activities (ES8)
Systematic title based on use descriptor	ERC 6B; PROC 1, 2, 3, 4, 5, 7, 8A, 8B, 9, 10, 11, 13, 14
Name of contributing environmental scenario and corresponding ERC	ERC 6b Industrial use of reactive processing aids

Name(s) of contributing worker scenarios and corresponding PROCs	<p>PROC 1 - Use in closed process, no likelihood of exposure</p> <p>PROC 2 - Use in closed, continuous process with occasional controlled exposure</p> <p>PROC 3 - Use in closed batch process (synthesis or formulation)</p> <p>PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact)</p> <p>PROC 7 - Industrial spraying</p> <p>PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities</p> <p>PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities</p> <p>PROC 9 - Transfer of chemicals into small containers (dedicated filling line)</p> <p>PROC 10 - Roller application or brushing</p> <p>PROC 11 - Non industrial spraying</p> <p>PROC 13 - Treatment of articles by dipping and pouring</p> <p>PROC 14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation</p>
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Contributing Scenario (1) controlling environmental exposure for ERC 6B

Operational conditions	
Annual site tonnage	100 to/year
Daily amount used at site	454.545 kg/day
Release times per year	220 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.100 %
Release fraction to wastewater from process	4 %
Release fraction to soil from process	0.025 %
Fraction tonnage to region	100 %
Fraction used at main source	100 %
STP	yes
River flow rate	18000 m ³ /day
Municipal sewage treatment plant discharge	2000000 L/day
Risk management measures	

SpERC	ES8 (Release fractions mentioned above resulting in safe environmental exposure values for ERC 6b. A corresponding critical release rate to water is provided at the beginning of chapter 10.)
RMM effectivity	soil0 %
Contributing Scenario (2) controlling industrial worker exposure for PROC 1 (PC 32)	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (3) controlling industrial worker exposure for PROC 2 (PC 32)	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors

Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (4) controlling industrial worker exposure for PROC 3 (PC 32)	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (5) controlling industrial worker exposure for PROC 4 (PC 32)	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	

Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (6) controlling industrial worker exposure for PROC 5 (PC 32)	
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (7) controlling industrial worker exposure for PROC 7 (PC 32)	
Name of contributing scenario	7 - Industrial spraying
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	1,500 cm ²

Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 95 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (8) controlling industrial worker exposure for PROC 8A (PC 32)	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (9) controlling industrial worker exposure for PROC 8B (PC 32)	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week

Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 95 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (10) controlling industrial worker exposure for PROC 9 (PC 32)	
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (11) controlling industrial worker exposure for PROC 10 (PC 32)	
Name of contributing scenario	10 - Roller application or brushing
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)

Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (12) controlling professional worker exposure for PROC 11 (PC 32)	
Name of contributing scenario	11 - Non industrial spraying
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	1,500 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 80 %; dermal 80 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
ABEK gas mask filter as respiratory protection equipment	90 (<i>justification: Use of gas mask filter ABEK is requested to ensure 90% respiratory protection.</i>)
Contributing Scenario (13) controlling industrial worker exposure for PROC 13 (PC 32)	
Name of contributing scenario	13 - Treatment of articles by dipping and pouring
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium

Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (14) controlling industrial worker exposure for PROC 14 (PC 32)	
Name of contributing scenario	14 - Production of preparations or articles by tableting, compression, extrusion, pelletisation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

Scenario 7: USE G - Use as a laboratory reagent (ES7)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.

The following scenarios contribute to the scenario *USE G - Use as a laboratory reagent*.

The corresponding release to the environment, exposure of workers and consumers resulting from these contributing scenarios is summarized in chapter 10.8 ff.

Free short title	USE G - Use as a laboratory reagent (ES7)
Systematic title based on use descriptor	PROC 15
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 15 - Use of laboratory reagents in small scale laboratories
Contributing Scenario (1) controlling professional worker exposure for PROC 15 (PC 21)	
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm ²
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 80 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no