SAFETY DATA SHEET

according to REACH Regulation (EC) No. 1907/2006, as amended by UK REACH Regulations SI 2019/758

Isobutyl acetate
10260

Version / Revision	9	**Revision Date**	09-Apr-2025
Supersedes Version	8.00***	**Issuing date**	09-Apr-2025

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

1.1. Product identifier

Identification of the substance/preparation **Isobutyl acetate**

CAS-No 110-19-0
EC No. 203-745-1

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

Identified uses
Formulation
Distribution of substance
coatings
cleaning agent
laboratory chemicals

Uses advised against None

1.3. Details of the supplier of the safety data sheet

Company/Undertaking Identification
OXEA GmbH
Rheinpromenade 4A
D-40789 Monheim
Germany***

Product Information
Product Stewardship
FAX: +49 (0)208 693 2053
email: sc.psq@oxea.com

1.4. Emergency telephone number

Emergency telephone number
+44 (0) 1235 239 670 (UK)
available 24/7

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

This substance is classified based on Directive 1272/2008/EC and its amendments (CLP Regulation)

Flammable liquid Category 2, H225
Target Organ Systemic Toxicant - Single exposure Category 3, H336

Additional information
For full text of Hazard- and EU Hazard-statements see SECTION 16.

2.2. Label elements

Labelling according to Regulation 1272/2008/EC and its amendments (CLP Regulation).

Hazard pictograms



Signal word **Danger**

Hazard statements
H225: Highly flammable liquid and vapour.
H336: May cause drowsiness or dizziness.

Precautionary statements
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233: Keep container tightly closed.
P261: Avoid breathing gas/mist/vapours.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312: Call a POISON CENTRE/doctor if you feel unwell.
P403 + P235: Store in a well ventilated place. Keep cool.

Supplemental Hazard Information (EU)
EUH 066: Repeated exposure may cause skin dryness or cracking.

2.3. Other hazards

Vapours may form explosive mixture with air
Vapour is heavier than air and can travel considerable distance to a source of ignition and flashback
Components of the product may be absorbed into the body by inhalation

PBT and vPvB assessment
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

Endocrine disrupting assessments
The substance is not listed on the candidate list according to Art. 59(1), REACh.
The substance was not assessed as having endocrine disrupting properties according to regulation 2017/2100/EU or 2018/605/EU.

SECTION 3: Composition / information on ingredients

3.1. Substances

Component	CAS-No	1272/2008/EC	Concentration (%)
Isobutyl acetate	110-19-0	Flam. Liq. 2; H225 STOT SE 3; H336 EU H066	> 99,0

For full text of Hazard- and EU Hazard-statements see SECTION 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
Keep at rest. Aerate with fresh air. When symptoms persist or in all cases of doubt seek medical advice.

Skin
Wash off immediately with soap and plenty of water. When symptoms persist or in all cases of doubt seek medical advice.

Eyes
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

Ingestion
Call a physician immediately. Do not induce vomiting without medical advice.

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

Main symptoms
cough, nausea, vomiting, headache, unconsciousness, shortness of breath, dizziness, narcosis.

Special hazard
central nervous system effects, Lung oedema, Prolonged skin contact may defat the skin and produce dermatitis.

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

General advice
Remove contaminated, soaked clothing immediately and dispose of safely. First aider needs to protect himself.

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media
foam, dry chemical, carbon dioxide (CO2), water spray

Unsuitable Extinguishing Media
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Under conditions giving incomplete combustion, hazardous gases produced may consist of:
carbon monoxide (CO)
carbon dioxide (CO2)
Combustion gases of organic materials must in principle be graded as inhalation poisons
Vapour is heavier than air and can travel considerable distance to a source of ignition and flashback
Vapours may form explosive mixture with air

5.3. Advice for firefighters

Special protective equipment for firefighters
Fire fighter protection should include a self-contained breathing apparatus (NIOSH-approved or EN 133) and full fire-fighting turn out gear.

Precautions for firefighting
Cool containers / tanks with water spray. Dike and collect water used to fight fire. Keep people away from and upwind of fire.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: For personal protective equipment see section 8. Avoid contact with skin and eyes. Avoid breathing vapors or mists. Keep people away from and upwind of spill/leak. Ensure adequate ventilation, especially in confined areas. Keep away from heat and sources of ignition.
For emergency responders: Personal protection see section 8.

6.2. Environmental precautions

Prevent further leakage or spillage. Do not discharge product into the aquatic environment without pretreatment (biological treatment plant).

6.3. Methods and material for containment and cleaning up

Methods for containment
Stop the flow of material, if possible without risk. Dike spilled material, where this is possible.

Methods for cleaning up
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. If liquid has been spilt in large quantities clean up promptly by scoop or vacuum. Dispose of in accordance with local regulations. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).

6.4. Reference to other sections

For personal protective equipment see section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Further info may be available in the appropriate Exposure scenarios in the annex to this SDS.

Advice on safe handling
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Provide sufficient air exchange and/or exhaust in work rooms.

Hygiene measures
When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Advice on the protection of the environment
See Section 8: Environmental exposure controls.

Incompatible products
strong acids and strong bases
strong oxidizing agents

7.2. Conditions for safe storage, including any incompatibilities

Advice on protection against fire and explosion
Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). In case of fire, emergency cooling with water spray should be available. Ground and bond containers when transferring material. Vapour is heavier than air and can travel

considerable distance to a source of ignition and flashback. Vapours may form explosive mixture with air.

Technical measures/Storage conditions
Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care.

Suitable material
mild steel, stainless steel, aluminium

Unsuitable material
Attacks some forms of plastic and rubber, copper

Temperature class
T2

7.3. Specific end use(s)

Formulation
Distribution of substance
coatings
cleaning agent
laboratory chemicals
For specific end use information see the annex of this safety data sheet

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits European Union

Directive 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU

Component	TWA (mg/m³)	TWA (ppm)	STEL (mg/m³)	STEL (ppm)	Skin Absorption
Isobutyl acetate CAS: 110-19-0	241	50	723	150	

Exposure limits UK

EH40 WELs

Component	TWA (mg/m³)	TWA (ppm)	STEL (mg/m³)	STEL (ppm)
Isobutyl acetate CAS: 110-19-0	724	150	903	187

Note
For details and further information please refer to the original regulation.

DNEL & PNEC

Isobutyl acetate, CAS: 110-19-0
Workers

DN(M)EL - long-term exposure - systemic effects - Inhalation	300 mg/m³
DN(M)EL - acute / short-term exposure - systemic effects - Inhalation	600 mg/m³
DN(M)EL - long-term exposure - local effects - Inhalation	300 mg/m³

DN(M)EL - acute / short-term exposure - local effects - Inhalation	600 mg/m³
DN(M)EL - long-term exposure - systemic effects - Dermal	10 mg/kg bw/day
DN(M)EL - acute / short-term exposure - systemic effects - Dermal	10 mg/kg bw/day
DN(M)EL - long-term exposure - local effects - Dermal	No hazard identified
DN(M)EL - acute / short-term exposure - local effects - Dermal	No hazard identified
DN(M)EL - local effects - eyes	No hazard identified

General population

DN(M)EL - long-term exposure - systemic effects - Inhalation	35,7 mg/m³
DN(M)EL - acute / short-term exposure - systemic effects - Inhalation	300 mg/m³
DN(M)EL - long-term exposure - local effects - Inhalation	35,7 mg/m³
DN(M)EL - acute / short-term exposure - local effects - Inhalation	300 mg/m³
DN(M)EL - long-term exposure - systemic effects - Dermal	5 mg/kg bw/day
DN(M)EL - acute / short-term exposure - systemic effects - Dermal	5 mg/kg bw/day
DN(M)EL - long-term exposure - local effects - Dermal	No hazard identified
DN(M)EL - acute / short-term exposure - local effects - Dermal	No hazard identified
DN(M)EL - long-term exposure - systemic effects - Oral	5 mg/kg bw/day
DN(M)EL - acute / short-term exposure - systemic effects - Oral	5 mg/kg bw/day
DN(M)EL - local effects - eyes	No hazard identified

Environment

PNEC aqua - freshwater	0,17 mg/l
PNEC aqua - marine water	0,017 mg/l
PNEC aqua - intermittent releases	0,34 mg/l
PNEC STP	200 mg/l
PNEC sediment - freshwater	0,877 mg/kg
PNEC sediment - marine water	0,0877 mg/kg
PNEC Air	No hazard identified
PNEC soil	0,0755 mg/kg
Secondary poisoning	No potential for bioaccumulation

8.2. Exposure controls

Special adaptations (REACh)
Not applicable.

Appropriate Engineering controls
General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Personal protective equipment

General industrial hygiene practice
Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Ensure that eyewash stations and safety showers are close to the workstation location.

Hygiene measures
When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Eye protection
Tightly fitting safety goggles. In addition to goggles, wear a face shield if there is a reasonable chance for splash

to the face.
Equipment should conform to EN 166

Hand protection
Wear protective gloves. Recommendations are listed below. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

Suitable material	butyl-rubber
Evaluation	according to EN 374: level 3
Glove thickness	approx 0,3 mm
Break through time	approx 60 min

Suitable material	polyvinylchloride / nitrile rubber
Evaluation	according to EN 374: level 2
Glove thickness	approx 0,9 mm
Break through time	approx 30 min

Skin and body protection
Impervious clothing. Wear face-shield and protective suit for abnormal processing problems.

Respiratory protection
Respirator with A filter. Full mask with above mentioned filter according to producers using requirements or self-contained breathing apparatus. Equipment should conform to EN 136 or EN 140 and EN 143.

Environmental exposure controls
If possible use in closed systems. If leakage can not be prevented, the substance needs to be suck off at the emersion point, if possible without danger. Observe the exposure limits, clean exhaust air if needed. If recycling is not practicable, dispose of in compliance with local regulations. Inform the responsible authorities in case of leakage into the atmosphere, or of entry into waterways, soil or drains.

Additional advice
Further details on substance data can be found in the registration dossier under the following link: http://echa.europa.eu/information-on-chemicals/registered-substances. For specific exposure controls see the annex to this safety data sheet.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	liquid
Colour	colourless
Odour	fruity
Odour threshold	19,3 mg/m³
Melting point/freezing point	< -90 °C (Pour point)
Method	DIN ISO 3016
Boiling point or initial boiling point and boiling range	117 °C @ 1013 hPa
Method	OECD 103
Flammability	Ignitable
Lower explosion limit	1,3 Vol %
Upper explosion limit	10,5 Vol %
Flash point	22 °C @ 1013 hPa
Method	ISO 2719
Autoignition temperature	430 °C @ 1019 hPa
Method	DIN 51794
Decomposition temperature	No data available

pH	6,7 (~5 g/l in water @ 20 °C (68 °F))
Kinematic Viscosity	0,804 mm²/s @ 20 °C
Method	ASTM D445
Solubility	5,6 g/l @ 20 °C, in water, OECD 105
Partition coefficient n-octanol/water (log value)	2,3 @ 25 °C (77 °F) measured OECD 117

Vapour pressure

Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method
21	2,1	0,021	20	68	DIN EN 13016-2
89	8,9	0,088	50	122	DIN EN 13016-2

Density and/or relative density

Values	@ °C	@ °F	Method
0,871	20	68	DIN 51757

Relative vapour density	4,0 (Air = 1) @ 20 °C (68 °F)
Particle characteristics	not applicable

9.2. Other information

Explosive properties	Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties
Oxidizing properties	Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties
Molecular weight	116,16
Molecular formula	C6 H12 O2
log Koc	1,19 calculated
Refractive index	1,390 @ 20 °C
Surface tension	62,5 mN/m (1 g/l @ 20°C (68°F)), OECD 115
Evaporation rate	1,5 (n-Butyl acetate = 1)

SECTION 10: Stability and Reactivity

10.1. Reactivity

The reactivity of the product corresponds to the typical reactivity shown by the substance group as described in any text book on organic chemistry.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Vapours may form explosive mixture with air.

10.4. Conditions to avoid

Avoid contact with heat, sparks, open flame and static discharge. Avoid any source of ignition.

10.5. Incompatible materials

strong acids and strong bases, strong oxidizing agents.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

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

Likely routes of exposure Ingestion, Inhalation, Eye contact, Skin contact

Acute toxicity				
Isobutyl acetate (110-19-0)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	13413 mg/kg	rat	OECD 401
Dermal	LD50	> 17400 mg/kg	rabbit male	OECD 402
Inhalative	LC50	30 mg/l	rat, female	OECD 403

Isobutyl acetate, CAS: 110-19-0
Assessment
Based on available data, the classification criteria are not met for:
Acute oral toxicity
Acute dermal toxicity
Acute inhalation toxicity

Irritation and corrosion				
Isobutyl acetate (110-19-0)				
Target Organ Effects	Species	Result	Method	
Skin	rabbit	No skin irritation	OECD 404	read across
Eyes	rabbit	No eye irritation	OECD 405	read across
Respiratory tract	human	Low irritating potential		read across

Isobutyl acetate, CAS: 110-19-0
Assessment
Based on available data, the classification criteria are not met for:
skin irritation/corrosion
eye irritation/corrosion
respiratory irritation

Sensitization				
Isobutyl acetate (110-19-0)				
Target Organ Effects	Species	Evaluation	Method	
Skin	guinea pig	not sensitizing	OECD 406	

Isobutyl acetate, CAS: 110-19-0
Assessment
Based on available data, the classification criteria are not met for:
Skin sensitization
For respiratory sensitization, no data are available

Subacute, subchronic and prolonged toxicity				
Isobutyl acetate (110-19-0)				
Type	Dose	Species	Method	
Subchronic toxicity	NOAEL: 495 mg/kg/d	rat, male/female	OECD 408	read across
Subchronic toxicity	NOAEC: 500 ppm/d (13 weeks)	rat, male/female	EPA OTS 798.2450 Inhalation	read across

Isobutyl acetate, CAS: 110-19-0
Assessment
Based on available data, the classification criteria are not met for:
STOT RE

Carcinogenicity, Mutagenicity, Reproductive toxicity					
Isobutyl acetate (110-19-0)					
Type	Dose	Species	Evaluation	Method	
Mutagenicity		Salmonella typhimurium	negative	OECD 471 (Ames)	In vitro study
Mutagenicity		V79 cells, Chinese hamster	negative (with metabolic activation)	OECD 473 (Chromosomal Aberration)	In vitro study
Mutagenicity		mouse	negative	OECD 474	read across In vitro study micronucleus test
Developmental Toxicity	NOAEC: 15,7 mg/l	rat		OECD 414, Inhalative	read across Maternal toxicity, Developmental toxicity, Teratogenicity Embryotoxicity
Developmental Toxicity	NOAEC: 3,9 mg/l	rabbit	Maternal toxicity	OECD 414, Inhalative	read across
Developmental Toxicity	NOAEC: 15,7 mg/l	rabbit	Fetal toxicity, Embryotoxicity Teratogenicity	OECD 414, Inhalative	read across
Reproductive toxicity	NOAEC: 3198 ppm	rat, parental rat, 1. Generation, male/female rat 2. Generation, male/female		EPA OPPTS 870.3800	read across
Reproductive toxicity		V79 cells, Chinese hamster	negative (with metabolic activation)	OECD 476 (Mammalian Gene Mutation) HPRT	read across In vitro study

Isobutyl acetate, CAS: 110-19-0
CMR Classification
The available data on CMR properties are summarized in the table above. They do not indicate a classification into categories 1A or 1B
Evaluation
Based on available data, the classification criteria are not met for:
Mutagenicity
Developmental toxicity
Reproductive toxicity
No cancer study was conducted

Isobutyl acetate, CAS: 110-19-0
Main symptoms
cough, shortness of breath, dizziness, headache, nausea, narcosis, vomiting, unconsciousness.
Target Organ Systemic Toxicant - Single exposure
The available data lead to the classification given in section 2
Target Organ Systemic Toxicant - Repeated exposure
Repeated exposure may cause skin dryness or cracking
Based on available data, the classification criteria are not met for:

STOT RE

11.2. Information on other hazards

Endocrine disrupting properties
The substance has not been identified as having endocrine disrupting properties in accordance with section 2.3.
Isobutyl acetate, CAS: 110-19-0
Other adverse effects
Components of the product may be absorbed into the body by inhalation.
Note
Handle in accordance with good industrial hygiene and safety practice. Further details on substance data can be found in the registration dossier under the following link:
http://echa.europa.eu/information-on-chemicals/registered-substances.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity			
Isobutyl acetate (110-19-0)			
Species	Exposure time	Dose	Method
Daphnia magna (Water flea)	48h	EC50: 25 mg/l	OECD 202
Oryzias latipes (Medaka)	96h	LC50: 17 mg/l	OECD 203
Pseudokirchneriella subcapitata	72h	EC50: 397 mg/l (Growth rate)	OECD 201
Pseudomonas putida	16 h	TTC: 200 mg/l	Cell multiplication inhibition test

Long term toxicity				
Isobutyl acetate (110-19-0)				
Type	Species	Dose	Method	
Reproductive toxicity	Daphnia magna (Water flea)	EC50: 34 mg/l/21d	OECD 211	
Reproductive toxicity	Daphnia magna (Water flea)	NOEC: 23 mg/l (21d)	OECD 211	
Aquatic toxicity	Pseudokirchneriella subcapitata	NOEC: 196 mg/l (3d)	OECD 201	

12.2. Persistence and degradability

Isobutyl acetate, CAS: 110-19-0
Biodegradation
81 % (20 d), Readily biodegradable, Sewage, domestic, non-adapted, aerobic, OECD 301 D.

Abiotic Degradation		
Isobutyl acetate (110-19-0)		
Type	Result	Method
Hydrolysis	t1/2 (pH 7): 3,33 yr @ 25°C	calculated
Photolysis	Half-life (DT50): 3,49 days	calculated

12.3. Bioaccumulative potential

Isobutyl acetate (110-19-0)

Type	Result	Method
log Pow	2,3 @ 25 °C (77 °F)	measured, OECD 117
BCF	15,3	calculated

12.4. Mobility in soil

Isobutyl acetate (110-19-0)		
Type	Result	Method
Surface tension	62,5 mN/m (1 g/l @ 20°C (68°F))	OECD 115
Adsorption/Desorption	log Koc: 1,19	calculated
Distribution to environmental compartments	Air: 13% Soil: 48% Water: 38,8% Sediment: 0,11%	calculated Fugacity Model Level III

12.5. Results of PBT and vPvB assessment

Isobutyl acetate, CAS: 110-19-0
PBT and vPvB assessment
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

12.6. Endocrine disrupting properties

The substance has not been identified as having endocrine disrupting properties in accordance with section 2.3.

12.7. Other adverse effects

Isobutyl acetate, CAS: 110-19-0
No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product Information
Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.
Hazardous waste according to European Waste Catalogue (EWC)

Uncleaned empty packaging
Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

SECTION 14: Transport information

ADR/RID

14.1. UN number or ID number	UN 1213
14.2. UN proper shipping name	Isobutyl acetate
14.3. Transport hazard class(es)	3

14.4. Packing group	II
14.5. Environmental hazards	no
14.6. Special precautions for user	
ADR Tunnel restriction code	(D/E)
Classification Code	F1
Hazard Number	33

ADN — ADN Container

14.1. UN number or ID number	UN 1213
14.2. UN proper shipping name	Isobutyl acetate
14.3. Transport hazard class(es)	3
14.4. Packing group	II
14.5. Environmental hazards	no
14.6. Special precautions for user	
Classification Code	F1
Hazard Number	33

ADN — ADN Tanker

14.1. UN number or ID number	UN 1213
14.2. UN proper shipping name	Isobutyl acetate
14.3. Transport hazard class(es)	3
Subsidiary Risk	N3
14.4. Packing group	II
14.5. Environmental hazards	no
14.6. Special precautions for user	
Classification Code	F1

ICAO-TI / IATA-DGR

14.1. UN number or ID number	UN 1213
14.2. UN proper shipping name	Isobutyl acetate
14.3. Transport hazard class(es)	3
14.4. Packing group	II
14.5. Environmental hazards	no
14.6. Special precautions for user	no data available

IMDG

14.1. UN number or ID number	UN 1213
14.2. UN proper shipping name	Isobutyl acetate
14.3. Transport hazard class(es)	3
14.4. Packing group	II
14.5. Environmental hazards	no
14.6. Special precautions for user	
EmS	F-E, S-D
14.7. Maritime transport in bulk according to IMO instruments	

Product name	Butyl acetate
Ship type	3
Pollution category	Y
Hazard class	P

SECTION 15: Regulatory information

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

Regulation 1272/2008, Annex VI

Isobutyl acetate, CAS: 110-19-0

Classification	Flam. Liq. 2; H225
Hazard pictograms	GHS02 Flame
Signal word	Danger
Hazard statements	H225, EUH066

DI 2012/18/EU (Seveso III)

Category	Annex I, part 1: P5a - c; depending on conditions

VOC according to DI 2010/75/EU (Industry Emission Directive)

Component	Status
Isobutyl acetate CAS: 110-19-0	regulated

The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019 No. 758

Component	Status
Isobutyl acetate CAS: 110-19-0	The substance is/will be pre-registered

For details and further information please refer to the original regulation.

International Inventories

Isobutyl acetate, CAS: 110-19-0

AICS (AU)
DSL (CA)
IECSC (CN)
EC-No. 2037451 (EU)
ENCS (2)-731 (JP)
ISHL (2)-731 (JP)
KECI KE-00055 (KR)
INSQ (MX)
PICCS (PH)
TSCA (US)
NZIoC (NZ)
TCSI (TW)

National regulatory information Great Britain

Releases to air (Pollution Inventory Substances)

not subject

Releases to water (Pollution Inventory Substances)
not subject

Releases to sewer (Pollution Inventory Substances)
not subject
For details and further information please refer to the original regulation

15.2. Chemical safety assessment

The Chemical Safety Report (CSR) has been generated. For Exposure Scenarios see the annex.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3
H225: Highly flammable liquid and vapour.
H336: May cause drowsiness or dizziness.
EUH 066: Repeated exposure may cause skin dryness or cracking.

Abbreviations
A table of terms and abbreviations can be found under the following link:
http://echa.europa.eu/documents/10162/13632/information_requirements_r20_en.pdf

Training advice
For effective first-aid, special training / education is needed.

Sources of key data used to compile the datasheet
Information contained in this safety data sheet is based on OXEA owned data and public sources deemed valid or acceptable. The absence of data elements required by OSHA, ANSI or Annex II, Regulation 1907/2006/EC indicates, that no data meeting these requirements is available.

Further information for the safety data sheet
Changes against the previous version are marked by ***. Observe national and local legal requirements. For more information, other material safety data sheets or technical data sheets please consult the OXEA homepage (www.oxae.com).

Disclaimer
For industrial use only. The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. OXEA makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards.

End of Safety Data Sheet

Annex to the extended Safety Data Sheet (eSDS)

General information

Risks resulting from short-term exposure are covered by the long-term exposure assessment
For consumer applications in the following usage areas please contact OQ (sc.psq@oxea.com):

Uses in coatings
Use in Cleaning Agents
Consumer uses e.g. as a carrier in cosmetics/personal care products, perfumes and fragrances (PC28, PC35).
Note: For cosmetic and personal care products, risk assessment only required for the environment under REACH as human health is covered by alternative legislation

For specific information regarding the SPERC used please refer to the ESIG webpage https://www.esig.org/reach-ges/environment/

Other combinations of operational conditions may also be safe. Please contact OXEA in case your local operational conditions differ from the ones described below and you are unsure if they are also safe

Exposure scenario identification

1 Formulation & (re)packing of substances and mixtures
2 Distribution of substance
3 Uses in coatings
4 Uses in coatings
5 Use in Cleaning Products
6 Use in Cleaning Products
7 Use in laboratories
8 Use in laboratories

Number of the ES 1

Short title of the exposure scenario
Formulation & (re)packing of substances and mixtures

List of use descriptors

Sector of uses [SU]
SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

Process categories [PROC]
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC14: production of preparations or articles by tabletting, compression, extrusion, pelettisation
PROC15: Use as laboratory reagent

Environmental release categories [ERC]
ERC2: Formulation of preparations (mixtures)

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenanance and associated laboratory activities.

Further explanations
Industrial use
Assumes use at not more than 20°C above ambient temperature (unless stated differently)
Assumes an advanced standard of occupational Health and Safety Management System

Contributing Scenarios

Number of the contributing scenario **1**
Contributing exposure scenario controlling environmental exposure for ERC 2

Further specification
SpERC ESVOC 2.2.v1 (ESVOC 4), release factors for (Sp)ERC were modified,
assessment tool used:, Chesar 2.3.
Amounts used
Daily amount per site: 13.33 to
Annual amount per site: 4000 to
Fraction of Regional tonnage used locally: 1
Frequency and duration of use
Covers use up to: 300 days
Environment factors not influenced by risk management
River flow rate: 18000 m³/d Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 2.5 %
Release fraction to wastewater from process: 0.05 %
Release fraction to soil from process: 0.01%
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Onsite treatment wastewater. Apply acclimated biological treatment. Assumed Efficiency: 90 %
Conditions and measures related to municipal sewage treatment plant
Size of municipal sewage system/ treatment plant (m³/d): 2000
Estimated substance removal from wastewater via domestic sewage treatment (%): 89.4
Do not apply industrial sludge to natural soils

Number of the contributing scenario **2**
Contributing exposure scenario controlling worker exposure for PROC 1, PROC 3, PROC 15

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 1 hand (240 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).

Number of the contributing scenario **3**
Contributing exposure scenario controlling worker exposure for

PROC 2

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).

Number of the contributing scenario **4**
Contributing exposure scenario controlling worker exposure for
PROC 4

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **5**
Contributing exposure scenario controlling worker exposure for
PROC 5, PROC 9, PROC 14

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm²)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **6**
Contributing exposure scenario controlling worker exposure for
PROC 8a

Further specification
Assessment tool used: Chesar 2.3
Product characteristics

Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to 2 hands (960 cm²)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **7**
Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to 2 hands (960 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Exposure estimation and reference to its source

Environment
PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 0.036 mg/l; RCR: 0.209
Fresh Water (Sediment)	PEC: 0.713 mg/kg dw; RCR: 0.813
Marine Water (Pelagic)	PEC: 0.004 mg/l; RCR: 0.209
Marine Water (Sediment)	PEC: 0.071 mg/kg dw; RCR: 0.812
Agricultural Soil	PEC: 0.011 mg/kg dw; RCR: 0.143
Sewage Treatment Plant (Effluent)	PEC: 0.354 mg/l; RCR: 0.01
Man via environment – Inhalation	Concentration in air: 0.076 mg/m³; RCR: 0.01
Man via environment – Oral	Exposure via food consumption: 0.002 mg/kg bw/day; RCR: 0.01

Human exposure prediction (oral, dermal, inhalative)
Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal): 0.194; EE(derm): 0.034		
Proc 2	EE(inhal):	96.8 ; EE(derm): 1.37	
Proc 3	EE(inhal):	193.6; EE(derm): 0.69	
Proc 4	EE(inhal):	387.2 ; EE(derm):	1.372
Proc 5	EE(inhal):	96.8; EE(derm): 2.742	
Proc 8a	EE(inhal):	96.8 ; EE(derm): 2.742	
Proc 8b	EE(inhal):	484 ; EE(derm): 1.371	
Proc 9	EE(inhal):	96.8 ; EE(derm): 6.86	
Proc 14	EE(inhal):	96.8 ; EE(derm): 0.686	

Proc 15	EE(inhal):	193.6 ; EE(derm): 0.34

Risk characterisation
RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.0003; RCR(derm): 0.003		
Proc 2	RCR(inhal):	0.161; RCR(derm): 0.137	
Proc 3	RCR(inhal):	0.323; RCR(derm):	0.069
Proc 4	RCR(inhal):	0.645; RCR(derm): 0.137	
Proc 5	RCR(inhal):	0.161; RCR(derm):	0.274
Proc 8a	RCR(inhal):	0.161; RCR(derm): 0.274	
Proc 8b	RCR(inhal):	0.807; RCR(derm):	0.137
Proc 9	RCR(inhal):	0.161; RCR(derm):	0.686
Proc 14	RCR(inhal): 0.161; RCR(derm): 0.069		
Proc 15	RCR(inhal):	0.323; RCR(derm):	0.034

Number of the ES 2

Short title of the exposure scenario

Distribution of substance

List of use descriptors

Sector of uses [SU]
SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Process categories [PROC]
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15: Use as laboratory reagent

Environmental release categories [ERC]
ERC2: Formulation of preparations (mixtures)

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, distribution and associated laboratory activities.

Further explanations
Industrial use
Assumes use at not more than 20°C above ambient temperature (unless stated differently)
Assumes an advanced standard of occupational Health and Safety Management System

Contributing Scenarios

Number of the contributing scenario **1**
Contributing exposure scenario controlling environmental exposure for ERC 2

Further specification
SpERC ESVOC 1.1b.v1 (ESVOC 3), release factors for (Sp)ERC were modified, assessment tool used:, Chesar 2.3.
Amounts used
Annual amount per site: 50000 to
Daily amount per site: 0.033 to
Fraction of Regional tonnage used locally: 1
Frequency and duration of use
Covers use up to: 300 days
Environment factors not influenced by risk management
River flow rate: 18000 m³/d Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Other given operational conditions affecting environmental exposure
Indoor/Outdoor use
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 0.01 %
Release fraction to wastewater from process: 0.001 %
Release fraction to soil from process: 0.001%
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Onsite treatment off-air. Apply vapour recovery (Adsorption, …). Assumed Efficiency: 90 %
Conditions and measures related to municipal sewage treatment plant
Size of municipal sewage system/ treatment plant (m³/d): 2000
The minimum grade of elimination in the sewage plant is (%): 89.4

Number of the contributing scenario **2**
Contributing exposure scenario controlling worker exposure for PROC 1, PROC 3, PROC 15

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Liquid, vapour pressure 0,5 - 10 kPa at STP
Covers percentage substance in the product up to 100 % (unless stated differently)
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 1 hand (240 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).

Number of the contributing scenario **3**
Contributing exposure scenario controlling worker exposure for PROC 2, PROC 4

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker

provide a basic standard of general ventilation (1 to 3 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **4**
Contributing exposure scenario controlling worker exposure for PROC 8a

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to 2 hands (960 cm^2)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **5**
Contributing exposure scenario controlling worker exposure for PROC 9

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm^2)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.

Exposure estimation and reference to its source

Environment
PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 0.0002 mg/l; RCR: 0.01
Fresh Water (Sediment)	PEC: 0.005 mg/kg dw; RCR: 0.01
Marine Water (Pelagic)	PEC: 0.00002 mg/l; RCR: 0.01
Marine Water (Sediment)	PEC: 0.0004 mg/kg dw; RCR: 0.01
Agricultural Soil	PEC: 0.0006 mg/kg dw; RCR: 0.008
Sewage Treatment Plant (Effluent)	PEC: 0.00002 mg/l; RCR: 0.01
Man via environment – Inhalation	Concentration in air: 0.004 mg/m^3; RCR: 0.01
Man via environment – Oral	Exposure via food consumption: 4.563E-4 mg/kg bw/day; RCR: 0.01

Human exposure prediction (oral, dermal, inhalative)
Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m^3]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal): 0.194; EE(derm): 0.034
Proc 2	EE(inhal): 96.8; EE(derm): 0.274
Proc 3	EE(inhal): 193.6 ; EE(derm): 0.69
Proc 4	EE(inhal): 387.2; EE(derm): 1.372
Proc 8a	EE(inhal): 96.8 ; EE(derm): 2.742
Proc 8b	EE(inhal): 484 ; EE(derm): 1.371
Proc 15	EE(inhal): 193.6 ; EE(derm): 0.34

Risk characterisation
RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.0003; RCR(derm): 0.003
Proc 2	RCR(inhal): 0.161; RCR(derm): 0.027
Proc 3	RCR(inhal): 0.323; RCR(derm): 0.069
Proc 4	RCR(inhal): 0.645; RCR(derm): 0.137
Proc 8a	RCR(inhal): 0.161; RCR(derm): 0.274
Proc 8b	RCR(inhal): 0.807; RCR(derm): 0.137
Proc 9	RCR(inhal): 0.161; RCR(derm): 0.686
Proc 15	RCR(inhal): 0.323; RCR(derm): 0.034

Number of the ES 3

Short title of the exposure scenario

Uses in coatings

List of use descriptors

Sector of uses [SU]
SU5: Manufacture of textiles, leather, fur
SU7: Printing and reproduction of recorded media

Process categories [PROC]
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC7: Industrial spraying
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC10: Roller application or brushing
PROC13: Treatment of articles by dipping and pouring
PROC15: Use as laboratory reagent

Environmental release categories [ERC]
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Covers the use in coatings (paints, inks, adhesives, etc) within closed or contained systems including incidental exposures

during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application activities and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Further explanations
Industrial use
Assumes use at not more than 20°C above ambient temperature (unless stated differently)
Assumes an advanced standard of occupational Health and Safety Management System

Contributing Scenarios

Number of the contributing scenario 1
Contributing exposure scenario controlling environmental exposure for ERC 4

Further specification
SpERC ESVOC 4.3a.v1 (ESVOC 5), release factors for (Sp)ERC were modified, assessment tool used:, Chesar 2.3.
Amounts used
Daily amount per site: 13.33 to
Annual amount per site: 4000 to
Fraction of Regional tonnage used locally: 1
Frequency and duration of use
Covers use up to: 300 days
Environment factors not influenced by risk management
River flow rate: 18000 m³/d Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 14.7 %
Release fraction to wastewater from process: 0.04 %
Release fraction to soil from process: 0%
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Onsite treatment off-air. Upgrade Systems in place or implement addional treatment. Assumed Efficiency: 85 % Onsite treatment wastewater. Apply acclimated biological treatment. Assumed Efficiency: 98 %
Conditions and measures related to municipal sewage treatment plant
Size of municipal sewage system/ treatment plant (m³/d): 2000
The minimum grade of elimination in the sewage plant is (%): 89.4
Do not apply industrial sludge to natural soils

Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for PROC 1, PROC 3, PROC 15

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 1 hand (240 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).

Number of the contributing scenario 3
Contributing exposure scenario controlling worker exposure for PROC 2

Further specification
Assessment tool used: Chesar 2.3
Product characteristics

Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).

Number of the contributing scenario **4**
Contributing exposure scenario controlling worker exposure for PROC 4

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **5**
Contributing exposure scenario controlling worker exposure for PROC 5, PROC 13

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm²)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **6**
Contributing exposure scenario controlling worker exposure for PROC 7

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to hands and lower arms (1500 cm²)

Other given operational conditions affecting workers exposure
Indoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 95 % (inhalative).
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Number of the contributing scenario **7**
Contributing exposure scenario controlling worker exposure for PROC 8a, PROC 10

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to 2 hands (960 cm^2)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **8**
Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to 2 hands (960 cm^2)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Exposure estimation and reference to its source

Environment

PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 0.029 mg/l; RCR: 0.168
Fresh Water (Sediment)	PEC: 0.571 mg/kg dw; RCR: 0.651
Marine Water (Pelagic)	PEC: 0.003 mg/l; RCR: 0.168
Marine Water (Sediment)	PEC: 0.057 mg/kg dw; RCR: 0.651
Agricultural Soil	PEC: 0.063 mg/kg dw; RCR: 0.84
Sewage Treatment Plant (Effluent)	PEC: 0.283 mg/l; RCR: 0.01
Man via environment – Inhalation	Concentration in air: 0.448 mg/m^3; RCR: 0.013
Man via environment – Oral	Exposure via food consumption: 0.004 mg/kg bw/day; RCR: 0.01

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m³]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal): 0.194; EE(derm): 0.034
Proc 2	EE(inhal): 96.8 ; EE(derm): 1.37
Proc 3	EE(inhal): 193.6; EE(derm): 0.69
Proc 4	EE(inhal): 387.2 ; EE(derm): 1.372
Proc 5	EE(inhal): 96.8 ; EE(derm): 2.742
Proc 7	EE(inhal): 242 ; EE(derm): 4.286
Proc 8a	EE(inhal): 96.8; EE(derm): 2.742
Proc 8b	EE(inhal): 484; EE(derm): 1.371
Proc 10	EE(inhal): 96.8 ; EE(derm): 5.486
Proc 13	EE(inhal): 96.8; EE(derm): 2.742
Proc 15	EE(inhal): 193.6; EE(derm): 0.34

Risk characterisation
RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.0002; RCR(derm): 0.003
Proc 2	RCR(inhal): 0.161; RCR(derm): 0.137
Proc 3	RCR(inhal): 0.323; RCR(derm): 0.069
Proc 4	RCR(inhal): 0.645; RCR(derm): 0.137
Proc 5	RCR(inhal): 0.161; RCR(derm): 0.274
Proc 7	RCR(inhal): 0.403; RCR(derm): 0.429
Proc 8a	RCR(inhal): 0.161; RCR(derm): 0.274
Proc 8b	RCR(inhal): 0.807; RCR(derm): 0.137
Proc 10	RCR(inhal): 0.161; RCR(derm): 0.549
Proc 13	RCR(inhal): 0.161; RCR(derm): 0.274
Proc 15	RCR(inhal): 0.323; RCR(derm): 0.034

Number of the ES 4

Short title of the exposure scenario

Uses in coatings

List of use descriptors

Sector of uses [SU]
SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Process categories [PROC]
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC10: Roller application or brushing
PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring
PROC15: Use as laboratory reagent
PROC19: Hand-mixing with intimate contact and only PPE available

Environmental release categories [ERC]
ERC8a: Wide dispersive indoor use of processing aids in open systems

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Covers the use in coatings (paints, inks, adhesives, etc) within closed or contained systems including incidental exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application activities and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Further explanations
Professional use
Assumes use at not more than 20°C above ambient temperature (unless stated differently)
Assumes a basic standard of occupational Health and Safety Management System

Contributing Scenarios

Number of the contributing scenario **1**
Contributing exposure scenario controlling environmental exposure for ERC 8a

Further specification
SpERC ESVOC 8.3b.v1,
assessment tool used:, Chesar 2.3.
Amounts used
Amounts used (EU): 4000 to/a
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.0005
daily wide dispersive use: 0.0005 to/d
Environment factors not influenced by risk management
River flow rate: 18000 m³/d Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 98 %
Release fraction to wastewater from process: 1 %
Release fraction to soil from process: 1%
Conditions and measures related to municipal sewage treatment plant
Size of municipal sewage system/ treatment plant (m³/d): 2000
The minimum grade of elimination in the sewage plant is (%): 89.4

Number of the contributing scenario **2**
Contributing exposure scenario controlling worker exposure for PROC 1, PROC 3, PROC 15

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 1 hand (240 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).

Number of the contributing scenario **3**
Contributing exposure scenario controlling worker exposure for PROC 2

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).

Number of the contributing scenario **4**
Contributing exposure scenario controlling worker exposure for PROC 4, PROC 5, PROC 13

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm²)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 80 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **5**
Contributing exposure scenario controlling worker exposure for PROC 8a, PROC 8b

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to 2 hands (960 cm²)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **6**
Contributing exposure scenario controlling worker exposure for PROC 10

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to 2 hands (960 cm²)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 80 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Number of the contributing scenario **7**
Contributing exposure scenario controlling worker exposure for PROC 11

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 25 %
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to hands and lower arms (1500 cm²)
Other given operational conditions affecting workers exposure
Indoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 80 % (inhalative).
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Wear respiratory protection (Efficiency: 90 %).

Number of the contributing scenario **8**
Contributing exposure scenario controlling worker exposure for PROC 11

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 25 %
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to hands and lower arms (1500 cm²)
Technical conditions and measures to control dispersion from source towards the worker
provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Wear respiratory protection (Efficiency: 95 %).

Number of the contributing scenario **9**
Contributing exposure scenario controlling worker exposure for PROC 19

Further specification
Assessment tool used: Chesar 2.3
Product characteristics

Covers percentage substance in the product up to 25 %
Liquid, vapour pressure 0,5 - 10 kPa at STP

Frequency and duration of use
8 h (full shift)

Human factors not influenced by risk management
Area potentially exposed: corresponds to 1980 cm^2

Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 80 % (inhalative). If operation is carried out outdoors (LEV not feasable), wear respiratory protection (efficiency 90%).

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

Exposure estimation and reference to its source

Environment
PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 0.0003 mg/l; RCR: 0.01
Fresh Water (Sediment)	PEC: 0.005 mg/kg dw; RCR: 0.01
Marine Water (Pelagic)	PEC: 0.00002 mg/l; RCR: 0.01
Marine Water (Sediment)	PEC: 0.0005 mg/kg dw; RCR: 0.01
Agricultural Soil	PEC: 0.0001 mg/kg dw; RCR: 0.01
Sewage Treatment Plant (Effluent)	PEC: 0.0003 mg/l; RCR: 0.01
Man via environment – Inhalation	Concentration in air: 9.277E-5 mg/m^3; RCR: 0.01
Man via environment – Oral	Exposure via food consumption: 1.562E-5 mg/kg bw/day; RCR: 0.01

Human exposure prediction (oral, dermal, inhalative)
Oral exposure is not expected to occur. EE(inhal): Estimated inhalative short-term exposure [mg/m^3]; EE(derm): Estimated dermal short-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal):	0.194; EE(derm):	0.034	
Proc 2	EE(inhal):	387.2 ; EE(derm):	1.37	
Proc 3	EE(inhal):	484 ; EE(derm):	0.69	
Proc 4	EE(inhal):	193.6 ; EE(derm):	1.372	
Proc 5	EE(inhal):	387.2 ; EE(derm):	2.742	
Proc 8a	EE(inhal):	387.2; EE(derm):	2.742	
Proc 8b	EE(inhal):	96.8 ; EE(derm):	2.742	
Proc 10	EE(inhal):	387.2 ; EE(derm):	2.743	
Proc 11	EE(inhal):	116.2; EE(derm):	6.428	- Contributing Scenarios 7
	EE(inhal):	203.3; EE(derm):	6.428	- Contributing Scenarios 8
Proc 13	EE(inhal):	387.2 ; EE(derm):	2.742	
Proc 15	EE(inhal): 193.6 ; EE(derm):		0.34	
Proc 19	EE(inhal):	81.31; EE(derm):	8.486	

Risk characterisation
RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.0002; RCR(derm): 0.003			
Proc 2	RCR(inhal):	0.645; RCR(derm):	1.37	
Proc 3	RCR(inhal):	0.807; RCR(derm):	0.069	
Proc 4	RCR(inhal):	0.323; RCR(derm):	0.137	
Proc 5	RCR(inhal):	0.645; RCR(derm):	0.274	
Proc 8a	RCR(inhal):	0.645; RCR(derm):	0.274	

Proc 8b	RCR(inhal): 0.161; RCR(derm): 0.274
Proc 10	RCR(inhal): 0.645; RCR(derm): 0.274
Proc 11	RCR(inhal): 0.194; RCR(derm): 0.643 - Contributing Scenarios 7
	RCR(inhal): 0.339; RCR(derm): 0.643 - Contributing Scenarios 8
Proc 13	RCR(inhal): 0.645; RCR(derm): 0.274
Proc 15	RCR(inhal): 0.323; RCR(derm): 0.034
Proc 19	RCR(inhal): 0.136; RCR(derm): 0.849

Number of the ES 5

Short title of the exposure scenario

Use in Cleaning Products

List of use descriptors

Sector of uses [SU]
SU8: Manufacture of bulk, large scale chemicals (including petroleum products)
SU9: Manufacture of fine chemicals

Process categories [PROC]
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC7: Industrial spraying
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC10: Roller application or brushing
PROC13: Treatment of articles by dipping and pouring

Environmental release categories [ERC]
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

Further explanations
Industrial use
Assumes use at not more than 20°C above ambient temperature (unless stated differently)

Contributing Scenarios

Number of the contributing scenario 1
Contributing exposure scenario controlling environmental exposure for ERC 4

Further specification
SpERC ESVOC 4.4a.v1 (ESVOC 8), release factors for (Sp)ERC were modified, assessment tool used:, Chesar 2.3.
Amounts used
Daily amount per site: 5 to

Annual amount per site: 100 to
Fraction of Regional tonnage used locally: 1
Frequency and duration of use
Covers use up to: 20 days
Environment factors not influenced by risk management
River flow rate: 18000 m³/d Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 50%
Release fraction to wastewater from process: 0.01 %
Release fraction to soil from process: 0%
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Onsite treatment off-air. Upgrade Systems in place or implement addional treatment. Assumed Efficiency: 50 %
Conditions and measures related to municipal sewage treatment plant
Size of municipal sewage system/ treatment plant (m³/d): 2000
The minimum grade of elimination in the sewage plant is (%): 89.4

Number of the contributing scenario **2**
Contributing exposure scenario controlling worker exposure for PROC 1, PROC 3

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Liquid, vapour pressure 0,5 - 10 kPa at STP
Covers percentage substance in the product up to 100 % (unless stated differently)
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 1 hand (240 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).

Number of the contributing scenario **3**
Contributing exposure scenario controlling worker exposure for PROC 2, PROC 4

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Liquid, vapour pressure 0,5 - 10 kPa at STP
Covers percentage substance in the product up to 100 % (unless stated differently)
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **4**
Contributing exposure scenario controlling worker exposure for PROC 7

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)

Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to hands and lower arms (1500 cm²)
Other given operational conditions affecting workers exposure
Indoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 95 % (inhalative).
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Number of the contributing scenario 5
Contributing exposure scenario controlling worker exposure for PROC 8a, PROC 10

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to 2 hands (960 cm²)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario 6
Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to 2 hands (960 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

Number of the contributing scenario 7
Contributing exposure scenario controlling worker exposure for PROC 13

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)

Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm^2)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Exposure estimation and reference to its source

Environment
PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 0.003 mg/l; RCR: 0.017
Fresh Water (Sediment)	PEC: 0.058 mg/kg dw; RCR: 0.066
Marine Water (Pelagic)	PEC: 0.0003 mg/l; RCR: 0.017
Marine Water (Sediment)	PEC: 0.006 mg/kg dw; RCR: 0.065
Agricultural Soil	PEC: 0.015 mg/kg dw; RCR: 0.204
Sewage Treatment Plant (Effluent)	PEC: 0.027 mg/l; RCR: 0.01
Man via environment – Inhalation	Concentration in air: 0.038 mg/m^3; RCR: 0.01
Man via environment – Oral	Exposure via food consumption: 2.945E-4 mg/kg bw/day; RCR: 0.01

Human exposure prediction (oral, dermal, inhalative)
Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m^3]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal):	0.194 ; EE(derm):	0.034	
Proc 2	EE(inhal): 96.8 ; EE(derm):		0.274	
Proc 3	EE(inhal): 193.6 ; EE(derm):		0.69	
Proc 4	EE(inhal):	387.2 ; EE(derm):		1.372
Proc 7	EE(inhal):	242 ; EE(derm):	4.286	
Proc 8a	EE(inhal):	96.8 ; EE(derm):	2.742	
Proc 8b	EE(inhal):	484 ; EE(derm):	1.371	
Proc 10	EE(inhal):	96.8 ; EE(derm):	5.486	
Proc 13	EE(inhal):	96.8 ; EE(derm):	2.742	

Risk characterisation
RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.0001; RCR(derm): 0.003			
Proc 2	RCR(inhal): 0.161; RCR(derm): 0.027			
Proc 3	RCR(inhal):	0.323 ; RCR(derm):		0.069
Proc 4	RCR(inhal):	0.645; RCR(derm):		0.137
Proc 7	RCR(inhal): 0.403; RCR(derm): 0.429			
Proc 8a	RCR(inhal): 0.161; RCR(derm): 0.274			
Proc 8b	RCR(inhal): 0.807; RCR(derm): 0.137			
Proc 10	RCR(inhal): 0.161; RCR(derm): 0.549			
Proc 13	RCR(inhal): 0.161; RCR(derm): 0.274			

Number of the ES 6

Short title of the exposure scenario
Use in Cleaning Products

List of use descriptors

Sector of uses [SU]
SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Process categories [PROC]
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC10: Roller application or brushing
PROC11: Non industrial spraying
PROC13: Treatment of articles by dipping and pouring

Environmental release categories [ERC]
ERC8a: Wide dispersive indoor use of processing aids in open systems

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand).

Further explanations
Professional use
Assumes use at not more than 20°C above ambient temperature (unless stated differently)
Assumes a basic standard of occupational Health and Safety Management System

Contributing Scenarios

Number of the contributing scenario **1**
Contributing exposure scenario controlling environmental exposure for ERC 8a

Further specification
SpERC ESVOC 8.4b.v1 (ESVOC 9),
assessment tool used:, Chesar 2.3.
Amounts used
Amounts used (EU): 2000 to/a
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.0005
daily wide dispersive use: 0.0003 to/d
Environment factors not influenced by risk management
River flow rate: 18000 m³/d Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Other given operational conditions affecting environmental exposure
Indoor/Outdoor use
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 2 %
Release fraction to wastewater from process: 0.0001 %
Release fraction to soil from process: 0%
Conditions and measures related to municipal sewage treatment plant
Size of municipal sewage system/ treatment plant (m³/d): 2000

The minimum grade of elimination in the sewage plant is (%): 89.4

Number of the contributing scenario **2**
Contributing exposure scenario controlling worker exposure for PROC 1, PROC 3

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Liquid, vapour pressure 0,5 - 10 kPa at STP
Covers percentage substance in the product up to 100 % (unless stated differently)
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 1 hand (240 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).

Number of the contributing scenario **3**
Contributing exposure scenario controlling worker exposure for PROC 2

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).

Number of the contributing scenario **4**
Contributing exposure scenario controlling worker exposure for PROC 4, PROC 13

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm²)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 80 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **5**
Contributing exposure scenario controlling worker exposure for PROC 4, PROC 13

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 5 %
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm²)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).

Number of the contributing scenario **6**
Contributing exposure scenario controlling worker exposure for PROC 4

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 25 %
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 2 hands (480 cm²)
Other given operational conditions affecting workers exposure
Outdoor use
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **7**
Contributing exposure scenario controlling worker exposure for PROC 8a, PROC 8b

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to 2 hands (960 cm²)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 80 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **8**
Contributing exposure scenario controlling worker exposure for PROC 8a, PROC 8b, PROC 10

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 5 %
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to 2 hands (960 cm²)
Other given operational conditions affecting workers exposure

Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario 9
Contributing exposure scenario controlling worker exposure for PROC 8b

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 25 %
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to 2 hands (960 cm²)
Other given operational conditions affecting workers exposure
Outdoor use
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario 10
Contributing exposure scenario controlling worker exposure for PROC 10

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 25 %
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to 2 hands (960 cm²)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 80 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario 11
Contributing exposure scenario controlling worker exposure for PROC 11

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 25 %
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
Avoid carrying out activities involving exposure for more than 4 hours
Human factors not influenced by risk management
Area potentially exposed: corresponds to hands and lower arms (1500 cm²)
Other given operational conditions affecting workers exposure
Indoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 80 % (inhalative).
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Wear respiratory protection

(Efficiency: 90 %).

Number of the contributing scenario **12**

Contributing exposure scenario controlling worker exposure for PROC 11

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 5 %
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
Avoid carrying out activities involving exposure for more than 4 hours
Human factors not influenced by risk management
Area potentially exposed: corresponds to hands and lower arms (1500 cm^2)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Wear respiratory protection (Efficiency: 95 %).

Exposure estimation and reference to its source

Environment
PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 0.0002 mg/l; RCR: 0.01
Fresh Water (Sediment)	PEC: 0.005 mg/kg dw; RCR: 0.01
Marine Water (Pelagic)	PEC: 0.00002 mg/l; RCR: 0.01
Marine Water (Sediment)	PEC: 0.0004 mg/kg dw; RCR: 0.01
Agricultural Soil	PEC: 0.00002 mg/kg dw; RCR: 0.01
Sewage Treatment Plant (Effluent)	PEC: 1.432E-8 mg/l; RCR: 0.01
Man via environment – Inhalation	Concentration in air: 9.267E-5 mg/m^3; RCR: 0.01
Man via environment – Oral	Exposure via food consumption: 1.379E-5 mg/kg bw/day; RCR: 0.01

Human exposure prediction (oral, dermal, inhalative)
Oral exposure is not expected to occur. EE(inhal): Estimated inhalative long-term exposure [mg/m^3]; EE(derm): Estimated dermal long-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 1	EE(inhal):	0.194; EE(derm):	0.034
Proc 2	EE(inhal):	387.2; EE(derm):	1.37
Proc 3	EE(inhal):	484; EE(derm):	0.69
Proc 4	EE(inhal):	193.6; EE(derm):	1.372 - Contributing Scenarios 4
	EE(inhal):	193.6; EE(derm):	1.372 - Contributing Scenarios 5
	EE(inhal):	406.6 ; EE(derm):	0.823 - Contributing Scenarios 6
Proc 8a	EE(inhal):	387.2 ; EE(derm):	2.742 - Contributing Scenarios 7
	EE(inhal):	387.2 ; EE(derm):	0.548 - Contributing Scenarios 8
Proc 8b	EE(inhal):	96.8 ; EE(derm):	2.742 - Contributing Scenarios 7
	EE(inhal):	193.6; EE(derm):	0.548 - Contributing Scenarios 8
	EE(inhal):	406.6; EE(derm):	1.645 - Contributing Scenarios 9
Proc 10	EE(inhal):	232.3; EE(derm):	3.292 - Contributing Scenarios 8
	EE(inhal):	387.2 ; EE(derm):	1.097 - Contributing Scenarios 10
Proc 11	EE(inhal): 116.2;	EE(derm):	3.857 - Contributing Scenarios 11
	EE(inhal):	290.4; EE(derm):	3.857 - Contributing Scenarios 12
Proc 13	EE(inhal):	387.2 ; EE(derm):	2.742 - Contributing Scenarios 4
	EE(inhal):	387.2; EE(derm):	2.742 - Contributing Scenarios 5

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 1	RCR(inhal): 0.0003; RCR(derm): 0.003
Proc 2	RCR(inhal): 0.645; RCR(derm): 0.137
Proc 3	RCR(inhal): 0.807; RCR(derm): 0.069
Proc 4	RCR(inhal): 0.323; RCR(derm): 0.137 - Contributing Scenarios 4
	RCR(inhal): 0.323; RCR(derm): 0.137 - Contributing Scenarios 5
	RCR(inhal): 0.678; RCR(derm): 0.082 - Contributing Scenarios 6
Proc 8a	RCR(inhal): 0.645; RCR(derm): 0.274 - Contributing Scenarios 7
	RCR(inhal): 0.645; RCR(derm): 0.055 - Contributing Scenarios 8
Proc 8b	RCR(inhal): 0.161; RCR(derm): 0.274 - Contributing Scenarios 7
	RCR(inhal): 0.323; RCR(derm): 0.055 - Contributing Scenarios 8
	RCR(inhal): 0.678; RCR(derm): 0.165 - Contributing Scenarios 9
Proc 10	RCR(inhal): 0.387; RCR(derm): 0.329 - Contributing Scenarios 8
	RCR(inhal): 0.645; RCR(derm): 0.11 - Contributing Scenarios 10
Proc 11	RCR(inhal): 0.194; RCR(derm): 0.386 - Contributing Scenarios 11
	RCR(inhal): 0.484; RCR(derm): 0.386 - Contributing Scenarios 12
Proc 13	RCR(inhal): 0.645; RCR(derm): 0.274 - Contributing Scenarios 4
	RCR(inhal): 0.645; RCR(derm): 0.274 - Contributing Scenarios 5

Number of the ES 7

Short title of the exposure scenario

Use in laboratories

List of use descriptors

Sector of uses [SU]
SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Process categories [PROC]
PROC10: Roller application or brushing
PROC15: Use as laboratory reagent

Environmental release categories [ERC]
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Use of the substance within laboratory settings, including material transfers and equipment cleaning

Further explanations
Industrial use
Assumes use at not more than 20°C above ambient temperature (unless stated differently)
Assumes an advanced standard of occupational Health and Safety Management System

Contributing Scenarios

Number of the contributing scenario 1
Contributing exposure scenario controlling environmental exposure for ERC 4

Further specification

assessment tool used:, Chesar 2.3.
Amounts used
Daily amount per site: 0.05 to
Annual amount per site: 1 to
Fraction of Regional tonnage used locally: 1
Environment factors not influenced by risk management
River flow rate: 18000 m³/d Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 100 %
Release fraction to wastewater from process: 10 %
Release fraction to soil from process: 5%
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Onsite treatment wastewater. Apply acclimated biological treatment. Assumed Efficiency: 90 %
Conditions and measures related to municipal sewage treatment plant
Size of municipal sewage system/ treatment plant (m³/d): 2000
The minimum grade of elimination in the sewage plant is (%): 89.4
Do not apply industrial sludge to natural soils

Number of the contributing scenario **2**
Contributing exposure scenario controlling worker exposure for PROC 10

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Liquid, vapour pressure 0,5 - 10 kPa at STP
Covers percentage substance in the product up to 100 % (unless stated differently)
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to 2 hands (960 cm²)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 90 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **3**
Contributing exposure scenario controlling worker exposure for PROC 15

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 1 hand (240 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour).

Exposure estimation and reference to its source

Environment
PEC = predicted environmental concentration (local); RCR = risk characterisation ratio
Fresh Water (Pelagic) PEC: 0.027 mg/l; RCR: 0.157

Fresh Water (Sediment)	PEC: 0.536 mg/kg dw; RCR: 0.611
Marine Water (Pelagic)	PEC: 0.003 mg/l; RCR: 0.157
Marine Water (Sediment)	PEC: 0.054 mg/kg dw; RCR: 0.61
Agricultural Soil	PEC: 0.0001 mg/kg dw; RCR: 0.01
Sewage Treatment Plant (Effluent)	PEC: 0.265 mg/l; RCR: 0.01
Man via environment – Inhalation	Concentration in air: 8.543E-4 mg/m³; RCR: 0.01
Man via environment – Oral	Exposure via food consumption: 1.023E-4 mg/kg bw/day; RCR: 0.01

Human exposure prediction (oral, dermal, inhalative)
Oral exposure is not expected to occur. EE(inhal): Estimated inhalative short-term exposure [mg/m³]; EE(derm): Estimated dermal short-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 10	EE(inhal): 96.8; EE(derm):	5.486
Proc 15	EE(inhal): 193.6 ; EE(derm):	0.34

Risk characterisation
RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 10	RCR(inhal):	0.161;	RCR(derm):	0.549
Proc 15	RCR(inhal): 0.323; RCR(derm): 0.034			

Number of the ES 8

Short title of the exposure scenario

Use in laboratories

List of use descriptors

Sector of uses [SU]
SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Process categories [PROC]
PROC10: Roller application or brushing
PROC15: Use as laboratory reagent

Environmental release categories [ERC]
ERC8a: Wide dispersive indoor use of processing aids in open systems

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Use of small quantities within laboratory settings, including material transfers and equipment cleaning

Further explanations
Professional use
Assumes use at not more than 20°C above ambient temperature (unless stated differently)
Assumes a basic standard of occupational Health and Safety Management System

Contributing Scenarios

Number of the contributing scenario **1**
Contributing exposure scenario controlling environmental exposure for ERC 8a

Further specification
SpERC ESVOC 8.17.v1 (ESVOC 39),
assessment tool used:, Chesar 2.3.
Amounts used
Amounts used (EU): 1 to/a
Fraction of EU tonnage used in region: 0.1
Fraction of Regional tonnage used locally: 0.0005
daily wide dispersive use: 0.0000001 to/d
Environment factors not influenced by risk management
River flow rate: 18000 m³/d Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Other given operational conditions affecting environmental exposure
Indoor/Outdoor use
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 50 %
Release fraction to wastewater from process: 50 %
Release fraction to soil from process: 0%
Conditions and measures related to municipal sewage treatment plant
Size of municipal sewage system/ treatment plant (m³/d): 2000
The minimum grade of elimination in the sewage plant is (%): 89.4

Number of the contributing scenario **2**
Contributing exposure scenario controlling worker exposure for PROC 10

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 25 %
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to 2 hands (960 cm²)
Technical conditions and measures to control dispersion from source towards the worker
provide a basic standard of general ventilation (1 to 3 air changes per hour). Provide extract ventilation to points where emissions occur. Effectiveness of LEV (local exhaust ventilation): 80 % (inhalative). If no adequate ventilation is available, respiratory protection (efficiency 90 %) must be used.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374.

Number of the contributing scenario **3**
Contributing exposure scenario controlling worker exposure for PROC 15

Further specification
Assessment tool used: Chesar 2.3
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently)
Liquid, vapour pressure 0,5 - 10 kPa at STP
Frequency and duration of use
8 h (full shift)
Human factors not influenced by risk management
Area potentially exposed: corresponds to palm of 1 hand (240 cm²)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Technical conditions and measures to control dispersion from source towards the worker

provide a basic standard of general ventilation (1 to 3 air changes per hour).

Exposure estimation and reference to its source

Environment

PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 0.0002 mg/l; RCR: 0.01
Fresh Water (Sediment)	PEC: 0.005 mg/kg dw; RCR: 0.01
Marine Water (Pelagic)	PEC: 0.00002 mg/l; RCR: 0.01
Marine Water (Sediment)	PEC: 0.0004 mg/kg dw; RCR: 0.01
Agricultural Soil	PEC: 0.00002 mg/kg dw; RCR: 0.01
Sewage Treatment Plant (Effluent)	PEC: 3.632E-6 mg/l; RCR: 0.01
Man via environment – Inhalation	Concentration in air: 9.267E-5 mg/m³; RCR: 0.01
Man via environment – Oral	Exposure via food consumption: 1.381E-5 mg/kg bw/day; RCR: 0.01

Human exposure prediction (oral, dermal, inhalative)

Oral exposure is not expected to occur. EE(inhal): Estimated inhalative short-term exposure [mg/m³]; EE(derm): Estimated dermal short-term exposure [mg/kg b.w./d]. Exposure estimates are given for either short-term or long-term exposure depending on which lead to more conservative risk characterisation ratios. The RMMs described above suffice to control risks for both local and systemic effects.

Proc 10	EE(inhal):	232.3;	EE(derm):	3.292
Proc 15	EE(inhal):	193.6;	EE(derm):	0.34

Risk characterisation

RCR(inhal): inhalative risk characterisation ratio; RCR(derm): dermal risk characterisation ratio; total RCR= RCR(inhal) +RCR(derm). Where required local and systemic effects were evaluated both for short-term and long-term exposure. The RCR's given correspond in each case to the most conservative calculated values.

Proc 10	RCR(inhal):	0.387;	RCR(derm):	0.329
Proc 15	RCR(inhal):	0.323;	RCR(derm):	0.034