

Safety Data Sheet according to Regulation (EC) 1907/2006 (REACH)

Revision date: 2020-01-16 Supercedes: 2019-01-09

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

1.1. Product identifier:	
Product trade name: Company product number: REACH registration number: Substance name: Substance identification number: Other means of identification:	Kalama* Cinnamic Alcohol, FCC CNALCFCC 01-2119934496-29-0003 Cinnamyl alcohol EC 203-212-3 Cinnamyl alcohol, 3-Phenyl-2-propen-1-ol, Styryl carbinol
1.2. Relevant identified uses of the substance or	mixture and uses advised against:
Uses:	Flavor and fragrance ingredient/additive. See Annex for covered uses. Intermediate.
1.2 Details of the supplier of the sefety data abo	
1.3. Details of the supplier of the safety data she	
	Emerald Kalama Chemical, LLC 1296 NW Third Street Kalama, WA 98625 United States Telephone: +1-360-673-2550
	1499 SE Tech Center Place, Suite 300 Vancouver, WA 98683 United States Telephone: +1-360-954-7100
EU Only Representative:	Penman Consulting bvba Avenue des Arts 10 B-1210 Brussels Belgium Telephone: +32 (0) 2 305 0698 email: pcbvba09@penmanconsulting.com
For further information about this SDS:	Email: product.compliance@emeraldmaterials.com
1.4. Emergency telephone number:	
	ChemTel (24 hours): 1-800-255-3924 (USA); +1-813-248-0585 (outside USA); 1-300-954-583 (Australia); 000-800-100-4086 (India).

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture:

Product classification according to Regulation (EC) 1272/2008 (CLP) as amended:

Skin Irritation, category 2, H315 Skin Sensitizer, category 1, H317

2.2. Label elements:

Product labeling according to Regulation (EC) 1272/2008 (CLP) as amended: Hazard pictogram(s):



Signal word: Warning Hazard statements: H315 Causes skin irritation. H317 May cause an allergic skin reaction. Precautionary statements: P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P264 Wash skin thoroughly after handling. P280 Wear protective gloves. P302+P352 IF ON SKIN: Wash with plenty of soap and water. P333+P313 If skin irritation or rash occurs: Get medical advice/attention. P362+P364 Take off contaminated clothing and wash it before reuse.

Supplemental information:

No Additional Information

Precautionary statements are listed according to the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Annex III and ECHA Guidance on Labelling and Packaging. Regulations in individual countries/regions may determine which statements are required on the product label. See product label for specifics.

2.3. Other hazards:

PBT/vPvB criteria: Other hazards:

This product does not meet the PBT and vPvB classification criteria. No Additional Information

See Section 11 for toxicological information.

SECTION 3: Composition/information on ingredients

3.1. Substance:

CAS-No.	Chemical Name	Weight%	<u>Classification</u>	H Statements
000104-54-1	Cinnamyl alcohol	98-100	Skin Irrit. 2- Skin Sens. 1	H315-317
000104-55-2	Cinnamaldehyde	0.1-<1.0	Acute Tox. 4 Dermal- Eye Irrit. 2- Skin Irrit. 2- Skin Sens. 1	H312-315-317-319
CAS-No.	Chemical Name	<u>Weight%</u>	REACH Registration No.	EC/List Number
000104-54-1 000104-55-2	Cinnamyl alcohol Cinnamaldehyde	98-100 0.1-<1.0	01-2119934496-29-0003 Impurity	203-212-3 203-213-9

See Section 16 for full text of H (Hazard) statements (EC 1272/2008).

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits.

SECTION 4: First aid measures

4.1. Description of first aid measures:

General: If irritation or other symptoms occur or persist from any route of exposure, remove the affected individual from the area: see a physician/get medical attention.

Eye contact: Any material that contacts the eye should be washed out immediately with water. Get medical attention if symptoms occur.

Skin contact: Immediately remove contaminated clothing and shoes. Wash the affected area with plenty of soap and water until no evidence of the chemical remains (at least 15-20 minutes). Launder clothing before reuse. If skin irritation occurs: Get medical advice/attention.

Inhalation: If affected, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a POISON CENTER or doctor/physician if you feel unwell.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse out the mouth with water. Get medical attention immediately.

Protection of first aid responders: Wear proper personal protective clothing and equipment.

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

Irritation. Pre-existing skin problems may be aggravated by prolonged or repeated contact. See section 11 for additional information.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media:

Suitable: Carbon dioxide, dry chemical, foam, water fog.

Unsuitable: None known.

5.2. Special hazards arising from the substance or mixture:

Unusual fire/explosion hazards: Product is not considered a fire hazard, but will burn if ignited.

Hazardous combustion products: Irritating or toxic substances may be emitted upon burning, combustion or decomposition. See section 10 (10.6 Hazardous decomposition products) for additional information.

5.3. Advice for firefighters:

Wear self-contained breathing apparatus (SCBA) equipped with a full facepiece and operated in a pressure-demand mode (or other positive pressure mode) and approved protective clothing. Personnel without suitable respiratory protection must leave the area to prevent significant exposure to hazardous gases from combustion, burning or decomposition. In an enclosed or poorly ventilated area, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations.

See section 9 for additional information.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures:

See Section 8 for recommendations on the use of personal protective equipment. If spilled in an enclosed area, ventilate. Personal Protective Equipment must be worn.

6.2. Environmental precautions:

Do not flush product into public sewer, water systems or surface waters.

6.3. Methods and material for containment and cleaning up:

Contain spill. Wear proper personal protective clothing and equipment. Sweep up carefully and place into container for reuse or disposal. Avoid causing dust. Place into labeled, closed container; store in safe location to await disposal. Change contaminated clothing and launder before reuse.

6.4. References to other sections:

See Section 8 for recommendations on the use of personal protection and Section 13 for waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling:

As with any chemical product, use good laboratory/workplace procedures. Wash thoroughly after handling this product. Always wash up before eating, smoking or using the facilities. Use under well-ventilated conditions. Avoid eye and skin contact. Avoid breathing dust. Avoid drinking, tasting, swallowing or ingesting this product. Wash contaminated clothing before reuse. Provide eyewash fountains and safety showers in the work area.

7.2. Conditions for safe storage, including any incompatibilities:

Store cool and dry, under well-ventilated conditions. Store this material away from incompatible substances (see section 10). Do not store in open, unlabeled or mislabeled containers. Keep container closed when not in use. Product can easily oxidize.

It is recommended that opened containers be padded with nitrogen.

7.3. Specific end use(s):

Further information concerning special risk management measures: see annex of this safety data sheet (exposure scenarios).

SECTION 8: Exposure controls / personal protection

8.1. Control parameters:

Occupational exposure limits (OEL):

EU OELV	EU IOELV	ACGIH - TWA/Ceiling	ACGIH - STEL
N/E	N/E	N/E	N/E
N/E	N/E	N/E	N/E
UK WEL	Ireland OEL		
N/E	N/E		
N/E	N/E		
	<u>EU OELV</u> N/E N/E <u>UK WEL</u> N/E N/E	EU IOELV EU IOELV N/E N/E N/E N/E UK WEL Ireland OEL N/E N/E N/E N/E	EU OELV EU IOELV ACGIH - TWA/Ceiling N/E N/E N/E N/E N/E N/E UK WEL Ireland OEL N/E N/E

N/E=Not established (no exposure limits established for the listed substances for listed country/region/organization).

Derived No Effect Levels (DNELs):

Cinnamyl alcohol					
Population	Route	Acute (local)	Acute (systemic)	Long Term (local)	Long Term (systemic)
Workers	Inhalation	N/E	N/E	N/E	8,8 mg/m3
Workers	Dermal	N/E	N/E	N/E	2,5 mg/kg bw/day
General population	Inhalation	N/E	N/E	N/E	1,32 mg/m3
General population	Dermal	N/E	N/E	N/E	0,892 mg/kg bw/day
General population	Oral	N/E	N/E	N/E	0,892 mg/kg bw/day
Humans via the environment	Inhalation	N/E	N/E	N/E	1,32 mg/m3
Humans via the environment	Oral	N/E	N/E	N/E	0,892 mg/kg bw/day

Predicted No Effect Concentration (PNECs):

Cinnamyl alcohol	
Compartment	PNEC
Freshwater	7,7 μg/L
Freshwater sediment	0,118 mg/kg dw
Marine water	0,77 μg/L
Marine water sediment	11,8 µg/kg dw
Intermittent releases	77 μg/L
Soil	19 µg/kg dw
Oral	No potential for bioaccumulation

N/E=Not established; N/A=Not applicable (not required); bw=body weight; dw=dry weight; ww=wet weight.

8.2. Exposure controls:

Appropriate engineering controls: Always provide effective general and, when necessary, local exhaust ventilation to draw dust away from workers to prevent routine inhalation. Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the SDS.

Individual protection measures, such as personal protective equipment:

Eye/face protection: Wear eye protection.

Hand protection: Avoid skin contact when mixing or handling the material by wearing impervious and chemical resistant gloves. In case of prolonged immersion or frequently repeated contact, gloves with breakthrough times greater than 480 minutes (protection class 6) are recommended. For brief contact or splash applications, gloves with breakthrough times of 30 minutes or greater are recommended (protection class 2 or greater). Suggested materials for protective gloves: Butyl rubber, Viton. The protective gloves to be used must comply with the specifications of the EC directive 89/686/EEC and the resultant standard EN 374. Suitability and durability of a glove is dependent on usage (e.g. frequency and duration of contact, other chemicals which may be handled, chemical resistance of glove material and dexterity). Always seek advice of the glove supplier as to the most suitable glove material.

Skin and body protection: Use good laboratory/workplace procedures including personal protective clothing: labcoat, safety glasses and protective gloves.

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment. Wear an approved respirator (e.g., an organic vapor respirator, a full face air purifying respirator for organic vapors, or a self-contained breathing apparatus) whenever exposure to aerosol, mist, spray, fume or vapor exceed the applicable exposure limit(s) of any chemical substance listed in this SDS.

Further information: Eyewash fountains and safety showers are recommended in the work area.

Environmental exposure controls: See Sections 6 and 12.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties:

Form:	Crystalline mass (solid)	pH:	4.7 (1% solution)
Appearance:	White to slight yellow	Relative density:	1.044 (25°C)
Odour:	Floral	Partition coefficient (n- octanol/water):	1.452 (OECD 117)
Odour threshold:	Not Available	% Volatile by weight:	100%
Solubility in water:	2542 mg/L @ 25°C	VOC:	100%
Evaporation rate:	<1	Boiling point °C:	234 °C
Vapour pressure:	0.358 Pa @ 25 °C	Boiling point °F:	453 °F
Vapour density:	4.6 (Air=1)	Flash point:	>93.3 °C (>200 °F) Pensky- Marten Closed Cup
Viscosity:	27.449 mm2/s @ 40°C; 14.482 mPa.s @ 40°C	Autoignition temperature:	Not Available
Melting point/Freezing point:	31 °C (88 °F) (solidification point)	Flammability (solid, gas):	Not flammable
Oxidising properties:	Not oxidizing	Flammability or explosive limits:	LFL/LEL: Not Available
Explosive properties:	Not explosive		UFL/UEL: Not Available
Decomposition temperature:	Not Available	Surface tension:	42.6 mN/m @ 20°C (calculated)

9.2. Other information:

Amounts specified are typical and do not represent a specification.

SECTION 10: Stability and reactivity

10.1. Reactivity:

Oxidizes when exposed to air.

10.2. Chemical stability:

This product is stable.

10.3. Possibility of hazardous reactions:

Hazardous polymerization will not occur.

10.4. Conditions to avoid:

Avoid exposure to air, moisture, ignition sources and elevated temperatures.

10.5. Incompatible materials:

Avoid contact with strong oxidizing agents.

10.6. Hazardous decomposition products:

Carbon dioxide and carbon monoxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects:

Information on likely routes of exposure:

General: Caution must be exercised through the prudent use of protective equipment and handling procedures to minimize exposure.

Eyes: Solid particles on the eye (powder/dust) may cause pain and be accompanied by irritation.

Skin: May cause allergic skin reaction. Causes skin irritation.

Inhalation: Dust inhalation may cause respiratory irritation. Chronic exposure may cause headache, dizziness, tiredness, nausea and vomiting.

Ingestion: May be harmful if swallowed. Ingestion may cause irritation.

Acute toxicity information: Not classified (based on available data, the classification criteria are not met).

Chemical Name	Inhalation LC50	Species	Oral LD50	Species	Dermal LD50	Species
Cinnamyl alcohol	N/E	N/E	2675 mg/kg	Mouse	>5000 mg/kg	Rabbit/ adult
Cinnamaldehyde	757 mg/L (4 hours, vapor, estimated)	Rat/ adult	2220 mg/kg	Rat/ adult	1160 mg/kg	Guinea Pig/ adult

Skin corrosion/irritation: Causes skin irritation - Category 2.

Chemical Name	Skin irritation	Species
Cinnamyl alcohol	Irritant	Guinea pig/ adult
Cinnamaldehyde	Moderate irritant	Rabbit/ adult

Serious eye damage/irritation: Not classified (based on available data, the classification criteria are not met).

Chemical Name	Eye irritation	Species
Cinnamyl alcohol	Non-irritant	Rabbit & Guinea Pig
Cinnamaldehyde	Moderate irritant	Rabbit/ adult

Respiratory or skin sensitization: Skin sensitization - Category 1.

Chemical Name	Skin sensitisation	Species
Cinnamyl alcohol	Sensitizer	Guinea pig and Human
Cinnamaldehyde	Sensitizer	Guinea Pig/ adult

Carcinogenicity: Not classified (no relevant information found).

Germ cell mutagenicity: Not classified (based on available data, the classification criteria are not met). CINNAMYL ALCOHOL: Negative results were observed in Ames tests with and without activation (in-vitro). Ames testing showed no mutagenic activity and mixed results both positive (at doses approaching cytotoxic levels) and negative were observed from other in-vitro genotoxicity assays. The weight of the evidence indicates this material is not mutagenic or clastogenic.

Reproductive toxicity: Not classified (based on available data, the classification criteria are not met). CINNAMYL ALCOHOL: Reproductive toxicity, oral study in rats: NOAEL (no-observed adverse-effect-level) = 535 mg/kg bw/day. Developmental toxicity oral study, rats: NOAEL, developmental toxicity=53.5 mg/kg bw/day.

Specific target organ toxicity (STOT) - single exposure: Not classified (based on available data, the classification criteria are not met).

Specific target organ toxicity (STOT) - repeated exposure: Not classified (based on available data, the classification criteria are not met). CINNAMYL ALCOHOL: Repeated dose study, oral, 4 months, rat: NOAEL (no-observed-adverse-effect-level) = 53.5 mg/kg bw/day (no adverse effects observed). Additional animal study data: Repeated dose study, oral, 17 weeks, rat: LOAEL (Lowest-Observed-Adverse-Effect-Level) = 6366 mg/kg bw/day (blood (changes in serum composition) and biochemical (enzyme) effects were observed); READ-ACROSS (trans-cinnamaldehyde): Repeated dose study, oral, 14 weeks: NOAEL (rat) = 275-300 mg/kg bw/day, NOAEL (mouse) = 625-650 mg/kg bw/day.

Aspiration hazard: Not classified (based on available data, the classification criteria are not met).

Other toxicity information: No additional information available.

SECTION 12: Ecological information

12.1. Toxicity:

Chemical Name	Species	Acute	Acute	Chronic
Cinnamyl alcohol	Fish	LC50 9 mg/L (96 hours)	LC50 4.15 mg/L(96 hours)	N/E
Cinnamyl alcohol	Invertebrates	EC50 7.7 mg/L (48 hours)	N/E	N/E
Cinnamyl alcohol	Algae	EC50 19.7 mg/L (72 hours)	N/E	N/E
Cinnamyl alcohol	Micro-organisms	IC50 161.27 mg/L (48 hours)		
		(population growth rate)		
Cinnamaldehyde	Fish	LC50 >3.5 mg/L (96 hours)	LC100 2.35-3.93 mg/L(24 hours)	N/E
Cinnamaldehyde	Invertebrates	EC50 1.20-7.05 mg/L (48 hours)	EC50 3.1 mg/L(24 hours)	N/E
Cinnamaldehyde	Algae	EC50 6.87 mg/L (72 hours)	EC50 7.55 mg/L(96 hours)	N/E
Cinnamaldehyde	Micro-organisms	EC50 71 mg/L (3 hours)		

12.2. Persistence and degradability:

Cinnamyl alcohol Cinnamaldehyde Biodegradation Readily biodegradable (OECD 301C) Readily biodegradable (weight of evidence)

12.3. Bioaccumulative potential:

Chemical Name Cinnamyl alcohol Cinnamaldehyde

12.4. Mobility in soil:

<u>Chemical Name</u> Cinnamyl alcohol Cinnamaldehyde Bioconcentration Factor (BCF) 4.989 L/kg (calculated) 8.3 (estimated) Log Kow 1.452 (OECD 117) 1.83 @ 27°C

<u>Mobility in soil (Koc/Kow)</u> 116.9 (log KOC=2.068) 29.456 L/kg @ 20°C (estimated)

12.5. Results of PBT and vPvB assessment:

This product does not meet the PBT and vPvB classification criteria.

12.6. Other adverse effects:

No additional information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods:

Dispose of unused contents (incineration or landfill) in accordance with national and local regulations. Dispose of container in accordance with national and local regulations. Ensure the use of properly authorized waste management companies, where appropriate.

See Section 8 for recommendations on the use of personal protective equipment.

SECTION 14: Transport information

The information below is provided to assist in documentation. It may supplement the information on the package. The package in your possession may carry a different version of the label depending on the date of manufacture. Depending on inner packaging quantities and packaging instructions, it may be subject to specific regulatory exceptions.

14.1. UN number: N/A

14.2. UN proper shipping name:

Not regulated - See Bill of Lading for Details

14.3. Transport hazard class(es):

U.S. DOT hazard class: N/A Canada TDG hazard class: N/A Europe ADR/RID hazard class: N/A IMDG Code (ocean) hazard class: N/A ICAO/IATA (air) hazard class: N/A

A "N/A" listing for the hazard class indicates the product is not regulated for transport by that regulation.

14.4. Packing group: N/A

14.5. Environmental hazards:

Marine pollutant: Not Applicable

Hazardous substance (USA): Not Applicable

14.6. Special precautions for user:

Not Applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code: Not Applicable

SECTION 15: Regulatory information

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

Europe REACh (EC) 1907/2006: Applicable components are registered, exempt or otherwise compliant. REACh is only relevant to substances either manufactured or imported into the EU. Emerald Performance Materials has met its obligations under the REACh regulation. REACh information regarding this product is provided for informational purposes only. Each Legal Entity may have differing REACh obligations, depending on their place in the supply chain. For material manufactured outside of the EU, the importer of record must understand and meet their specific obligations under the regulation.

EU Authorizations and/or restrictions on use: Not Applicable

Other EU information: No Additional Information

National regulations: No Additional Information

Chemical inventories:

Regulation	<u>Status</u>
Australian Inventory of Chemical Substances (AICS):	Y
Canadian Domestic Substances List (DSL):	Y
Canadian Non-Domestic Substances List (NDSL):	N
China Inventory of Existing Chemical Substances (IECSC):	Y
European EC Inventory (EINECS, ELINCS, NLP):	Y
Japan Existing and New Chemical Substances (ENCS):	Y
Japan Industrial Safety and Health Law (ISHL):	Y
Korean Existing and Evaluated Chemical Substances (KECL):	Y
New Zealand Inventory of Chemicals (NZIoC):	Y
Philippines Inventory of Chemicals and Chemical Substances (PICCS):	Y
Taiwan Inventory of Existing Chemicals:	Y
U.S. Toxic Substances Control Act (TSCA) (Active):	Y

A "Y" listing indicates all intentionally added components are either listed or are otherwise compliant with the regulation. A "N" listing indicates that for one or more components: 1) there is no listing on the public inventory (or is not on the ACTIVE inventory for U.S. TSCA); 2) no information is available; or 3) the component has not been reviewed. A "Y" for New Zealand may mean that a qualified group standard may exist for the components in this product.

15.2. Chemical safety assessment:

A chemical safety assessment has been carried out for the substance or mixture.

SECTION 16: Other information

Hazard (H) Statements in the Composition section (Section 3):

- H312Harmful in contact with skin.H315Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.

Reason for revision: Changes in Section(s): 1, Annex

Evaulation method for classification of mixtures: Not Applicable (substance)

Legend:

* : Trademark owned by Emerald Performance Materials, LLC.

ACGIH: American Conference of Governmental Industrial Hygienists

EU OELV: European Union Occupational Exposure Limit Value

EU IOELV: European Union Indicative Occupational Exposure Limit Value

N/A: Not Applicable

N/E: None Established

STEL: Short Term Exposure Limit

TWA: Time Weighted Average (exposure for 8-hour workday)

Users Responsibility/Disclaimer of Liability:

The information set forth herein is based on our current knowledge, and is intended to describe the product solely with respect to health, safety and the environment. As such, it must not be interpreted as a guarantee of any specific property of the product. As a result, the customer shall be solely responsible for deciding whether said information is suitable and beneficial.

Safety Data Sheet Preparer: Product Compliance Department Emerald Performance Materials, LLC 1499 SE Tech Center Place, Suite 300 Vancouver, WA 98683 United States

Annex

Exposure Scenarios

Substance information:

Name of substance: Cinnamyl alcohol. EC# 203-212-3 / CAS# 104-54-1. REACH Registration number: 01-2119934496-29-0003

List of exposure scenarios:

ES1: Use at industrial sites - Industrial end-use of washing and cleaning products
ES2: Use at industrial sites - Use in pharma application
ES3: Use at industrial sites - Use as a laboratory chemical
ES4: Use at industrial sites - Use as an intermediate
ES5: Formulation - Formulation of fragrance compounds
ES6: Formulation - Formulation of fragrance products
ES7: Formulation - Formulation of fragranced end-products
ES8: Use by professional workers - Professional use of polishes and wax blends
ES9: Use by professional workers - Professional end-use of washing and cleaning products
ES10: Consumer use - Consumer end-use of biocides
ES11: Consumer use - Consumer end-use of washing and cleaning products
ES12: Consumer use - Consumer end-use of mashing and cleaning products
ES13: Consumer use - Consumer end-use of fragrances
ES14: Consumer use - Consumer end-use of fragrances
ES14: Consumer use - Consumer end-use of air care products

ES15: Consumer use - Consumer end-use of polishes and wax blends

General remarks:

The environmental exposure assessments have been performed using EUSES 2.1.2 which is part of Chemical Safety Assessment and Reporting tool (CHESAR v3.2).

The worker exposure assessments have been performed using TRA Worker v3 which is part of Chemical Safety Assessment and Reporting tool (CHESAR v3.2).

The Consumer TRA v3 (R15) tool has been used to estimate consumer exposures.

Exposure scenario (1): Use at industrial sites - Industrial end-use of washing and cleaning products

1. Exposure scenario (1)

Short title of the exposure scenario:

Use at industrial sites - Industrial end-use of washing and cleaning products

List of use descriptors:

Product category (PC): PC35

Process category (PROC): PROC2, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC13.

Environmental release category (ERC): ERC4

List of names of contributing worker scenarios and corresponding PROCs:

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC4 Chemical production where opportunity for exposure arises.

PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.

PROC7 Industrial spraying. Air dispersive techniques i.e. dispersion into air (= atomization) by e.g. pressurized air, hydraulic pressure or centrifugation, applicable for liquids and powders.

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging.

PROC10 Roller application or brushing. This includes application of paints, coatings, removers, adhesives or cleaning agents to surfaces with potential exposure arising from splashes.

PROC13 Treatment of articles by dipping and pouring.

Name of contributing environmental scenario and corresponding ERCs:

ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article).

Further explanations:

PC35 Washing and cleaning products.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf).

2. Conditions of use affecting exposure	
2.1 Control of workers exposure	
General:	Generally accepted standards of occupational hygiene are maintained. Smoking, eating and
	drinking are prohibited at the workplace. Spills are cleaned immediately.
Product characteristics:	Concentration of substance: Up to 100%.
	Physical state: liquid.
	Vapour pressure: 0.358 Pa at 25 °C
Amounts used:	This information is not relevant for assessment of worker's exposure.
Frequency and duration of use/exposure:	Duration: <=8 hours/day.
Other given operational conditions affecting	Location: Indoor use.
workers exposure:	Domain: Industrial use.
	Process temperature: <= 40 °C.
Technical conditions and measures to control	General ventilation:
dispersion from source towards the worker:	- PROC2, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC13: Basic general
	ventilation (1-3 air changes per hour): 0%.
	- PROC7: Good general ventilation (3-5 air changes per hour): 30%.
	Local exhaust ventilation:
	- PROC2, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC13: Not required.
	- PROC7: Yes (95% effectiveness).
	Occupational Health and Safety Management System: Advanced.
Conditions and measures related to personal	Respiratory protection:
protection, hygiene and health evaluation:	- PROC2, PROC4, PROC5, PROC8b: Yes (Respirator with APF of 10) (Effectiveness
	Inhalation: 90%).
	- PROC7, PROC8a, PROC10, PROC13: Yes (Respirator with APF of 20) (Effectiveness
	Inhalation: 95%).
	Dermal protection:
	- PROC2: No (Effectiveness Dermal: 0%).
	- PROC4: Yes (chemically resistant gloves conforming to EN374) (Effectiveness Dermai:
	00%). BBOCE BBOCes BBOCes BBOCes Ves (shamiaally resistant aloves conforming to
	- PROCO, PROCOa, PROCOD, PROCIS. Fes (chemically resistant gloves comorning to
	EN374 with basic employee training) (Ellectiveness Definial, 90%).
	activity training) (Effectiveness Dermal: 95%)
Additional good practice advice. Obligations	Generally accepted standards of occupational hygiene are maintained
according to Article 37(4) of REACH do not	Minimisation of manual phases/work tasks
apply.	Minimisation of splashes and spills
	Avoidance of contact with contaminated tools and objects.
	Regular cleaning of equipment and work area.
	Training staff on good practice.
	Management/supervision in place to check that RMMs in place are being used correctly and
	OCs followed.
2.2 Control of environmental exposure	
General:	All risk management measures utilised must also comply with all relevant local regulations.
Product characteristics:	Vapour pressure: 0.358 Pa at 25 °C
Amounts used:	Maximum daily use at a site: 0,02 ton/day.
	Maximum annual use at a site: 5 tons/year.
Environmental factors not influenced by risk	Flow rate of receiving surface water: >=18,000 m3/day (default).
management:	

Other given operational conditions a environmental exposure:	affecting	Indoor use. Industrial use. Release fraction rate: 0,2 kg/day. Release fraction Local release rate Release fraction	to air from proces to wastewater fro e: 0,2 kg/day. to soil from proce	air from process (initial release): 0,01; (final release): 0,01. Local release wastewater from process (initial release): 0,01; (final release): 0,01. 0,2 kg/day. soil from process: 0,05.		
Technical onsite conditions and measures to Dry sludge application to agricultural soil: Yes (defa).	
reduce or limit discharges, air emiss	sions and					
Conditions and measures related to	municipal	Municipal Sewag	e Treatment Plan	t (STP): Ves (Efficie	ancv=87.47%	
sewage treatment plant: Size of municipal sewage system/treatment plant:					000 m3/day (standard town).	
Conditions and measures related to	external	External treatmer	nt and disposal of	waste should comp	ly with applicable local and/or national	
treatment of waste for disposal:	I	regulations.	-	-		
Conditions and measures related to	o external	External recovery	and recycling of	waste should comp	ly with applicable local and/or national	
recovery of waste:		regulations.				
Additional good practice advice. Ob	ligations	All risk managem	ent measures util	lised must also com	ply with all relevant local regulations.	
according to Article 37(4) of REACT						
3. Exposure estimation and reference	ce to its source					
Health						
Information for contributing scenario	(1): PROC4, PF	ROC5, PROC7, F	ROC8a, PROC8	b, PROC10, PROC	13	
Assessment method: CHESAR v3.2	-Worker TRA v3	3. Only highest fig	jures are presente	ed here.		
Exposure estimation:		, , , ,	·			
	Route	Exposure e	stimate	RCR	Notes	
Worker, long-term, systemic	Dermal	2,143 mg/kg	g bw/day	0,857	PROC7	
Worker, long-term, systemic	Inhalation	2,795 mg/m	3	0,318	PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC13	
Worker, long-term, systemic	Combined rout	es N/A		0,968	PROC7	
Environment						
Information for contributing scenario	(2): ERC4					
Assessment method: EUSES 2.1.2.						
Exposure estimation:						
<u>Compartment</u>	PEC		<u>RCR</u>	<u>Notes</u>		
Freshwater	0,00129 mg/L		0,168			
Freshwater sediment	0,02 mg/kg dw		0,167			
Marine water	0,000129 mg/L	-	0,167			
Marine water sediment	0,00197 mg/kg	l dw	0,167			
Soil	0,00428 mg/kg	l dw	0,225			
Man via environment	0,0000383 mg/ mg/kg bw/day	/m3 / 0,000262	<0,01 / <0,01	Inhalation / Oral		
Man via environment-Combined routes	N/A		<0,01			
RCR=Risk characterization ratio (PE	C/PNEC or Exp	oosure estimate/[NEL); PEC=Pred	dicted environmenta	I concentration.	
4. Guidance to the Downstream Use	er to evaluate w	hether he works	inside the bound	laries set by the ES	•	
Health: Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operatio are adopted, then users should ensure that risks are managed to at least equivalent levels. Indoor us used. Duration: <=8 hours/day. Respiratory protection: PROC2, PROC4, PROC5, PROC8b: Yes (Re APF of 10) (Effectiveness Inhalation: 90%). PROC7, PROC8a, PROC10, PROC13: Yes (Respirator w (Effectiveness Inhalation: 95%). Dermal protection: PROC2: No (Effectiveness Dermal: 0%). PROC4 resistant gloves conforming to EN374) (Effectiveness Dermal: 80%). PROC5, PROC8a, PROC8b, PF (chemically resistant gloves conforming to EN374 with basic employee training) (Effectiveness Derma PROC10: Yes (chemically resistant gloves conforming to EN374 with specific activity training) (Effectiveness Derma)					lanagement Measures/Operational int Measures/Operational Conditions alent levels. Indoor use, PROC7: LEV C5, PROC8b: Yes (Respirator with C13: Yes (Respirator with APF of 20) Dermal: 0%). PROC4: Yes (chemically ROC8a, PROC8b, PROC13: Yes	

Environment: Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

Exposure scenario (2): Use at industrial sites - Use in pharma application

1. Exposure scenario (2)

Short title of the exposure scenario:

Use at industrial sites - Use in pharma application

List of use descriptors:

Sector of use category (SU): SU4, SU9, SU24

Product category (PC): PC29

Process category (PROC): PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC9

Environmental release category (ERC): ERC4

List of names of contributing worker scenarios and corresponding PROCs:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.

PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging. PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing). Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage.

Name of contributing environmental scenario and corresponding ERCs:

ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article).

Further explanations:

PC29 Pharmaceuticals.

2 Conditions of use offecting experies

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf).

2. Conditions of use affecting exposure	
2.1 Control of workers exposure	
General:	Generally accepted standards of occupational hygiene are maintained. Smoking, eating and
	drinking are prohibited at the workplace. Spills are cleaned immediately.
Product characteristics:	Concentration of substance: Up to 100%.
	Physical state: liquid.
	Vapour pressure: 0.358 Pa at 25 °C
Amounts used:	This information is not relevant for assessment of worker's exposure.
Frequency and duration of use/exposure:	Duration: <=8 hours/day.
Other given operational conditions affecting	Location: Indoor use.
workers exposure:	Domain: Industrial use.
	Process temperature: <= 40 °C.
Technical conditions and measures to control	General ventilation: Basic general ventilation (1-3 air changes per hour): 0%.
dispersion from source towards the worker:	Local exhaust ventilation: Not required.
	Occupational Health and Safety Management System: Advanced.
Conditions and measures related to personal	Respiratory protection:
protection, hygiene and health evaluation:	- PROC1: Not required.
	- PROC2, PROC3, PROC5, PROC8b, PROC9: Yes (Respirator with APF of 10)
	(Effectiveness Inhalation: 90%).
	- PROC8a: Yes (Respirator with APF of 20) (Effectiveness Inhalation: 95%).
	Dermal protection:
	- PROC1, PROC2, PROC3: No (Effectiveness Dermal: 0%).
	- PROC9: Yes (chemically resistant gloves conforming to EN374) (Effectiveness Dermal:
	80%).
	- PROC5, PROC8a, PROC8b: Yes (chemically resistant gloves conforming to EN374 with
	basic employee training) (Effectiveness Dermal: 90%).

Additional good practice advice. Obligations		Generally accepted standards of occupational hygiene are maintained.					
according to Article 37(4) of REACH do not		Minimisation of manual phases/work tasks.					
appiy.		Minimisation of splashes and spills.					
		Regular cleaning of equipment and work area.					
		Training staff on good practice.					
		Management/supervision in place to check that RMMs in place are being used correctly and					
		OCs followed.					
2.2 Control of environmental expos	ure						
General:		All risk management measures utilised must also comply with all relevant local regulations.					
Product characteristics:		Vapour pressure	0.358 Pa at 25 °	C			
Amounts used:		Maximum daily u	se at a site: 0,02	ton/day.			
Environmental factors not influence	ed by risk	Flow rate of rece	iving surface wate	er: >=18 000 m3/day	(default)		
management:				10,000 110,000	(doradit):		
Other given operational conditions	affecting	Indoor use.					
environmental exposure:		Industrial use.					
		Release fraction	to air from proces	s (initial release): 0,0	01; (final release): 0,01. Local release		
		rate: 0,2 kg/day.	· - · · · · · · · · · · · · · · · · · ·				
		Release fraction	to wastewater fro	m process (initial rel	ease): 0,01; (final release): 0,01.		
		Release fraction	to soil from proce	ss: 0.05.			
Technical onsite conditions and me	easures to	Dry sludge applic	ation to agricultur	ral soil: Yes (default)			
reduce or limit discharges, air emis	sions and		C C	,			
releases to soil:							
Conditions and measures related to	o municipal	Municipal Sewag	e Treatment Plan	t (STP): Yes (Efficie	ency=87,47%).		
sewage treatment plant:		Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).					
Conditions and measures related to	o external	External treatment and disposal of waste should comply with applicable local and/or national					
Conditions and measures related to	o external	External recovery and recycling of waste should comply with applicable local and/or national					
conditions and measures related to external		regulations.	and recycling of	waste should comp			
Additional good practice advice. Of	bligations	All risk managem	ent measures uti	lised must also com	bly with all relevant local regulations.		
according to Article 37(4) of REAC	H do not				.,		
apply:							
3. Exposure estimation and referen	ce to its source	Ð					
Health							
Information for contributing scenario) (1): PROC5, F	PROC8a, PROC8b	o, PROC9				
Assessment method: CHESAR v3.2	2-Worker TRA v	/3. Only highest fig	gures are present	ed here.			
Exposure estimation:							
	<u>Route</u>	<u>Exposure e</u>	<u>estimate</u>	RCR	<u>Notes</u>		
Worker, long-term, systemic	Dermal	1,372 mg/k	g bw/day	0,549	PROC9		
Worker, long-term, systemic	Inhalation	2,795 mg/m	13	0,318	PROC5, PROC8a, PROC8b, PROC9		
Worker, long-term, systemic	Combined rou	utes N/A		0,867	PROC9		
Environment							
Information for contributing scenario	(2): ERC4						
Assessment method: EUSES 2.1.2.							
Exposure estimation:							
Compartment	PEC		<u>RCR</u>	<u>Notes</u>			
Freshwater	0,00129 mg/L		0,168				
Freshwater sediment	0,02 mg/kg dv	N	0,167				
Marine water	0,000129 mg/	۲L	0,167				
Marine water sediment	0.00197 ma/k	a dw	0.167				
Soil	0.00428 mg/k	a dw	0.225				
Man via environment	0.0000383 m	n/m3 / 0 000262	<0.01 / <0.01	Inhalation / Oral			
	mg/kg bw/day	ymio / 0,000202 /	-0,017-0,01				

Compartment	PEC	<u>RCR</u>	<u>Notes</u>	
Man via environment-Co	mbined N/A	<0,01		
routes				
RCR=Risk characterization	on ratio (PEC/PNEC or E	xposure estimate/DNEL); P	PEC=Predicted environmental concentration.	
4. Guidance to the Downs	stream User to evaluate	whether he works inside th	the boundaries set by the ES	
Health:	Predicted exposures ar	e not expected to exceed th	he DN(M)EL when the Risk Management Measures/Operational	
	Conditions outlined in S	ection 2 are implemented. V	Where other Risk Management Measures/Operational Conditions	
	are adopted, then users	should ensure that risks ar	re managed to at least equivalent levels. Indoor use, without LEV.	
	Duration: <=8 hours/da	Respiratory protection: P	PROC1: Not required. PROC2, PROC3, PROC5, PROC8b, PROC9:	
	Yes (Respirator with AF	PF of 10) (Effectiveness Inha	nalation: 90%). PROC8a: Yes (Respirator with APF of 20)	
	(Effectiveness Inhalatio	n: 95%). Dermal protection	h: PROC1, PROC2, PROC3: No (Effectiveness Dermal: 0%).	
	PROC9: Yes (chemical	ly resistant gloves conformin	ing to EN374) (Effectiveness Dermal: 80%). PROC5, PROC8a,	
	90%) Concentration of	substance: Up to 100%	ning to EN374 with basic employee training) (Enectiveness Dernial.	
Environment [.]	Guidance is based on a	ssumed operating condition	ns which may not be applicable to all sites: thus scaling may be	
Linnonna	necessary to define apr	propriate site-specific risk ma	nanagement measures. Required removal efficiency for wastewater	
	can be achieved using	onsite/offsite technologies, e	either alone or in combination. If scaling reveals a condition of	
	unsafe use (i.e., RCRs	> 1), additional RMMs or a s	site-specific chemical safety assessment is required.	
Exposure scenario (3):	Use at industrial sites	- Use as a laboratory ch	hemical	
1. Exposure scenario (3)		•		
Short title of the exposure	e scenario:			
Use at industrial sites - L	lse as a laboratory chem	ical		
List of use descriptors:				
Sector of use category (SU): SU9			
Product category (PC): F				
Process category (PROC	C): PROC1, PROC2, PR	UC3, PRUC4, PRUC5, PRU	CUC8a, PRUC8b, PRUC9, PRUC15	
	ing worker econories or	d corresponding PPOCor		
PROC1 Chemical produc	rtion or refinery in closer	nrocess without likelihood	of exposure or processes with equivalent containment conditions	
PROC2 Chemical produc	ction or refinery in closed	continuous process with or	occasional controlled exposure or processes with equivalent	
containment conditions.				
PROC3 Manufacture or f	ormulation in the chemic	al industry in closed batch p	processes with occasional controlled exposure or processes with	
equivalent containment of	ondition.			
PROC4 Chemical produce	ction where opportunity f	or exposure arises.		
PROC5 Mixing or blendi	ng in batch processes. C	overs mixing or blending of	f solid or liquid materials in the context of manufacturing or	
formulating sectors, as w	ell as upon end use.			
PROC8a Transfer of suc	stance or mixture (charg	ing and discharging) at non-	n-dedicated facilities. I ransfer includes loading, filling, dumping,	
PROC8b Transfer of sub	estance or mixture (charc	ing and discharging) at ded	dicated facilities. Transfer includes loading filling dumping bagging	
PROC9 Transfer of subs	tance or mixture into sm	all containers (dedicated filli	ling line including weighing). Filling lines specifically designed to	
both capture vapour and aerosol emissions and minimise spillage				
PROC15 Use as laborate	ory reagent. Use of subs	tances at small scale in labo	ooratories (less than or equal to 1 l or 1 kg present at workplace).	
Name of contributing env	ironmental scenario and	corresponding ERCs:		
ERC6b Use of reactive p	rocessing aid at industri	al site (no inclusion into or o	onto article).	
Further explanations:				
PC21 Laboratory chemic	als.			
Chapter R.12: Use descriptor s	stem (http://guidance.echa.e	uropa.eu/docs/guidance_documer	ECHA) Guidance on information requirements and chemical safety assessment, ent/information_requirements_r12_en.pdf).	
2. Conditions of use affect	ting exposure			
2.1 Control of workers ex	posure			
General:		Generally accepted stand	dards of occupational hygiene are maintained. Smoking, eating and	
		drinking are prohibited at t	the workplace. Spills are cleaned immediately.	
Product characteristics:		Concentration of substance	ice: Up to 100%.	
		Physical state: liquid.		
		Vapour pressure: 0.358 P	Pa at 25 °C	
Amounts used:		This information is not rele	levant for assessment of worker's exposure.	
Frequency and duration	of use/exposure:	Duration: <=8 hours/day.		

Worker, long-term, systemic

Dermal

Other given operational conditions affecting	Location: Indoor use.
workers exposure:	Domain: Industrial use.
	Process temperature: <= 40 °C.
Technical conditions and measures to control	General ventilation: Basic general ventilation (1-3 air changes per hour): 0%.
dispersion from source towards the worker:	Local exhaust ventilation: Not required.
	Occupational Health and Safety Management System: Advanced.
Conditions and measures related to personal	Respiratory protection:
protection, hygiene and health evaluation:	- PROC1: Not required.
	- PROC2, PROC3, PROC4, PROC5, PROC8b, PROC9, PROC15: Yes (Respirator with
	APF of 10) (Effectiveness Inhalation: 90%).
	- PROC8a: Yes (Respirator with APF of 20) (Effectiveness Inhalation: 95%).
	Dermal protection:
	- PROC1, PROC2, PROC3, PROC15: No (Effectiveness Dermal: 0%).
	- PROC4, PROC9: Yes (chemically resistant gloves conforming to EN3/4) (Effectiveness
	Dermai: 80%).
	- PROUS, PROUSA, PROUSA: Yes (chemically resistant gloves conforming to EN374 with
Additional good practice advice. Obligations	Generally accepted standards of occupational hygiene are maintained.
according to Article 37(4) of REACH do hot	Minimisation of manual phases/work tasks.
appiy.	Avoidance of contact with contaminated tools and objects
	Regular cleaning of equipment and work area
	Training staff on good practice.
	Management/supervision in place to check that RMMs in place are being used correctly and
	OCs followed.
2.2 Control of environmental exposure	
General:	All risk management measures utilised must also comply with all relevant local regulations.
Product characteristics:	Vapour pressure: 0.358 Pa at 25 °C
Amounts used:	Maximum daily use at a site: 0,015 ton/day.
	Maximum annual use at a site: 5 tons/year.
Environmental factors not influenced by risk	Flow rate of receiving surface water: >=18,000 m3/day (default).
management:	
Other given operational conditions affecting	Indoor use.
environmental exposure:	Industrial use.
	Release fraction to air from process (initial release): 0,001; (final release): 0,001. Local
	release rate: 0,015 kg/day.
	Release fraction to wastewater from process (initial release): 0,05; (final release): 0,05.
	Local release rate: 0,75 kg/day.
Technical analite conditions and measures to	Release fraction to sol from process, 0,00025.
reduce or limit discharges, air emissions and	Dry sludge application to agricultural soll. Tes (deladit).
releases to soil.	
Conditions and measures related to municipal	Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87.47%)
sewage treatment plant:	Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).
Conditions and measures related to external	External treatment and disposal of waste should comply with applicable local and/or national
treatment of waste for disposal:	regulations.
Conditions and measures related to external	External recovery and recycling of waste should comply with applicable local and/or national
recovery of waste:	regulations.
Additional good practice advice. Obligations	All risk management measures utilised must also comply with all relevant local regulations.
according to Article 37(4) of REACH do not	
apply:	
3. Exposure estimation and reference to its source	Ce
Health	
Information for contributing scenario (1): PROC4,	PROC5, PROC8a, PROC8b, PROC9, PROC15
Assessment method: CHESAR v3.2-Worker TRA	v3. Only highest figures are presented here.
Exposure estimation	
Route	Exposure estimate RCR Notes

0,549

PROC4, PROC9

1,372 mg/kg bw/day

		<u>Route</u>	Exposure e	stimate	<u>RCR</u>	<u>Notes</u>
Worker, long-term, syste	mic	Inhalation	2,795 mg/m	3	0,318	PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15
Worker, long-term, syste	mic	Combined routes	N/A		0,867	PROC4, PROC9
Environment						
Information for contributing	g scenario	(2): ERC6b				
Assessment method: EUS	SES 2.1.2.					
Exposure estimation:						
<u>Compartment</u>		PEC		<u>RCR</u>	<u>Notes</u>	
Freshwater		0,00474 mg/L		0,615		
Freshwater sediment		0,072 mg/kg dw		0,614		
Marine water		0,000474 mg/L		0,615		
Marine water sediment		0,00724 mg/kg dw		0,614		
Soil		0,016 mg/kg dw		0,827		
Man via environment		0,000004 mg/m3 / 0 kg bw/day	0,00024 mg/	<0,01 / <0,01	Inhalation / Oral	
Man via environment-Co routes	mbined	N/A		<0,01		
RCR=Risk characterizatio	on ratio (PE	EC/PNEC or Exposu	re estimate/D	NEL); PEC=Pred	icted environmental	concentration.
4. Guidance to the Downs	stream Us	er to evaluate wheth	ner he works	inside the bounda	aries set by the ES	
	are adopted, then users should ensure that risks are managed to at least equivalent levels. Indoor use, without LEV. Duration: <=8 hours/day. Respiratory protection: PROC1: Not required. PROC2, PROC3, PROC4, PROC5, PROC8b, PROC9, PROC15: Yes (Respirator with APF of 10) (Effectiveness Inhalation: 90%). PROC8a: Yes (Respirator with APF of 20) (Effectiveness Inhalation: 95%). Dermal protection: PROC1, PROC2, PROC3, PROC15: No (Effectiveness Dermal: 0%). PROC4, PROC9: Yes (chemically resistant gloves conforming to EN374) (Effectiveness Dermal: 80%). PROC5, PROC8a, PROC8b: Yes (chemically resistant gloves conforming to EN374 with basic					
	employee	training) (Effectiven	ess Dermal:	90%). Concentral	tion of substance: U	p to 100%.
Environment:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.					
Exposure scenario (4): l	Jse at inc	lustrial sites - Use	as an inter	mediate		
1. Exposure scenario (4)						
Short title of the exposure	scenario:	:				
Use at industrial sites - U	se as an i	ntermediate				
List of use descriptors:						
Product category (PC): P				0015		
Environmental release ca	ategory (El	, 11(002, 11(003, 1 RC): ERC6a	10000,110	0013		
List of names of contributi	ina worke	scenarios and corr	espondina P	ROCs:		
PROC1 Chemical product PROC2 Chemical product containment conditions. PROC5 Mixing or blendir formulating sectors, as w	ction or ref ction or ref ng in batch rell as upor	inery in closed proce inery in closed contin processes. Covers n end use.	ess without lik nuous proces mixing or ble	elihood of exposu s with occasional nding of solid or lig	re or processes with controlled exposure quid materials in the	h equivalent containment conditions. e or processes with equivalent e context of manufacturing or
PROC15 Use as laborate	bry reagen	t. Use of substances	at small sca	le in laboratories (less than or equal to	o 1 I or 1 kg present at workplace).
ERC6a Use of intermedia	ronmental ate.	scenario and corre	sponaing ER	.US:		
Further explanations: PC0 Other.						
For further information on stand Chapter R.12: Use descriptor sy	lardized use /stem (http://	descriptors see the Euro guidance.echa.europa.eu	pean Chemical / u/docs/guidance	Agency (ECHA) Guida _document/informatio	nce on information requ n_requirements_r12_en	irements and chemical safety assessment,
2. Conditions of use affec	ting expos	sure				

2.1 Control of workers exposure

General:	Generally accepted standards of occupational hygiene are maintained. Smoking, eating and drinking are prohibited at the workplace. Spills are cleaned immediately
Product characteristics:	Concentration of substance: Un to 100%
	Physical state: liquid
	Vapour pressure: 0.358 Pa at 25 °C
Amounts used:	This information is not relevant for assessment of worker's exposure
Frequency and duration of use/exposure:	Duration: <=8 hours/day
Other given operational conditions affecting	Location: Indoor use
workers exposure:	Domain: Industrial use.
·····	Process temperature: <= 40 °C.
Technical conditions and measures to control	General ventilation: Basic general ventilation (1-3 air changes per hour): 0%.
dispersion from source towards the worker:	Local exhaust ventilation: Not required.
•	Occupational Health and Safety Management System: Advanced.
Conditions and measures related to personal	Respiratory protection:
protection, hygiene and health evaluation:	- PROC1: Not required.
	- PROC2, PROC5, PROC8b, PROC15: Yes (Respirator with APF of 10) (Effectiveness
	Inhalation: 90%).
	Dermal protection:
	- PROC1, PROC2, PROC15: No (Effectiveness Dermal: 0%).
	- PROC5, PROC8b: Yes (chemically resistant gloves conforming to EN374 with basic
	employee training) (Effectiveness Dermal: 90%).
Additional good practice advice. Obligations	Generally accepted standards of occupational hygiene are maintained.
according to Article 37(4) of REACH do not	Minimisation of manual phases/work tasks.
apply:	Minimisation of splashes and spills.
	Avoidance of contact with contaminated tools and objects.
	Regular cleaning of equipment and work area.
	Management/supervision in place to check that RMMs in place are being used correctly and
	OCs followed
2.2 Control of environmental exposure	
General:	All risk management measures utilised must also comply with all relevant local regulations.
Product characteristics:	Vapour pressure: 0.358 Pa at 25 °C
Amounts used:	Maximum daily use at a site: 0,02 ton/day.
Amounts used:	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year.
Amounts used: Environmental factors not influenced by risk	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default).
Amounts used: Environmental factors not influenced by risk management:	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default).
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use.
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure:	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use.
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure:	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure:	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day.
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure:	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day. Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02.
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure:	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day. Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02. Local release rate: 0,4 kg/day. Palease fraction to wastewater 0,004
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure:	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day. Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02. Local release rate: 0,4 kg/day. Release fraction to soil from process: 0,001.
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure: Technical onsite conditions and measures to reduce or limit displayage air emissions and	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day. Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02. Local release rate: 0,4 kg/day. Release fraction to soil from process: 0,001. Dry sludge application to agricultural soil: Yes (default).
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure: Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil:	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day. Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02. Local release rate: 0,4 kg/day. Release fraction to soil from process: 0,001. Dry sludge application to agricultural soil: Yes (default).
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure: Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil: Conditions and measures related to municipal.	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day. Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02. Local release rate: 0,4 kg/day. Release fraction to soil from process: 0,001. Dry sludge application to agricultural soil: Yes (default).
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure: Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil: Conditions and measures related to municipal sewage treatment plant:	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day. Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02. Local release rate: 0,4 kg/day. Release fraction to soil from process: 0,001. Dry sludge application to agricultural soil: Yes (default). Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town)
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure: Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil: Conditions and measures related to municipal sewage treatment plant: Conditions and measures related to external	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day. Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02. Local release rate: 0,4 kg/day. Release fraction to soil from process: 0,001. Dry sludge application to agricultural soil: Yes (default). Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). External treatment and disposal of waste should comply with applicable local and/or pational
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure: Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil: Conditions and measures related to municipal sewage treatment plant: Conditions and measures related to external treatment of waste for disposal:	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day. Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02. Local release rate: 0,4 kg/day. Release fraction to soil from process: 0,001. Dry sludge application to agricultural soil: Yes (default). Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). External treatment and disposal of waste should comply with applicable local and/or national regulations.
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure: Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil: Conditions and measures related to municipal sewage treatment plant: Conditions and measures related to external treatment of waste for disposal:	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day. Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02. Local release rate: 0,4 kg/day. Release fraction to soil from process: 0,001. Dry sludge application to agricultural soil: Yes (default). Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). External treatment and disposal of waste should comply with applicable local and/or national regulations.
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure: Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil: Conditions and measures related to municipal sewage treatment plant: Conditions and measures related to external treatment of waste for disposal: Conditions and measures related to external treatment of waste	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day. Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02. Local release rate: 0,4 kg/day. Release fraction to soil from process: 0,001. Dry sludge application to agricultural soil: Yes (default). Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). External treatment and disposal of waste should comply with applicable local and/or national regulations. External recovery and recycling of waste should comply with applicable local and/or national regulations.
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure: Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil: Conditions and measures related to municipal sewage treatment plant: Conditions and measures related to external treatment of waste for disposal: Conditions and measures related to external recovery of waste: Additional good practice advice. Obligations	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day. Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02. Local release rate: 0,4 kg/day. Release fraction to soil from process: 0,001. Dry sludge application to agricultural soil: Yes (default). Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). External treatment and disposal of waste should comply with applicable local and/or national regulations. External recovery and recycling of waste should comply with applicable local and/or national regulations. All risk management measures utilised must also comply with all relevant local regulations
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure: Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil: Conditions and measures related to municipal sewage treatment plant: Conditions and measures related to external treatment of waste for disposal: Conditions and measures related to external treatment of waste for disposal: Conditions and measures related to external arecovery of waste: Additional good practice advice. Obligations according to Article 37(4) of REACH do not	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day. Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02. Local release rate: 0,4 kg/day. Release fraction to soil from process: 0,001. Dry sludge application to agricultural soil: Yes (default). Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). External treatment and disposal of waste should comply with applicable local and/or national regulations. External recovery and recycling of waste should comply with applicable local and/or national regulations. All risk management measures utilised must also comply with all relevant local regulations.
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure: Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil: Conditions and measures related to municipal sewage treatment plant: Conditions and measures related to external treatment of waste for disposal: Conditions and measures related to external conditions and measures related to external treatment of waste for disposal: Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply:	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day. Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02. Local release rate: 0,4 kg/day. Release fraction to soil from process: 0,001. Dry sludge application to agricultural soil: Yes (default). Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). External treatment and disposal of waste should comply with applicable local and/or national regulations. External recovery and recycling of waste should comply with applicable local and/or national regulations. All risk management measures utilised must also comply with all relevant local regulations.
Amounts used: Environmental factors not influenced by risk management: Other given operational conditions affecting environmental exposure: Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil: Conditions and measures related to municipal sewage treatment plant: Conditions and measures related to external treatment of waste for disposal: Conditions and measures related to external according to Article 37(4) of REACH do not apply: 3. Exposure estimation and reference to its sour	Maximum daily use at a site: 0,02 ton/day. Maximum annual use at a site: 5 tons/year. Flow rate of receiving surface water: >=18,000 m3/day (default). Industrial use. Indoor use. Release fraction to air from process (initial release): 0,05; (final release): 0,05. Local release rate: 1 kg/day. Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02. Local release rate: 0,4 kg/day. Release fraction to soil from process: 0,001. Dry sludge application to agricultural soil: Yes (default). Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town). External treatment and disposal of waste should comply with applicable local and/or national regulations. External recovery and recycling of waste should comply with applicable local and/or national regulations. All risk management measures utilised must also comply with all relevant local regulations.

Information for contributing scenario (1): PROC5, PROC8b, PROC15

Assessment method: CHESAR v3.2-Worker TRA v3. Only highest figures are presented here.

Exposure estimation:						
		<u>Route</u>	Exposure e	stimate	<u>RCR</u>	<u>Notes</u>
Worker, long-term, syster	nic	Dermal	1,371 mg/kg	g bw/day	0,548	PROC5, PROC8b
Worker, long-term, syster	nic	Inhalation	2,795 mg/m	3	0,318	PROC5, PROC8b, PROC15
Worker, long-term, syster	nic	Combined routes	N/A		0,866	PROC5, PROC8b
Environment						
Information for contributing	g scenario	(2): ERC6a				
Assessment method: EUS	ES 2.1.2.					
Exposure estimation:						
Compartment		PEC		<u>RCR</u>	<u>Notes</u>	
Freshwater		0,00254 mg/L		0,33		
Freshwater sediment		0,039 mg/kg dw		0,33		
Marine water		0,000254 mg/L		0,33		
Marine water sediment		0,00389 mg/kg dw		0,33		
Soil		0,00852 mg/kg dw		0,449		
Man via environment		0,000191 mg/m3 / kg bw/day	0,00115 mg/	<0,01 / <0,01	Inhalation / Ora	I
Man via environment-Cor routes	nbined	N/A		<0,01		
RCR=Risk characterization	n ratio (PE	EC/PNEC or Exposu	re estimate/D	NEL); PEC=Pred	dicted environmen	tal concentration.
4. Guidance to the Downs	tream Us	er to evaluate wheth	ner he works	inside the bound	laries set by the E	ES
Health:	Predicted Condition are adopt Duration: (Respirate (Effective employee	exposures are not e s outlined in Section ed, then users shou <=8 hours/day. Res or with APF of 10) (E ness Dermal: 0%). F e training) (Effectiven	expected to e 2 are implen ld ensure tha spiratory prote ffectiveness PROC5, PRO ness Dermal:	xceed the DN(M) nented. Where ot t risks are manag ection: PROC1: I Inhalation: 90%). C8b: Yes (chemi 90%). Concentra	EL when the Risk her Risk Managen ed to at least equi Not required. PRO Dermal protectio cally resistant glov ation of substance:	Management Measures/Operational nent Measures/Operational Conditions valent levels. Indoor use, without LEV. IC2, PROC5, PROC8b, PROC15: Yes n: PROC1, PROC2, PROC15: No ves conforming to EN374 with basic : Up to 100%.
Environment:	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.					
Exposure scenario (5): F	ormulati	on - Formulation o	of fragrance	compounds		
1. Exposure scenario (5)						
Short title of the exposure	scenario	:				
Formulation - Formulation	of fragra	nce compounds				

List of use descriptors:

Product category (PC): PC28

Process category (PROC): PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC15

Environmental release category (ERC): ERC2

List of names of contributing worker scenarios and corresponding PROCs:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.

PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging. PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing). Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage.

PROC15 Use as laboratory reagent. Use of substances at small scale in laboratories (less than or equal to 1 l or 1 kg present at workplace).

Name of contributing environmental scenario and corresponding ERCs:

ERC2 Formulation into mixture.

Further explanations:

PC28 Perfumes, fragrances.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf).

2. Conditions of use affecting exposure	
2.1 Control of workers exposure	
General:	Generally accepted standards of occupational hygiene are maintained. Smoking, eating and drinking are prohibited at the workplace. Spills are cleaned immediately.
Product characteristics:	Concentration of substance: Up to 100%.
	Physical state: liquid.
	Vapour pressure: 0.358 Pa at 25 °C
Amounts used:	This information is not relevant for assessment of worker's exposure.
Frequency and duration of use/exposure:	Duration: <=8 hours/day.
Other given operational conditions affecting	Location: Indoor use.
workers exposure:	Process temperature: <= 40 °C.
Technical conditions and measures to control	General ventilation: Basic general ventilation (1-3 air changes per hour): 0%.
dispersion from source towards the worker:	Local exhaust ventilation: Not required.
	Occupational Health and Safety Management System: Advanced.
Conditions and measures related to personal	Respiratory protection:
protection, hygiene and health evaluation:	- PROC1: Not required.
	- PROC2, PROC3, PROC5, PROC8b, PROC9, PROC15: Yes (Respirator with APF of 10)
	(Effectiveness Innalation: 90%).
	- PROCea: Yes (Respirator with APF or 20) (Effectiveness innalation: 95%).
	Definial protection. PPOC1_PPOC2_PPOC3_PPOC15: No (Effectiveness Dermal: 0%)
	- PROC9: Ves (chemically resistant gloves conforming to EN374) (Effectiveness Dermal:
	- PROC5_PROC8a_PROC8b [·] Yes (chemically resistant gloves conforming to FN374 with
	basic employee training) (Effectiveness Dermal: 90%).
Additional good practice advice. Obligations	Generally accepted standards of occupational hygiene are maintained.
according to Article 37(4) of REACH do not	Minimisation of manual phases/work tasks.
apply:	Minimisation of splashes and spills.
	Avoidance of contact with contaminated tools and objects.
	Regular cleaning of equipment and work area.
	Training staff on good practice.
	Management/supervision in place to check that RMMs in place are being used correctly and
	OCs followed.
2.2 Control of environmental exposure	
General:	All risk management measures utilised must also comply with all relevant local regulations.
Product characteristics:	Vapour pressure: 0.358 Pa at 25 °C
Amounts used:	Maximum daily use at a site: 0,03 ton/day.
	Maximum annual use at a site: 10 tons/year.
Environmental factors not influenced by risk	Flow rate of receiving surface water: >=18,000 m3/day (default).
management:	
Other given operational conditions affecting	Indoor use.
environmental exposure:	Release fraction to air from process (initial release): 0,025; (final release): 0,025. Local
	release rate: 0,75 kg/day.
	Local release rate: 0.6 ka/day
	Release fraction to soil from process: 0 0001
Technical onsite conditions and measures to	Dry sludge application to agricultural soil: Yes (default)
reduce or limit discharges air emissions and	Dry sludge application to agricultural soll. Tes (deladit).
releases to soil.	
Conditions and measures related to municipal	Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87.47%)
sewage treatment plant	Size of municipal sewage system/treatment plant: >=2000 m3/dav (standard town)
Conditions and measures related to external	External treatment and disposal of waste should comply with applicable local and/or national
treatment of waste for disposal:	regulations.
Conditions and measures related to external	External recovery and recycling of waste should comply with applicable local and/or national
recovery of waste:	regulations.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply:

All risk management measures utilised must also comply with all relevant local regulations.

apply:						
3. Exposure estimation a	nd referen	ce to its source				
Health						
Information for contributir	ng scenario	(1): PROC5, PROC	8a, PROC8b	, PROC9, PROC ²	15	
Assessment method: CH	ESAR v3.2	-Worker TRA v3. Or	nly highest fig	ures are presente	ed here.	
Exposure estimation:						
		<u>Route</u>	Exposure e	<u>stimate</u>	<u>RCR</u>	Notes
Worker, long-term, syste	emic	Dermal	1,372 mg/kg	g bw/day	0,549	PROC9
Worker, long-term, syste	emic	Inhalation	2,795 mg/m	3	0,318	PROC5, PROC8a, PROC8b, PROC9, PROC15
Worker, long-term, syste	emic	Combined routes	N/A		0,867	PROC9
Environment						
Information for contributir	ng scenario	(2): ERC2				
Assessment method: EU	SES 2.1.2.					
Exposure estimation:						
Compartment		PEC		<u>RCR</u>	<u>Notes</u>	
Freshwater		0,0038 mg/L		0,493		
Freshwater sediment		0,058 mg/kg dw		0,492		
Marine water		0,00038 mg/L		0,493		
Marine water sediment		0,0058 mg/kg dw		0,492		
Soil		0,013 mg/kg dw		0,668		
Man via environment		0,000191 mg/m3 / kg bw/day	0,00122 mg/	<0,01 / <0,01	Inhalation / Oral	
Man via environment-Co routes	ombined	N/A		<0,01		
RCR=Risk characterization	on ratio (PE	C/PNEC or Exposu	re estimate/D	NEL); PEC=Pred	icted environmental	concentration.
4. Guidance to the Down	stream Us	er to evaluate whetl	ner he works	inside the bound	aries set by the ES	
Health:	Predicted Condition: are adopt Duration: PROC15: (Effective 0%). PROC PROC8b: 90%). Co	exposures are not e s outlined in Section ed, then users shou <=8 hours/day. Res Yes (Respirator wit ness Inhalation: 95% DC9: Yes (chemically Yes (chemically res nocentration of subst	expected to ex a 2 are implem ld ensure that spiratory prote h APF of 10) 6). Dermal pr y resistant gloves stance: Up to 1	xceed the DN(M)E nented. Where oth t risks are manage ection: PROC1: N (Effectiveness Inh rotection: PROC1 pives conforming to conforming to EN 100%.	EL when the Risk Managemen ed to at least equival ot required. PROC2, nalation: 90%). PROC , PROC2, PROC3, P o EN374) (Effectiven I374 with basic empl	nagement Measures/Operational t Measures/Operational Conditions ent levels. Indoor use, without LEV. PROC3, PROC5, PROC8b, PROC9, C8a: Yes (Respirator with APF of 20) ROC15: No (Effectiveness Dermal: ess Dermal: 80%). PROC5, PROC8a, oyee training) (Effectiveness Dermal:
Environment:	Imment: Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.					
Exposure scenario (6):	Formulation	on - Formulation of	of fragrance	products		
1. Exposure scenario (6)						
Short title of the exposure Formulation - Formulation	e scenario: on of fragra	nce products				
List of use descriptors:						

Product category (PC): PC28

Process category (PROC): PROC2, PROC4, PROC5, PROC8b, PROC15 Environmental release category (ERC): ERC2

List of names of contributing worker scenarios and corresponding PROCs:

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC4 Chemical production where opportunity for exposure arises.

PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging. PROC15 Use as laboratory reagent. Use of substances at small scale in laboratories (less than or equal to 1 l or 1 kg present at workplace).

Further explanations:

PC28 Perfumes, fragrances.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf).

2. Conditions of use affecting exposure	
2.1 Control of workers exposure	
General:	Generally accepted standards of occupational hygiene are maintained. Smoking, eating and drinking are prohibited at the workplace. Spills are cleaned immediately.
Product characteristics:	Concentration of substance: Up to 100%.
	Physical state: liquid.
- <u>-</u>	Vapour pressure: 0.358 Pa at 25 °C
Amounts used:	I his information is not relevant for assessment of worker's exposure.
Frequency and duration of use/exposure:	Duration: <=8 hours/day.
Other given operational conditions affecting	Location: Indoor use.
	Process temperature: <= 40 °C.
l echnical conditions and measures to control	General ventilation: Basic general ventilation (1-3 air changes per hour): 0%.
dispersion from source towards the worker:	Local exhaust ventilation: Not required.
Conditions and massures related to personal	Peopiratory protoction: Voc (Peopirator with APE of 10) (Effectiveness Inhelation: 00%)
protection, bygiene and health evaluation:	Respiratory protection: res (Respirator with APP of 10) (Ellectiveness initialation, 90%).
protection, hygiene and health evaluation.	- PROC2_PROC15: No (Effectiveness Dermal: 0%)
	- PROC4: Yes (chemically resistant gloves conforming to EN374) (Effectiveness Dermal:
	80%).
	- PROC5, PROC8b: Yes (chemically resistant gloves conforming to EN374 with basic
	employee training) (Effectiveness Dermal: 90%).
Additional good practice advice. Obligations	Generally accepted standards of occupational hygiene are maintained.
according to Article 37(4) of REACH do not	Minimisation of manual phases/work tasks.
apply:	Minimisation of splashes and spills.
	Avoidance of contact with contaminated tools and objects.
	Regular cleaning of equipment and work area.
	Training staff on good practice.
	Management/supervision in place to check that RMMs in place are being used correctly and
	OCs followed.
2.2 Control of environmental exposure	
General:	All risk management measures utilised must also comply with all relevant local regulations.
Product characteristics:	Vapour pressure: 0.358 Pa at 25 °C
Amounts used:	Maximum daily use at a site: 0,03 ton/day.
	Maximum annual use at a site: 10 tons/year.
Environmental factors not influenced by risk	Flow rate of receiving surface water: >=18,000 m3/day (default).
Other given operational conditions affecting	Indoor use.
environmental exposure.	release rate: 0.75 kg/day
	Release faction to wastewater from process (initial release): 0.02: (final release): 0.02
	l ocal release rate: 0.6 kg/day
	Release fraction to soil from process: 0.0001.
Technical onsite conditions and measures to	Dry sludge application to agricultural soil: Yes (default).
reduce or limit discharges, air emissions and	
releases to soil:	
Conditions and measures related to municipal	Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%).
sewage treatment plant:	Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).
Conditions and measures related to external	External treatment and disposal of waste should comply with applicable local and/or national
treatment of waste for disposal:	regulations.
Conditions and measures related to external	External recovery and recycling of waste should comply with applicable local and/or national
recovery of waste:	regulations.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply:

3. Exposure estimation and reference to its source

All risk management measures utilised must also comply with all relevant local regulations.

Health

Information for contributing scenario (1): PROC4, PROC5, PROC8b, PROC15

Assessment method: CHESAR v3.2-Worker TRA v3. Only highest figures are presented here.

Exposure estimation:						
	<u>Route</u>	Exposure estimate	RCR	<u>Notes</u>		
Worker, long-term, systemic	Dermal	1,372 mg/kg bw/day	0,549	PROC4		
Worker, long-term, systemic	Inhalation	2,795 mg/m3	0,318	PROC4, PROC5, PROC8b, PROC15		
Worker, long-term, systemic	Combined routes	N/A	0,867	PROC4		
Environment						
Information for contributing scen	nario (2): No Information					
Assessment method: EUSES 2	.1.2.					
Exposure estimation:						
<u>Compartment</u>	PEC	<u>RCR</u>	<u>Notes</u>			
Freshwater	0,0038 mg/L	0,493				
Freshwater sediment	0,058 mg/kg dw	0,492				
Marine water	0,00038 mg/L	0,493				
Marine water sediment	0,0058 mg/kg dw	0,492				
Soil	0,013 mg/kg dw	0,668				
Man via environment	0,000191 mg/m3 / kg bw/day	0,00122 mg/ <0.01 / <0	01 Inhalation / Oral			
Man via environment-Combine routes	d N/A	<0,01				
RCR=Risk characterization ratio	(PEC/PNEC or Exposu	ure estimate/DNEL); PEC	Predicted environmenta	I concentration.		
4. Guidance to the Downstream	User to evaluate whet	her he works inside the b	oundaries set by the ES	3		
Health: Predia Cond are a Durat Derm confo EN37	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Indoor use, without LEV Duration: <=8 hours/day. Respiratory protection: Yes (Respirator with APF of 10) (Effectiveness Inhalation: 90%). Dermal protection: PROC2, PROC15: No (Effectiveness Dermal: 0%). PROC4: Yes (chemically resistant gloves conforming to EN374) (Effectiveness Dermal: 80%). PROC5, PROC8b: Yes (chemically resistant gloves conforming EN374 with basic employee training) (Effectiveness Dermal: 90%).					
Environment: Guida neces can b unsaf	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.					

1. Exposure scenario (7)

Short title of the exposure scenario:

Formulation - Formulation of fragranced end-products

List of use descriptors:

Product category (PC): PC28

Process category (PROC): PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15

Environmental release category (ERC): ERC2

List of names of contributing worker scenarios and corresponding PROCs:

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition.

PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging. PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing). Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage.

PROC14 Tabletting, compression, extrusion, pelletisation, granulation. This covers processing of mixtures and/or substances into a defined shape for further use.

PROC15 Use as laboratory reagent. Use of substances at small scale in laboratories (less than or equal to 1 l or 1 kg present at workplace).

Name of contributing environmental scenario and corresponding ERCs:

ERC2 Formulation into mixture.

Further explanations:

PC28 Perfumes, fragrances.

2. Conditions of use affecting exposure

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf).

2.1 Control of workers exposure	
General:	Generally accepted standards of occupational hygiene are maintained. Smoking, eating and
	drinking are prohibited at the workplace. Spills are cleaned immediately.
Product characteristics:	Concentration of substance: Up to 100%.
	Physical state: liquid.
	Vapour pressure: 0.358 Pa at 25 °C
Amounts used:	This information is not relevant for assessment of worker's exposure.
Frequency and duration of use/exposure:	Duration: <=8 hours/day.
Other given operational conditions affecting	Location: Indoor use.
workers exposure:	Process temperature: <= 40 °C.
Technical conditions and measures to control	General ventilation: Basic general ventilation (1-3 air changes per hour): 0%.
dispersion from source towards the worker:	Local exhaust ventilation: Not required.
	Occupational Health and Safety Management System: Advanced.
Conditions and measures related to personal	Respiratory protection:
protection, hygiene and health evaluation:	- PROC1: Not required.
	- PROC2, PROC3, PROC5, PROC8b, PROC9, PROC14, PROC15: Yes (Respirator with
	APF of 10) (Effectiveness Inhalation: 90%).
	- PROC8a: Yes (Respirator with APF of 20) (Effectiveness Inhalation: 95%).
	Dermal protection:
	 PROC1, PROC2, PROC3, PROC15: No (Effectiveness Dermal: 0%).
	- PROC9, PROC14: Yes (chemically resistant gloves conforming to EN374) (Effectiveness
	Dermal: 80%).
	- PROC5, PROC8a, PROC8b: Yes (chemically resistant gloves conforming to EN374 with
	basic employee training) (Effectiveness Dermal: 90%).
Additional good practice advice. Obligations	Generally accepted standards of occupational hygiene are maintained.
according to Article 37(4) of REACH do not	Minimisation of manual phases/work tasks.
apply:	Minimisation of splashes and spills.
	Avoidance of contact with contaminated tools and objects.
	Regular cleaning of equipment and work area.
	Training staff on good practice.
	Management/supervision in place to check that RMMs in place are being used correctly and
	OCs followed.
2.2 Control of environmental exposure	
General:	All risk management measures utilised must also comply with all relevant local regulations.
Product characteristics:	Vapour pressure: 0.358 Pa at 25 °C
Amounts used:	Maximum daily use at a site: 0,03 ton/day.
	Maximum annual use at a site: 10 tons/year.
Environmental factors not influenced by risk	Flow rate of receiving surface water: >=18,000 m3/day (default).
management:	
Other given operational conditions affecting	Indoor use.
environmental exposure:	Release fraction to air from process (initial release): 0,025; (final release): 0,025. Local
	release rate: 0,75 kg/day.
	Release fraction to wastewater from process (initial release): 0,02; (final release): 0,02.
	Local release rate: 0,6 kg/day.
	Release fraction to soil from process: 0.0001.

Technical onsite conditions and reduce or limit discharges, air en	measures to Dr nissions and	Dry sludge application to agricultural soil: Yes (default).					
releases to soil:			T ((D)				
sewage treatment plant:		Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).					
Conditions and measures related	to external Ex	ternal treatmer	it and disposal of	waste should com	nply with applicable local and/or national		
treatment of waste for disposal:	re	gulations.					
Conditions and measures related	to external Ex	ternal recovery	and recycling of	waste should corr	pply with applicable local and/or national		
Additional good practice advice		risk managom	ont moasuros util	isod must also co	mply with all relevant local regulations		
according to Article 37(4) of REA		nsk managem		ised must also col	nply with all relevant local regulations.		
apply:							
3. Exposure estimation and refer	ence to its source						
Health							
Information for contributing scena	rio (1): PROC5, PRO	DC8a, PROC8b	, PROC9, PROC	14, PROC15			
Assessment method: CHESAR v3	3.2-Worker TRA v3.	Only highest fig	ures are present	ed here.			
Exposure estimation:							
	<u>Route</u>	Exposure e	<u>stimate</u>	RCR	Notes		
Worker, long-term, systemic	Dermal	1,372 mg/kg	g bw/day	0,549	PROC9		
Worker, long-term, systemic	Inhalation	2,795 mg/m	3	0,318	PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15		
Worker, long-term, systemic	Combined routes	N/A		0,867	PROC9		
Environment							
Information for contributing scena	rio (2): ERC2						
Assessment method: EUSES 2.1	.2.						
Exposure estimation:							
Compartment	PEC		RCR	<u>Notes</u>			
Freshwater	0,0038 mg/L		0,493				
Freshwater sediment	0,058 mg/kg dw		0,492				
Marine water	0,00038 mg/L		0,493				
Marine water sediment	0,0058 mg/kg dw	1	0,492				
Soil	0,013 mg/kg dw		0,668				
Man via environment	0,000191 mg/m3 kg bw/day	/ 0,00122 mg/	<0,01 / <0,01	Inhalation / Ora	I		
Man via environment-Combined	N/A		<0,01				
routes							
RCR=Risk characterization ratio (PEC/PNEC or Expo	sure estimate/D	NEL); PEC=Pred	dicted environmen	tal concentration.		
4. Guidance to the Downstream l	Jser to evaluate who	ether he works	inside the bound	laries set by the E	S		
Iealth: Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Indoor use, without LEV. Duration: <=8 hours/day. Respiratory protection: PROC1: Not required. PROC2, PROC3, PROC5, PROC8b, PROC9 PROC14, PROC15: Yes (Respirator with APF of 10) (Effectiveness Inhalation: 90%). PROC8a: Yes (Respirator with APF of 20) (Effectiveness Inhalation: 95%). Dermal protection: PROC1, PROC2, PROC3, PROC15: No (Effectiveness Dermal: 0%). PROC9, PROC14: Yes (chemically resistant gloves conforming to EN374) (Effectiveness Dermal: 80%). PROC5, PROC8a, PROC8b: Yes (chemically resistant gloves conforming to EN374 with basic employee training) (Effectiveness Dermal: 90%). Concentration of substance: Up to 100%.							
Environment: Guidan necess can be unsafe	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required						
Exposure scenario (8): Use by	professional work	ers - Professi	onal use of poli	shes and wax h	lends		
1. Exposure scenario (8)	F. C.						

1. Exposure scenario (8)Short title of the exposure scenario:

Use by professional workers - Professional use of polishes and wax blends

List of use descriptors:

Product category (PC): PC31

Process category (PROC): PROC2, PROC8a, PROC9, PROC10.

Environmental release category (ERC): ERC8a

List of names of contributing worker scenarios and corresponding PROCs:

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing). Filling lines specifically designed to both capture vapour and aerosol emissions and minimise spillage.

PROC10 Roller application or brushing. This includes application of paints, coatings, removers, adhesives or cleaning agents to surfaces with potential exposure arising from splashes.

Name of contributing environmental scenario and corresponding ERCs:

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).

Further explanations:

PC31 Polishes and wax blends.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf).

2. Conditions of use affecting exposure

2.1 Control of workers exposure	
General:	Generally accepted standards of occupational hygiene are maintained. Smoking, eating and
	drinking are prohibited at the workplace. Spills are cleaned immediately.
Product characteristics:	Concentration of substance:
	- PROC2, PROC8a, PROC9: Up to 100%.
	- PROC10: <=10%.
	Physical state: liquid.
	Vapour pressure: 0.358 Pa at 25 °C
Amounts used:	This information is not relevant for assessment of worker's exposure.
Frequency and duration of use/exposure:	Duration: <=8 hours/day.
Other given operational conditions affecting	Location: Indoor use.
workers exposure:	Domain: Professional use.
	Process temperature: <= 40 °C.
Technical conditions and measures to control	General ventilation: Basic general ventilation (1-3 air changes per hour): 0%.
dispersion from source towards the worker:	Local exhaust ventilation:
	- PROC2, PROC9: Not required.
	- PROC8a, PROC10: Yes (80% effectiveness).
	Occupational Health and Safety Management System: Basic.
Conditions and measures related to personal	Respiratory protection:
protection, hygiene and health evaluation:	- PROC2: Yes (Respirator with APF of 10) (Effectiveness Inhalation: 90%).
	- PROC8a, PROC9, PROC10: Yes (Respirator with APF of 20) (Effectiveness Inhalation:
	95%).
	Dermal protection:
	- PROC2: No (Effectiveness Dermal: 0%).
	- PROC8a, PROC9, PROC10: Yes (chemically resistant gloves conforming to EN374 with
	basic employee training) (Effectiveness Dermal: 90%).
Additional good practice advice. Obligations	Generally accepted standards of occupational hygiene are maintained.
according to Article 37(4) of REACH do not	Minimisation of manual phases/work tasks.
apply:	Minimisation of splashes and spills.
	Avoidance of contact with contaminated tools and objects.
	Regular cleaning of equipment and work area.
	Training staff on good practice.
	Management/supervision in place to check that RMMs in place are being used correctly and
	OCs followed.
2.2 Control of environmental exposure	
General:	All risk management measures utilised must also comply with all relevant local regulations.
Product characteristics:	Vapour pressure: 0.358 Pa at 25 °C
Amounts used:	Daily wide dispersive use: 0.0000027 tons/day.
	Amounts used in the EU: 5 tons/year.
Frequency and duration of use:	Wide dispersive use.

Environmental factors not influe management:	enced by risk	Flow rate of receiving surface water: >=18000 m3/day (default).				
Other given operational condition environmental exposure:	ons affecting F F F L F	Professional use. Indoor use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Release fraction to wastewater from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: 0,0.				
Conditions and measures relate	ed to municipal	Municipal Sewage Treatment Pla Size of municipal sewage system	ant (STP): Yes (Effi n/treatment plant: >:	ciency=87,47%). =2000 m3/day (standard town)		
Conditions and measures relate	ed to external	External treatment and disposal	of waste should con	nply with applicable local and/or national		
treatment of waste for disposal:	r r	egulations.				
Conditions and measures relate	ed to external	External recovery and recycling	of waste should con	nply with applicable local and/or national		
Additional good practice advice according to Article 37(4) of RE apply:	. Obligations A	All risk management measures u	utilised must also co	mply with all relevant local regulations.		
3. Exposure estimation and refe	rence to its source					
Health						
Information for contributing scen	ario (1): PROC2, PF	ROC9, PROC10				
Assessment method: CHESAR	v3.2-Worker TRA v3	. Only highest figures are prese	nted here.			
Exposure estimation:						
	Route	Exposure estimate	<u>RCR</u>	Notes		
Worker, long-term, systemic	Dermal	1,646 mg/kg bw/day	0,658	PROC10		
Worker, long-term, systemic	Inhalation	2,795 mg/m3	0,318	PROC2, PROC9		
vvorker, long-term, systemic	Combined route	es N/A	0,866	PROCZ		
Environment	ario (2): ERC8a					
Assessment method: EUSES 2	1 2					
Exposure estimation:	1.2.					
Compartment	PEC	RCR	Notes			
Freshwater	0,0000555 mg/	L < <0,01				
Freshwater sediment	0,000849 mg/kg	g dw <0,01				
Marine water	0,0000053 mg/	L <0,01				
Marine water sediment	0,000081 mg/kg	g dw <0,01				
Soil	0,000155 mg/k	g dw <0,01				
Man via environment	0,00000019 mg 0,00000395 mg	y/m3 / <0,01 / <0,01 y/kg bw/day	Inhalation / Ora	al		
Man via environment-Combined routes	d N/A	<0,01				
RCR=Risk characterization ratio	(PEC/PNEC or Exp	osure estimate/DNEL); PEC=Pr	redicted environmer	ntal concentration.		
4. Guidance to the Downstream	User to evaluate w	hether he works inside the bou	ndaries set by the I	ES		
Health: Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Indoor use, PROC8a, PROC10: LEV used. Duration: <=8 hours/day. Respiratory protection: PROC2: Yes (Respirator with APF of 10) (Effectiveness Inhalation: 90%). PROC8a, PROC9, PROC10: Yes (Respirator with APF of 20) (Effectiveness Inhalation: 95%). Dermal protection: PROC2: No (Effectiveness Dermal: 0%). PROC8a, PROC9, PROC10: Yes (chemically resistant gloves conforming to EN374 with basic employee training) (Effectiveness Dermal: 90%). Concentration of substance: PROC2, PROC8a, PROC9: Up to 100%. PROC10: <=10%.						
Environment: Guida neces can buunsaf	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.					
(0). 000 D	, p		e. maoning and o			

Short title of the exposure scenario:

Use by professional workers - Professional end-use of washing and cleaning products

List of use descriptors:

Product category (PC): PC35

Process category (PROC): PROC2, PROC4, PROC5, PROC8a, PROC8b, PROC13

Environmental release category (ERC): ERC8a, ERC8d

List of names of contributing worker scenarios and corresponding PROCs:

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions.

PROC4 Chemical production where opportunity for exposure arises.

PROC5 Mixing or blending in batch processes. Covers mixing or blending of solid or liquid materials in the context of manufacturing or formulating sectors, as well as upon end use.

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities. Transfer includes loading, filling, dumping, bagging and weighing.

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities. Transfer includes loading, filling, dumping, bagging. PROC13 Treatment of articles by dipping and pouring.

Name of contributing environmental scenario and corresponding ERCs:

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor).

ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor).

Further explanations:

PC35 Washing and cleaning products.

For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R. 12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf).

2. Conditions of use affecting exposure

2.1 Control of workers exposure	
General:	Generally accepted standards of occupational hygiene are maintained. Smoking, eating and drinking are prohibited at the workplace. Spills are cleaned immediately.
Product characteristics:	Concentration of substance: Up to 100%.
	Physical state: liquid.
	Vapour pressure: 0.358 Pa at 25 °C
Amounts used:	This information is not relevant for assessment of worker's exposure.
Frequency and duration of use/exposure:	Duration: <=8 hours/day.
Other given operational conditions affecting	Location: Indoor use.
workers exposure:	Domain: Professional use.
	Process temperature: <= 40 °C.
Technical conditions and measures to control	General ventilation: Basic general ventilation (1-3 air changes per hour): 0%.
dispersion from source towards the worker:	Local exhaust ventilation: Not required.
	Occupational Health and Safety Management System: Basic.
Conditions and measures related to personal	Respiratory protection:
protection, hygiene and health evaluation:	 PROC2, PROC4, PROC5, PROC8b: Yes (Respirator with APF of 10) (Effectiveness
	Inhalation: 90%).
	- PROC8a, PROC13: Yes (Respirator with APF of 20) (Effectiveness Inhalation: 95%).
	Dermal protection:
	- PROC2: No (Effectiveness Dermal: 0%).
	- PROC4: Yes (chemically resistant gloves conforming to EN3/4) (Effectiveness Dermai:
	80%). BBOC5 BBOC9a BBOC9b BBOC12: Vac (chamically registent glovas conforming to
	- FROC5, FROCod, FROCob, FROC15. Tes (chemically resistant gloves comoning to EN374 with basic amployee training) (Effectiveness Dermal: 90%)
Additional good practice advice Obligations	Constally accounted standards of accurational hygians are maintained
Additional good practice advice. Obligations	Minimisation of manual phasos/work tasks
apply:	Minimisation of enlactes and enille
appiy.	Avoidance of contact with contaminated tools and objects
	Regular cleaning of equipment and work area
	Training staff on good practice.
	Management/supervision in place to check that RMMs in place are being used correctly and
	OCs followed.
2.2 Control of environmental exposure	
General:	All risk management measures utilised must also comply with all relevant local regulations.
Product characteristics:	Vapour pressure: 0.358 Pa at 25 °C

Amounts used:	Da An	Daily wide dispersive use: 0.0000027 tons/day.				
Frequency and duration of use:	W	Wide dispersive use				
Environmental factors not influence	ed by risk Flo	ow rate of receiving surface	ce water: >=18000 m3/dav	/ (default).		
management:		Ũ				
Other given operational conditions	affecting Pr	ofessional use.				
environmental exposure:	Inc	loor/Outdoor use.				
	Re	lease fraction to air from	process (initial release): 1	,00; (final release): 1,00.		
	Re	cal release rate: 0.00275	ater from process (initial re	elease): 1,00; (final release): 1,00.		
	Re	elease fraction to soil from	process:			
	- E	RC8a: 0,00.	F			
	- E	RC8d: 0,20.				
Conditions and measures related t	o municipal Mu	unicipal Sewage Treatme	nt Plant (STP): Yes (Effic	iency=87,47%).		
sewage treatment plant:	Siz	ze of municipal sewage s	/stem/treatment plant: >=:	2000 m3/day (standard town).		
Conditions and measures related t treatment of waste for disposal:	o external Ex re(ternal treatment and disp gulations.	osal of waste should com	ply with applicable local and/or national		
Conditions and measures related t	o external Ex	ternal recovery and recyc	cling of waste should com	oly with applicable local and/or national		
recovery of waste:	re	gulations.				
Additional good practice advice. Obligations		risk management measu	res utilised must also con	nply with all relevant local regulations.		
apply:						
3. Exposure estimation and referen	ce to its source					
Health						
Information for contributing scenario	o (1): PROC4, PRO	C5, PROC8a, PROC8b,	PROC13			
Assessment method: CHESAR v3.2	2-Worker TRA v3.	Only highest figures are p	resented here.			
Exposure estimation:						
	<u>Route</u>	Exposure estimate	RCR	<u>Notes</u>		
Worker, long-term, systemic	Dermal	1,372 mg/kg bw/day	0,549	PROC4		
Worker, long-term, systemic	Inhalation	2,795 mg/m3	0,318	PROC4, PROC5, PROC8a, PROC8b, PROC13		
Worker, long-term, systemic	Combined routes	N/A	0,867	PROC4		
Environment			-			
Information for contributing scenario	o (2): ERC8a, ERC	8d				
Assessment method: EUSES 2.1.2						
Exposure estimation:						
Compartment	PEC	<u>RCR</u>	<u>Notes</u>			
Freshwater	0,0000555 mg/L	<0,01				
Freshwater sediment	0,000849 mg/kg	dw <0,01				
Marine water	0,0000053 mg/L	<0,01				
Marine water sediment	0,000081 mg/kg	dw <0,01				
Soil	0,000155 mg/kg	dw <0,01				
Man via environment	0,00000019 mg/r 0,00000395 mg/l	n3 / <0,01 / < cg bw/day	0,01 Inhalation / Oral			
Man via environment-Combined routes	N/A	<0,01				
RCR=Risk characterization ratio (P	EC/PNEC or Expo	sure estimate/DNFL): PF	C=Predicted environment	al concentration.		

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

Environment: Cuidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define apporpriate site-specific network agent measures. Required removal efficiency for wastewater can be achieved using onsite/difficit technologies, ether atone or in combination. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. Exposure scenario (10) Short till of the exposure scenario: Short till of the exposure scenario: Consumer use - Consumer end-use of blocides Iteration and scenario approximation of a soft and the exposure scenario: Consumer use - Consumer end-use of blocides Iteration and scenario and corresponding ERCs: Product category (PC): PCB ERC84 Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor). ERC84 Widespread use of non-reactive processing aid (no inclusion into or onto article, undoor). ERC84 Widespread use of non-reactive processing aid (no inclusion into or onto article, undoor). Protein information on standardized use descriptors are the European Chemical Agency (ECMA) Guidance on information requirements and chemical safety assessment. Product oharactering scenario Concentration of substance in product: Up to 0.01%. Product oharactering scenario Concentration of substance in product: Up to 0.01%. Product oharactering scenario Applied announts for each use event: 50 g. Anounts use	Health:	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Indoor use, without LEV. Duration: <=8 hours/day. Respiratory protection: PROC2, PROC4, PROC5, PROC8b: Yes (Respirator with APF of 10) (Effectiveness Inhalation: 90%). PROC8a, PROC13: Yes (Respirator with APF of 20) (Effectiveness Inhalation: 95%). Dermal protection: PROC2: No (Effectiveness Dermal: 0%). PROC4: Yes (chemically resistant gloves conforming to EN374) (Effectiveness Dermal: 80%). PROC5, PROC8a, PROC8b, PROC13: Yes (chemically resistant gloves conforming to EN374 with basic employee training) (Effectiveness Dermal: 90%). Concentration of substance: Up to 100%						
Exposure scenario (10) Consumer use - Consumer end-use of biocides 1. Exposure scenario (10) Short (III of the exposure scenario: Consumer use - Consumer end-use of biocides 1. Exposure scenario: Consumer use - Consumer end-use of biocides 1. Exposure scenario: Consumer use - Consumer end-use of biocides 1. Exposure scenario: Environmental release category (ERC): ERC8a, ERC8d Name of contributing environmental scenario and corresponding ERCs: ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor). FURDer explanations: PPC4Biocidal products. PPC4Biocidal products. For turber fromation on standardized use descriptors are the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment. Conditions of use affecting exposure Product of consumer exposure Concentration of substance in product: Up to 0.01%. Physical state: liquid. Oral contact foreseen: No. Spray: No. Anounts used: Applied amounts for each use event: 50 g. Frequency - overs use frequency: up to 1 lime/day. Human factors not influenced by risk margement: Body parts potentially exposed: Whole body. Inhalation factor = 1. Dotential of environmental exposure Consumer exposure: Body weight: 60 kg. 2.2 Control of environmental exposure Consumer explanatinon for use. Bo	Environment:	Guidance is based on necessary to define ap can be achieved using unsafe use (i.e., RCRs	assumed operating conditions which may not be applicable to all sites; thus, scaling may be propriate site-specific risk management measures. Required removal efficiency for wastewater onsite/offsite technologies, either alone or in combination. If scaling reveals a condition of s > 1), additional RMMs or a site-specific chemical safety assessment is required.					
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Frequency and duration of use/exposure: Duration covers exposure up to: 8 hours/event. Frequency - covers use frequency: up to 1 time/day. Human factors not influenced by risk management: Body parts potentially exposed: Whole body. Inhalation factor = 1. Dermal transfer factor = 1. Other given operational conditions affecting consumers exposure: Location: Indoor use. Body weight: 60 kg. 2.2 Control of environmental exposure All risk management measures utilised must also comply with all relevant local regulations. Product characteristics: Vapour pressure: 0.358 Pa at 25 °C Amounts used: Daily wide dispersive use: 0.0000027 tons/day. Amounts used in the EU: 5 tons/year. Frequency and duration of use: Wide dispersive use. Environmental factors not influenced by risk management: Indoor/Outdoor use. Other given operational conditions affecting environmental exposure: Indoor/Outdoor use. Consumer use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Release fraction to soil from process: - ERC8a: 0,00. - ERC8a: 0,00. - ERC84: 0,20. Conditions and measures related to municipal sewage treatment plant: Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal Sewage system/treatment plant: >=2000 m3/day (standard town).	Amounts used:		Applied amounts for each use event: 50 g.					
Frequency - covers use frequency: up to 1 time/day. Human factors not influenced by risk management: Body parts potentially exposed: Whole body. Inhalation factor = 1. Other given operational conditions affecting consumers exposure: Body weight: 60 kg. 2.2 Control of environmental exposure Body weight: 60 kg. 2.2 Control of environmental exposure Body weight: 60 kg. General: All risk management measures utilised must also comply with all relevant local regulations. Product characteristics: Vapour pressure: 0.358 Pa at 25 °C Armounts used: Daily wide dispersive use: 0.0000027 tons/day. Amounts used in the EU: 5 tons/year. Frequency and duration of use: Wide dispersive use. Environmental factors not influenced by risk management: Flow rate of receiving surface water: >=18000 m3/day (default). Other given operational conditions affecting environmental exposure: Indoor/Outdoor use. Consumer use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Release fraction to soil from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC88: 0,00. - ERC88: 0,20. Conditions and measures related to municipal sewage treatment plant; Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal Sewage system/treatment plant; >=2000 m3/day (standard town).	Frequency and duration	of use/exposure:	Duration covers exposure up to: 8 hours/event.					
Human factors not influenced by risk management: Body parts potentially exposed: Whole body. Inhalation factor = 1. Dermal transfer factor = 1. Other given operational conditions affecting consumers exposure: Location: Indoor use. Body weight: 60 kg. 2.2 Control of environmental exposure Body parts management measures utilised must also comply with all relevant local regulations. Product characteristics: Vapour pressure: 0.358 Pa at 25 °C Amounts used: Daily wide dispersive use: 0.0000027 tons/day. Amounts used in the EU: 5 tons/year. Frequency and duration of use: Wide dispersive use. Environmental factors not influenced by risk management: Indoor/Outdoor use. Consumer use. Other given operational conditions affecting environmental exposure: Indoor/Outdoor use. Consumer use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Release fraction to soil from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC8a: 0,00. - ERC8d: 0,20. Conditions and measures related to municipal sewage treatment plant: Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal Sewage system/treatment plant: >>2000 m3/day (standard town).	,		Frequency - covers use frequency: up to 1 time/day.					
management: Inhalation factor = 1. Dermal transfer factor = 1. Other given operational conditions affecting consumers exposure: Location: Indoor use. Body weight: 60 kg. 2.2 Control of environmental exposure Body weight: 60 kg. General: All risk management measures utilised must also comply with all relevant local regulations. Product characteristics: Vapour pressure: 0.358 Pa at 25 °C Amounts used: Daily wide dispersive use: 0.0000027 tons/day. Amounts used in the EU: 5 tons/year. Frequency and duration of use: Wide dispersive use. Environmental factors not influenced by risk management: Indoor/Outdoor use. Consumer use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Release fraction to asil from process: - ERC8a: 0,00. - ERC8a: 0,20. Conditions and measures related to municipal sewage treatment plant: Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal Sewage System/treatment plant: >=2000 m3/day (standard town).	Human factors not influe	nced by risk	Body parts potentially exposed: Whole body.					
Dermal transfer factor = 1. Other given operational conditions affecting consumers exposure: Location: Indoor use. Body weight: 60 kg. 2.2 Control of environmental exposure General: All risk management measures utilised must also comply with all relevant local regulations. Product characteristics: Vapour pressure: 0.358 Pa at 25 °C Amounts used: Daily wide dispersive use: 0.000027 tons/day. Amounts used in the EU: 5 tons/year. Frequency and duration of use: Wide dispersive use. Environmental factors not influenced by risk management: Flow rate of receiving surface water: >=18000 m3/day (default). Other given operational conditions affecting environmental exposure: Indoor/Outdoor use. Consumer use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Release fraction to avatewater from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC8a: 0,00. - ERC8a: 0,20. Conditions and measures related to municipal sewage treatment Plant (STP): Yes (Efficiency=87,47%).	management:		Inhalation factor = 1.					
Other given operational conditions affecting consumers exposure: Location: Indoor use. Body weight: 60 kg. Body weight: 60 kg. 2.2 Control of environmental exposure All risk management measures utilised must also comply with all relevant local regulations. Product characteristics: Vapour pressure: 0.358 Pa at 25 °C Amounts used: Daily wide dispersive use: 0.0000027 tons/day. Amounts used in the EU: 5 tons/year. Frequency and duration of use: Wide dispersive use. Environmental factors not influenced by risk management: Flow rate of receiving surface water: >=18000 m3/day (default). Other given operational conditions affecting environmental exposure: Indoor/Outdoor use. Consumer use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Release fraction to wastewater from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC8a: 0,00. - ERC8a: 0,00. - ERC84: 0,20. Conditions and measures related to municipal sewage treatment plant: Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).			Dermal transfer factor = 1.					
consumers exposure: Body weight: 60 kg. 2.2 Control of environmental exposure Image: Consumer sexposure: General: All risk management measures utilised must also comply with all relevant local regulations. Product characteristics: Vapour pressure: 0.358 Pa at 25 °C Amounts used: Daily wide dispersive use: 0.0000027 tons/day. Amounts used in the EU: 5 tons/year. Frequency and duration of use: Wide dispersive use. Environmental factors not influenced by risk management: Flow rate of receiving surface water: >=18000 m3/day (default). Other given operational conditions affecting environmental exposure: Indoor/Outdoor use. Consumer use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC8a: 0,00. - ERC8a: 0,00. - ERC8a: 0,00. - ERC8a: 0,00. Conditions and measures related to municipal sewage treatment plant: Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).	Other given operational of	conditions affecting	Location: Indoor use.					
2.2 Control of environmental exposure General: All risk management measures utilised must also comply with all relevant local regulations. Product characteristics: Vapour pressure: 0.358 Pa at 25 °C Amounts used: Daily wide dispersive use: 0.0000027 tons/day. Amounts used in the EU: 5 tons/year. Frequency and duration of use: Wide dispersive use. Environmental factors not influenced by risk management: Flow rate of receiving surface water: >=18000 m3/day (default). Other given operational conditions affecting environmental exposure: Indoor/Outdoor use. Consumer use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC8a: 0,00. - ERC8a: 0,00. - ERC8d: 0,20. Conditions and measures related to municipal sewage treatment plant: Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).	consumers exposure:		Body weight: 60 kg.					
General: All risk management measures utilised must also comply with all relevant local regulations. Product characteristics: Vapour pressure: 0.358 Pa at 25 °C Amounts used: Daily wide dispersive use: 0.0000027 tons/day. Amounts used in the EU: 5 tons/year. Frequency and duration of use: Wide dispersive use. Environmental factors not influenced by risk management: Flow rate of receiving surface water: >=18000 m3/day (default). Other given operational conditions affecting environmental exposure: Indoor/Outdoor use. Consumer use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Release fraction to wastewater from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC8a: 0,00. - ERC8a: 0,00. - ERC8a: 0,00. - ERC8d: 0,20. Conditions and measures related to municipal sewage treatment plant: Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).	2.2 Control of environmen	ntal exposure						
Product characteristics: Vapour pressure: 0.358 Pa at 25 °C Amounts used: Daily wide dispersive use: 0.0000027 tons/day. Amounts used in the EU: 5 tons/year. Frequency and duration of use: Wide dispersive use. Environmental factors not influenced by risk management: Flow rate of receiving surface water: >=18000 m3/day (default). Other given operational conditions affecting environmental exposure: Indoor/Outdoor use. Consumer use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Release fraction to wastewater from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC8a: 0,00. - ERC8d: 0,20. Conditions and measures related to municipal sewage treatment plant; Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant; >=2000 m3/day (standard town).			All risk management measures utilised must also comply with all relevant local regulations.					
Amounts used: Daily wide dispersive use: Frequency and duration of use: Wide dispersive use. Environmental factors not influenced by risk management: Flow rate of receiving surface water: >=18000 m3/day (default). Other given operational conditions affecting environmental exposure: Indoor/Outdoor use. Consumer use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Local release fraction to vastewater from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC8a: 0,00. - ERC8d: 0,20. Conditions and measures related to municipal sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).	Product characteristics:		Vapour pressure: 0.358 Pa at 25 °C					
Frequency and duration of use: Wide dispersive use. Environmental factors not influenced by risk management: Flow rate of receiving surface water: >=18000 m3/day (default). Other given operational conditions affecting environmental exposure: Indoor/Outdoor use. Consumer use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Release fraction to vastewater from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC8a: 0,00. - ERC8a: 0,00. - ERC8d: 0,20. Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).	Amounts used:		Daily wide dispersive use: 0.0000027 tons/day.					
Environmental factors not influenced by risk management: Flow rate of receiving surface water: >=18000 m3/day (default). Other given operational conditions affecting environmental exposure: Indoor/Outdoor use. Consumer use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Release fraction to wastewater from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC8a: 0,00. - ERC8d: 0,20. - ERC8d: 0,20. Conditions and measures related to municipal sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).	Erequency and duration	of use:	Wide dispersive use					
Index results of net mindericed by hist From rate of recoming statutes water. From roces index matches and recoming statutes and recoming statutes and recoming statutes and recoming statutes and recoming statutes. Conditions and measures related to municipal sewage treatment plant; Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant; Size of municipal sewage system/treatment plant; >=2000 m3/day (standard town).	Environmental factors no	of use.	Flow rate of receiving surface water: >=18000 m3/day (default)					
Other given operational conditions affecting environmental exposure: Indoor/Outdoor use. Consumer use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Release fraction to wastewater from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC8a: 0,00. - ERC8d: 0,20. Conditions and measures related to municipal sewage treatment plant; Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%).	management:							
environmental exposure: Consumer use. Release fraction to air from process (initial release): 1,00; (final release): 1,00. Release fraction to wastewater from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC8a: 0,00. - ERC8d: 0,20. Conditions and measures related to municipal sewage Treatment Plant (STP): Yes (Efficiency=87,47%). size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).	Other given operational of	conditions affecting	Indoor/Outdoor use.					
Release fraction to air from process (initial release): 1,00; (final release): 1,00. Release fraction to wastewater from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC8a: 0,00. - ERC8d: 0,20. Conditions and measures related to municipal sewage Treatment Plant (STP): Yes (Efficiency=87,47%). sewage treatment plant;	environmental exposure:	:	Consumer use.					
Release fraction to wastewater from process (initial release): 1,00; (final release): 1,00. Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC8a: 0,00. - ERC8d: 0,20. Conditions and measures related to municipal sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).			Release fraction to air from process (initial release): 1,00; (final release): 1,00.					
Local release rate: 0,00275 kg/day. Release fraction to soil from process: - ERC8a: 0,00. - ERC8d: 0,20. Conditions and measures related to municipal sewage Treatment Plant (STP): Yes (Efficiency=87,47%). sewage treatment plant; Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).			Release fraction to wastewater from process (initial release): 1,00; (final release): 1,00.					
Release traction to soil from process: - ERC8a: 0,00. - ERC8d: 0,20. Conditions and measures related to municipal sewage Treatment Plant (STP): Yes (Efficiency=87,47%). sewage treatment plant; Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).			Local release rate: 0,00275 kg/day.					
- ERC6a: 0,00. - ERC8d: 0,20. Conditions and measures related to municipal sewage treatment plant; Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).			Release fraction to soil from process:					
Conditions and measures related to municipal sewage treatment plant; Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%). Size of municipal sewage system/treatment plant; Size of municipal sewage system/treatment plant; >=2000 m3/day (standard town).			- ERC8d: 0,00.					
sewage treatment plant: Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).	Conditions and measure	s related to municipal	Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87.47%)					
	sewage treatment plant:		Size of municipal sewage system/treatment plant: >=2000 m3/day (standard town).					

Conditions and measures treatment of waste for dis	related to external	External treatment and disposal of waste should comply with applicable local and/or national regulations.					
Conditions and measures	related to external	External recovery and recycling of waste should comply with applicable local and/or national					
recovery of waste:		regulations.					
Additional good practice a	dvice. Obligations	All risk management measu	All risk management measures utilised must also comply with all relevant local regulations.				
according to Article 37(4)	of REACH do not						
3 Exposure estimation on	d reference to its sourc						
Bealth		;e					
Information for contributing	scenario (1): PC8						
Assessment method: TRA	Consumer v3.1 (R15).						
Exposure estimation:							
	<u>Route</u>	Exposure estimate	RCR	Notes			
Consumer, long-term, sys	temic Dermal	0,292 mg/kg bw/day	0,327				
Consumer, long-term, sys	temic Inhalation	0,000431 mg/m3	<0,01				
Consumer, long-term, sys	temic Oral	0 mg/kg bw/day	<0,01				
Consumer, long-term, sys	temic Combined ro	utes N/A	0,327				
Environment							
Information for contributing	scenario (2): ERC8a, I	ERC8d					
Assessment method: EUS	ES 2.1.2.						
Exposure estimation:							
Compartment	PEC	RCR	<u>Notes</u>				
Freshwater	0,0000555 m	ng/L <0,01					
Freshwater sediment	0,000849 mg	ı/kg dw <0,01					
Marine water	0,000053 m	ng/L <0,01					
Marine water sediment	0,000081 mg	y/kg dw <0,01					
Soil	0,000155 mg	y/kg dw <0,01					
Man via environment	0,00000019 0,00000395	mg/m3 / <0,01 / </th <th>0,01 Inhalation / Oral</th> <th></th>	0,01 Inhalation / Oral				
Man via environment-Con routes	nbined N/A	<0,01					
RCR=Risk characterization	n ratio (PEC/PNEC or E	xposure estimate/DNEL); PE	C=Predicted environment	al concentration.			
4. Guidance to the Downst	ream User to evaluate	whether he works inside the	boundaries set by the E	S			
Health:	Predicted exposures ar Conditions outlined in S are adopted, then users	e not expected to exceed the section 2 are implemented. Wh should ensure that risks are	DN(M)EL when the Risk langement of the Risk Management of the Risk Management of the Risk equiv	Management Measures/Operational ent Measures/Operational Conditions valent levels.			
Environment:	Guidance is based on a	issumed operating conditions	which may not be applica	ble to all sites; thus, scaling may be			
	necessary to define app can be achieved using	propriate site-specific risk man	lagement measures. Req her alone or in combinatio	ulred removal efficiency for wastewater			
	unsafe use (i.e., RCRs	 > 1), additional RMMs or a site 	e-specific chemical safety	/ assessment is required.			
Exposure scenario (11):	Consumer use - Cor	sumer end-use of cosmeti	CS				
1. Exposure scenario (11)							
Short title of the exposure	scenario:						
Consumer use - Consume	er end-use of cosmetics	;					
List of use descriptors:	220						
Finduct category (PC): PC	539 tegory (ERC): ERC8a						
Name of contributing envir	onmental scenario and	corresponding ERCs:					
ERC8a Widespread use of	of non-reactive processi	ng aid (no inclusion into or on	to article, indoor).				
Further explanations:							
PC39 Cosmetics, persona	al care products.	he European Chamical Acapasy (EC)	A) Guidanco on information	quirements and chemical cafety accomment			
Chapter R.12: Use descriptor system	stem (http://guidance.echa.e	uropa.eu/docs/guidance_document/i	nformation_requirements_r12_e	en.pdf).			
2. Conditions of use affect	ing exposure						
2.1 Control of consumer ex	kposure						

Product characteristics:		Concentration of substance in product: Up to 0,01%.				
		Physical state: liquid.				
		Oral contact foreseen: Yes.				
Amounto usodi		Spray: No.	wants EQ a			
Amounts used:		Applied arriounts for each use e	vent: 50 g.			
Frequency and duration of use/exp	bosure:	Eroquency covers exposure up to	ov: up to 1 time/day	,		
Human factors not influenced by r	ek	Body parts potentially exposed:	Whole body			
management:	SK	body parts potentially exposed. Inhalation factor = 1	whole body.			
management.		Dermal transfer factor = 1				
		Oral transfer factor = 1.				
		Volume of product swallowed: <	= 10.0 cm3.			
Other given operational conditions	affecting	Location: Indoor use.				
consumers exposure:	Ū	Body weight: 60 kg.				
2.2 Control of environmental expos	ure					
General:		All risk management measures	utilised must also co	omply with all releva	nt local regulations.	
Product characteristics:		Vapour pressure: 0.358 Pa at 2	5 °C			
Amounts used:		Daily wide dispersive use: 0.000	0027 tons/day.			
		Amounts used in the EU: 5 tons	/year.			
Frequency and duration of use:		Wide dispersive use.				
Environmental factors not influence	ed by risk	Flow rate of receiving surface w	ater: >=18000 m3/c	lay (default).		
management:	-	-		,		
Other given operational conditions	affecting	Indoor use.				
environmental exposure:		Consumer use.				
		Release fraction to air from proc	cess (initial release)	: 1,00; (final release)	: 1,00.	
		Release fraction to wastewater	from process (initial	release): 1,00; (fina	l release): 1,00.	
		Local release rate: 0,00275 kg/day.				
	<u> </u>	Release fraction to soil from process: 0,0.				
Conditions and measures related t	o municipal	Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%).				
Sewage treatment plant:		Size of municipal sewage system/treatment plant. >-zooo mo/day (standard town).				
treatment of waste for disposal:	o external	External treatment and disposal of waste should comply with applicable local and/or national regulations				
Conditions and massures related t		External recovery and recycling of waste should comply with applicable local and/or national				
recovery of waste:	o external	regulations				
Additional good practive advice	bligations	All risk management measures utilised must also comply with all relevant local regulations				
according to Article 37(4) of REAC	H do not	All hist management measures				
apply:						
3 Exposure estimation and referen	ce to its source					
Health						
Information for contributing scenario	(1): PC39					
Accompany method: TBA Consum	O(1) $O(1)$ $O(1)$					
Evenesure estimation:	er vo. r (r r o).					
	Bouto	Experience estimate	BCB	Notoo		
	Roule			<u>INOLES</u>		
Consumer, long-term, systemic	Dermal	0,292 mg/kg bw/day	0,327			
Consumer, long-term, systemic	Inhalation	0,000431 mg/m3	<0,01			
Consumer, long-term, systemic	Oral	0,017 mg/kg bw/day	0,019			
Consumer, long-term, systemic	Combined rou	tes N/A	0,346			
Environment						
Information for contributing scenario	o (2): ERC8a					
Assessment method: EUSES 2.1.2						
Exposure estimation:						
Compartment	PEC	RCR	Notes			
Erochwater		//	110163			
	0,0000555 mg	/L <0,01				
Freshwater sediment	0,000849 mg/l	kg dw <0,01				
Marine water	0,0000053 mg	/L <0,01				
Marine water sediment	0,000081 mg/ł	kg dw <0,01				

Compartment	PEC		<u>RCR</u>	<u>Notes</u>		
Soil	0,000155 m	g/kg dw	<0,01			
Man via environment	0,00000019 0,00000395	mg/m3 / mg/kg bw/day	<0,01 / <0,01	Inhalation / Oral		
Man via environment-Co routes	mbined N/A		<0,01			
RCR=Risk characterization	on ratio (PEC/PNEC or E	Exposure estimate	e/DNEL); PEC=Pred	icted environmental concentration.		
4. Guidance to the Down	stream User to evaluate	e whether he wor	ks inside the bound	aries set by the ES		
Health:	Predicted exposures a Conditions outlined in S are adopted, then user	re not expected to Section 2 are imp s should ensure t	o exceed the DN(M)E lemented. Where oth hat risks are manage	EL when the Risk Management Measures/Operational ner Risk Management Measures/Operational Conditions ed to at least equivalent levels.		
Environment:	Environment: Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wasteward can be achieved using onsite/offsite technologies, either alone or in combination. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.					
Exposure scenario (12)	Consumer use - Cor	nsumer end-use	e of washing and c	leaning products		
Short title of the exposure) scopario:					
Consumer use - Consum	er end-use of washing :	and cleaning proc	lucts			
List of use descriptors:		and oleaning proc	10010			
Product category (PC): F	PC35					
Name of contributing env	ironmental scenario an	d corresponding	FRCe			
ERC8d Widespread use	of non-reactive process	ing aid (no inclus	ion into or onto article	e, outdoor).		
Further explanations:						
PC35 Washing and clear	ning products.					
For further information on stand Chapter R.12: Use descriptor s	dardized use descriptors see t ystem (http://guidance.echa.e	the European Chemic europa.eu/docs/guida	cal Agency (ECHA) Guida nce_document/informatio	ance on information requirements and chemical safety assessment, on_requirements_r12_en.pdf).		
2. Conditions of use affect	ting exposure					
2.1 Control of consumer	exposure					
Product characteristics:		Concentration	of substance in prod	uct: Up to 0,01%.		
		Physical state:	liquid.			
		Oral contact fo	reseen: No.			
		Spray: No.				
Amounts used:	-	Applied amoun	ts for each use even	it: 50 g.		
Frequency and duration	of use/exposure:	Duration cover Frequency - co	s exposure up to: 8 overs use frequency:	hours/event. up to 1 time/day.		
Human factors not influe	nced by risk	Body parts pot	entially exposed: Wh	nole body.		
management:		Inhalation facto	or = 1.			
		Dermal transfe	r factor = 1.			
Other given operational of consumers exposure:	conditions affecting	Location: Indoo Body weight: 6	or use. 0 kg.			
2.2 Control of environmen	ntal exposure					
General:		All risk manage	ement measures utilis	sed must also comply with all relevant local regulations.		
Product characteristics:		Vapour pressu	re: 0.358 Pa at 25 °C	2		
Amounts used:		Daily wide disp	ersive use: 0.000002	27 tons/day.		
		Amounts used	in the EU: 5 tons/yea	ar.		
Frequency and duration	of use:	Wide dispersiv	e use.			
Environmental factors no management:	ot influenced by risk	Flow rate of re	ceiving surface water	r: >=18000 m3/day (default).		
Other given operational	conditions affecting	Outdoor use.				
environmental exposure:		Consumer use				
		Release fraction	on to air from process	s (initial release): 1,00; (final release): 1,00.		
		Release fraction	on to wastewater from	n process (initial release): 1,00; (final release): 1,00.		
		Local release r	ate: 0,00275 kg/day.			
		Release fractio	n to soil from proces	SS: 0,20.		
Conditions and measure	s related to municipal	Municipal Sew	age Treatment Plant	(STP): Yes (Efficiency=87,47%).		
sewage treatment plant:		Size of municip	bai sewage system/tr	earment plant: >=2000 m3/day (standard town).		

Conditions and measures related to external		n al Exte	External treatment and disposal of waste should comply with applicable local and/or national					
treatment of waste for dis	sposal:	regu	regulations.					
Conditions and measures	s related to extern	nal Exte	External recovery and recycling of waste should comply with applicable local and/or national					
Additional good practive advice Obligations		ns All ri	All risk management measures utilized must also comply with all relevant local regulations					
according to Article 37(4)	of REACH do no	ot	lok management					
apply:								
3. Exposure estimation ar	nd reference to its	s source						
Health								
Information for contributing	g scenario (1): PC	235						
Assessment method: TRA	Consumer v3.1	(R15).						
Exposure estimation:								
	<u>Route</u>	<u>.</u>	Exposure estir	<u>nate</u>	<u>RCR</u>	Notes		
Consumer, long-term, sy	stemic Derma	al	0,292 mg/kg bv	w/day	0,327			
Consumer, long-term, sy	stemic Inhala	tion	0,000431 mg/n	n3	<0,01			
Consumer, long-term, sy	stemic Oral		0 mg/kg bw/da	у	<0,01			
Consumer, long-term, sy	stemic Comb	ined routes	N/A		0,327			
Environment								
Information for contributing	g scenario (2): EF	RC8d						
Assessment method: EUS	SES 2.1.2.							
Exposure estimation:								
<u>Compartment</u>	PEC		<u>R</u>	<u>CR</u>	<u>Notes</u>			
Freshwater	0,000	0555 mg/L	<(0,01				
Freshwater sediment	0,000	349 mg/kg d\	N <(0,01				
Marine water	0,000	0053 mg/L	<(0,01				
Marine water sediment	0,000	081 mg/kg dv	N <(0,01				
Soil	0,000	155 mg/kg dv	N <(0,01				
Man via environment	0,000 0,000	00019 mg/m3 00395 mg/kg	3 / <(bw/day	0,01 / <0,01	Inhalation / Oral			
Man via environment-Co routes	mbined N/A		<(0,01				
RCR=Risk characterizatio	n ratio (PEC/PNE	C or Exposu	ure estimate/DNE	L); PEC=Predi	icted environmenta	al concentration.		
4. Guidance to the Downs	stream User to ev	aluate whet	her he works ins	ide the bounda	aries set by the ES	3		
Health:	Predicted expose Conditions outlin are adopted, the	ures are not o ed in Sectior n users shou	expected to exce a 2 are implemen Id ensure that ris	eed the DN(M)E ted. Where oth sks are manage	EL when the Risk M er Risk Manageme ed to at least equiv	Aanagement Measures/Operational ent Measures/Operational Conditions alent levels.		
Environment: Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.						ble to all sites; thus, scaling may be uired removal efficiency for wastewater n. If scaling reveals a condition of assessment is required.		
Exposure scenario (13):	Consumer use	- Consume	er end-use of fr	agrances				
1. Exposure scenario (13)								
Short title of the exposure	scenario:							
Consumer use - Consum	er end-use of frag	grances						
Product category (PC): P	C28 ategory (ERC): EF	2089						
Name of contributing envi	ronmental scena	rio and corre	sponding ERCs	:				
ERC8a Widespread use	of non-reactive pr	ocessing aid	I (no inclusion int	o or onto article	e, indoor).			
Further explanations:	•				-			
PC28 Perfumes, fragrand	ces.							
For further information on stand Chapter R.12: Use descriptor sy	ardized use descripto /stem (http://guidance	ors see the Euro e.echa.europa.e	opean Chemical Age eu/docs/guidance_do	ncy (ECHA) Guida cument/informatio	nce on information rec n_requirements_r12_e	uirements and chemical safety assessment, n.pdf).		
2. Conditions of use affec	ting exposure							
2.1 Control of consumer e	exposure							

Product characteristics:		Concentration of substance in product: Up to 0,01%.					
		Physical state: liquid.					
		Oral contact foreseen: No.					
Amounts used:		Spray: Yes.					
Amounts used:		Applied amounts for each use event: 50 g.					
Frequency and duration of use/exposure:		uration covers exposure up to:	8 hours/event.				
Liveren festere net influenced by	Fr	equency - covers use frequen	cy: up to 1 time/day				
Human factors not influenced by risk		bdy parts potentially exposed:	whole body.				
management:		Innalation factor = 1.					
Other given operational conditions	affecting						
consumers exposure:	Bo	Body weight: 60 kg.					
2.2 Control of environmental expos	sure						
General:	AI	I risk management measures	utilised must also co	mply with all relevant local regu	ulations.		
Product characteristics:	Va	Vapour pressure: 0.358 Pa at 25 °C					
Amounts used:	Da	aily wide dispersive use: 0.000	0027 tons/day.				
	Ar	mounts used in the EU: 5 tons	/year.				
Frequency and duration of use:	W	ide dispersive use.					
Environmental factors not influence management:	ed by risk Fl	ow rate of receiving surface w	ater: >=18000 m3/d	ay (default).			
Other given operational conditions	affecting In	door use.					
environmental exposure:	C	onsumer use.					
	R	elease fraction to air from proc	ess (initial release):	1,00; (final release): 1,00.			
	Re	elease fraction to wastewater	from process (initial	release): 1,00; (final release): 1	,00.		
	Lo	ocal release rate: 0,00275 kg/c	lay.				
	R(elease fraction to soil from pro	cess: 0,0.				
Conditions and measures related	to municipal M	Municipal Sewage Treatment Plant (STP): Yes (Efficiency=87,47%).					
Conditions and moasures related :		Size or municipal sewage system/treatment plant: >=2000 m3/day (standard town).					
Conditions and measures related to external treatment of waste for disposal:		regulations					
Conditions and measures related to external		External recovery and recycling of waste should comply with applicable local and/or national					
recovery of waste:		regulations.					
Additional good practive advice. Obligations		All risk management measures utilised must also comply with all relevant local regulations.					
according to Article 37(4) of REACH do not							
3. Exposure estimation and referen	nce to its source						
	- (4): DO00						
	0 (1): PC28						
Assessment method: TRA Consum	ier v3.1 (R15).						
Exposure estimation:				•• •			
	Route	Exposure estimate	<u>RCR</u>	Notes			
Consumer, long-term, systemic	Dermal	0,292 mg/kg bw/day	0,327				
Consumer, long-term, systemic	Inhalation	0,043 mg/m3	0,033				
Consumer, long-term, systemic	Oral	0 mg/kg bw/day	<0,01				
Consumer, long-term, systemic	Combined routes	s N/A	0,36				
Environment							
Information for contributing scenario (2): ERC8a							
Assessment method: EUSES 2.1.2							
Exposure estimation:							
<u>Compartment</u>	PEC	RCR	<u>Notes</u>				
Freshwater	0,0000555 mg/L	<0,01					
Freshwater sediment	0,000849 mg/kg	dw <0,01					
Marine water	0,0000053 mg/L	<0,01					
Marine water sediment	0,000081 mg/kg	dw <0,01					
Soil	0,000155 ma/ka	dw <0.01					
	2,000.00 mg/ng						

Compartment	PEC		<u>RCR</u>	<u>Notes</u>
Man via environment	0,0000019	9 mg/m3 /	<0,01 / <0,01	Inhalation / Oral
	0,000039	ō mg/kg bw/day		
Man via environment-Co	ombined N/A		<0,01	
routes				
RCR=Risk characterizati	on ratio (PEC/PNEC or	Exposure estimate	/DNEL); PEC=Pred	licted environmental concentration.
4. Guidance to the Down	stream User to evaluat	te whether he work	s inside the bound	aries set by the ES
Health:	Predicted exposures a	are not expected to	exceed the DN(M)	EL when the Risk Management Measures/Operational
	Conditions outlined in	Section 2 are imple	emented. Where oth	ner Risk Management Measures/Operational Conditions
	are adopted, then use	rs should ensure th	at risks are manage	ed to at least equivalent levels.
Environment:	Guidance is based on	assumed operating	g conditions which r	may not be applicable to all sites; thus, scaling may be
	necessary to define a	opropriate site-spec	ific risk manageme	ent measures. Required removal efficiency for wastewater
	can be achieved using	g onsite/offsite tech	nologies, either alor	ne or in combination. If scaling reveals a condition of
	unsafe use (i.e., RCR	s > 1), additional RI	MMs or a site-speci	fic chemical safety assessment is required.
Exposure scenario (14)	: Consumer use - Co	nsumer end-use	of air care produ	cts
1. Exposure scenario (14	+)			
Short title of the exposure	e scenario:			
Consumer use - Consur	ner end-use of air care	products		
List of use descriptors:				
Product category (PC): I	PC3			
Environmental release c	ategory (ERC): ERC8a			
Name of contributing env	vironmental scenario ar	nd corresponding E	RCs:	
ERC8a Widespread use	of non-reactive proces	sing aid (no inclusio	on into or onto articl	e, indoor).
Further explanations:				
PC3 Air care products.				
For further information on stan Chapter R.12: Use descriptor s	dardized use descriptors see system (http://guidance.echa	the European Chemica .europa.eu/docs/guidan	al Agency (ECHA) Guida	ance on information requirements and chemical safety assessment, on requirements r12 en.pdf).
2. Conditions of use affe	ctina exposure			
2.1 Control of consumer	exposure			
Product characteristics:		Concentration o	f substance in prod	luct: Up to 0.01%.
		Physical state: I	iquid.	
		Oral contact for	eseen: No.	
		Spray: Yes.		
Amounts used:		Applied amount	s for each use ever	nt: 50 g.
Frequency and duration	of use/exposure:	Duration covers	exposure up to: 8	hours/event.
		Frequency - cov	vers use frequency:	up to 1 time/day.
Human factors not influe	enced by risk	Body parts pote	ntially exposed: Wh	nole body.
management:		Inhalation factor	· = 1.	
		Dermal transfer	factor = 1.	
Other given operational	conditions affecting	Location: Indoor	use.	
consumers exposure:		Body weight: 60	kg.	
2.2 Control of environme	ntal exposure			
General:		All risk manager	ment measures utili	ised must also comply with all relevant local regulations.
Product characteristics:		Vapour pressure	e: 0.358 Pa at 25 °C	
Amounts used:		Daily wide dispe	ersive use: 0.00000	27 tons/day.
	-	Amounts used in	n the EU: 5 tons/ye	ar.
Frequency and duration	of use:	Wide dispersive	use.	
Environmental factors no	ot influenced by risk	Flow rate of rec	eiving surface wate	r: >=18000 m3/day (default).
management:				
Other given operational	conditions affecting	Indoor use.		
environmentai exposure	•	Poloaso fraction	to air from process	s (initial roloaso): 1 00: (final roloaso): 1 00
		Release fraction	to an norn process	n process (initial release): 1.00. (final release): 1.00.
		Local release ra	te: 0.00275 kg/day	
		Release fraction	to soil from proces	ss: 0,0.
Conditions and measure	s related to municipal	Municipal Sewa	ge Treatment Plant	: (STP): Yes (Efficiency=87,47%).
		Size of municing	al soware system/t	reatment plant: >=2000 m3/day (standard town)

Conditions and measures related to external		External treatment and disposal of waste should comply with applicable local and/or national				
treatment of waste for disposal:		regulations.				
Conditions and measures related to external recovery of waste:		External recovery and recycling of waste should comply with applicable local and/or national regulations				
Additional good practive advice. Obligations		All risk management measures utilised must also comply with all relevant local regulations.				
according to Article 37(4) of REAC	H do not	Ū				
apply:						
3. Exposure estimation and referen	nce to its source					
Health	(1) 500					
Information for contributing scenario	o (1): PC3					
Assessment method: TRA Consum	er v3.1 (R15).					
Exposure estimation:	Bouto	Exposure estimate	PCP	Notoo		
Consumer long term systemic	Dormal	0.202 mg/kg bw/day	0.327	NULES		
Consumer, long-term, systemic		0,292 mg/kg bw/day	0,327			
Consumer long-term systemic		0,043 mg/m3	<0.01			
Consumer, long-term, systemic	Combined routes	N/A	0.36			
	Combined Toules	IN/A	0,30			
Information for contributing scenario	n (2): ERC8a					
Assessment method: FUSES 2.1.2	5 (2). ERODA					
Exposure estimation:						
Compartment	PEC	RCR	Notes			
Freshwater	0.000055 ma/L	<0.01				
Freshwater sediment	0.000849 mg/kg dy	w <0.01				
Marine water	0.0000053 mg/l	<0.01				
Marine water sediment	0.000081 mg/kg dy	×0,01				
Soil	0.000155 mg/kg d	w <0,01				
Man via environment	0,000100119 mg/mg	3/ <0.01/<0.01	Inhalation / Oral			
	0,00000395 mg/kg	bw/day				
Man via environment-Combined routes	N/A	<0,01				
RCR=Risk characterization ratio (P	EC/PNEC or Exposu	ure estimate/DNEL); PEC=F	Predicted environmenta	I concentration.		
4. Guidance to the Downstream Us	ser to evaluate whet	her he works inside the bo	undaries set by the ES	3		
Health: Predicted Condition are adop	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.					
Environment: Guidance	It: Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be					
necessar	necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater					
can be a	chieved using onsite	/offsite technologies, either	alone or in combination	n. If scaling reveals a condition of		
unsare use (i.e., KCKS > 1), additional KIVIIVIS or a site-specific chemical safety assessment is required.						
1 Exposure scenario (15). Consum	ier use - Consume	er end-use or polishes ar				
Short title of the exposure scenario:						
Consumer use - Consumer end-use of polishes and wax blends						
List of use descriptors:						
Product category (PC): PC31						
Environmental release category (ERC): ERC8a						
Name of contributing environmental scenario and corresponding ERCs:						
Further explanations:						
PC31 Polishes and wax blends.						
For further information on standardized use descriptors see the European Chemical Agency (ECHA) Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (http://guidance.echa.europa.eu/docs/guidance_document/information_requirements_r12_en.pdf).						
2. Conditions of use affecting exposure						

2.1 Control of consumer exposure

Product characteristics:		Concentration of substance in product: Up to 0,01%.				
		Physical state: liquid.				
		Oral contact foreseen: No.				
		Spray: No.				
Amounts used:		Applied amounts	for each use e	vent: 50 g.		
Frequency and duration of use/exposure:		Duration covers	exposure up to	: 8 hours/event.		
		Frequency - cov	ers use frequer	icy: up to 1 time/day.		
Human factors not influenced by r	ISK	Body parts poter	ntially exposed:	whole body.		
management.		Dermal transfer t	= 1. factor = 1			
Other given operational conditions	affecting	Location: Indoor	use			
consumers exposure:	unooung	Body weight: 60	kg.			
2.2 Control of environmental expos	sure	, ,	0			
General:		All risk managen	nent measures	utilised must also cor	nply with all relevant local regulations	
Product characteristics:		Vapour pressure: 0.358 Pa at 25 °C				
Amounts used:		Daily wide dispe	rsive use: 0.000	00027 tons/day.		
		Amounts used in	the EU: 5 tons	/year.		
Frequency and duration of use:		Wide dispersive	use.			
Environmental factors not influenc	ed by risk	Flow rate of rece	iving surface w	ater: >=18000 m3/da	y (default).	
management:						
Other given operational conditions	affecting	Indoor use.				
environmental exposure:		Consumer use.				
		Release fraction	to air from proc	cess (initial release):	1,00; (final release): 1,00.	
		Release fraction	to wastewater	from process (initial r	elease): 1,00; (final release): 1,00.	
		Release fraction	to soil from pro	ay. Incess: 0.0		
Conditions and measures related	to municipal	Municipal Sewar	e Treatment P	ant (STP): Yes (Effi	siency=87 47%)	
sewage treatment plant:	lo manopar	Size of municipal sewage system/treatment plant: >=2000 m3/dav (standard town)				
Conditions and measures related	to external	External treatment and disposal of waste should comply with applicable local and/or national				
treatment of waste for disposal:		regulations.				
Conditions and measures related to external		External recovery and recycling of waste should comply with applicable local and/or national				
recovery of waste:		regulations.				
Additional good practive advice. Obligations		All risk management measures utilised must also comply with all relevant local regulations.				
according to Article 37(4) of REAC	CH do not					
apply:						
3. Exposure estimation and referen	nce to its source	•				
Health						
Information for contributing scenario	o (1): PC31					
Assessment method: TRA Consum	er v3.1 (R15).					
Exposure estimation:						
	<u>Route</u>	Exposure	<u>estimate</u>	RCR	<u>Notes</u>	
Consumer, long-term, systemic	Dermal	0,292 mg/k	g bw/day	0,327		
Consumer, long-term, systemic	Inhalation	0,000431 r	ng/m3	<0,01		
Consumer, long-term, systemic	Oral	0 mg/kg bv	0 mg/kg bw/day			
Consumer, long-term, systemic	Combined rou	tes N/A		0,327		
Environment						
Information for contributing scenario	o (2): ERC8a					
Information for contributing scenario Assessment method: EUSES 2.1.2	o (2): ERC8a					
Information for contributing scenario Assessment method: EUSES 2.1.2 Exposure estimation:	o (2): ERC8a					
Information for contributing scenario Assessment method: EUSES 2.1.2 Exposure estimation: Compartment	o (2): ERC8a <u>PEC</u>		RCR	Notes		
Information for contributing scenario Assessment method: EUSES 2.1.2 Exposure estimation: Compartment Freshwater	o (2): ERC8a <u>PEC</u> 0,0000555 mc	/L	RCR <0,01	<u>Notes</u>		
Information for contributing scenario Assessment method: EUSES 2.1.2 Exposure estimation: Compartment Freshwater Freshwater sediment	o (2): ERC8a	/L ka dw	RCR <0,01 <0.01	<u>Notes</u>		
Information for contributing scenario Assessment method: EUSES 2.1.2 Exposure estimation: Compartment Freshwater Freshwater sediment Marine water	p (2): ERC8a	/L <g dw<br="">/I</g>	RCR <0,01 <0,01 <0.01	<u>Notes</u>		
Information for contributing scenario Assessment method: EUSES 2.1.2 Exposure estimation: Compartment Freshwater Freshwater sediment Marine water sediment	p (2): ERC8a	/L <g dw<br="">/L</g>	RCR <0,01 <0,01 <0,01	<u>Notes</u>		
Information for contributing scenario Assessment method: EUSES 2.1.2 Exposure estimation: Compartment Freshwater Freshwater sediment Marine water Marine water sediment	p (2): ERC8a PEC 0,0000555 mg 0,000849 mg/l 0,0000053 mg 0,000081 mg/l	/L <g dw<br="">/L <g dw<="" th=""><th>RCR <0,01 <0,01 <0,01 <0,01 <0,01 <0,01</th><th><u>Notes</u></th><th></th><th></th></g></g>	RCR <0,01 <0,01 <0,01 <0,01 <0,01 <0,01	<u>Notes</u>		

Compartment	<u> </u>	PEC	<u>RCR</u>	Notes		
Man via environment	(0,00000019 mg/m3 /	<0,01 / <0,01	Inhalation / Oral		
	(0,00000395 mg/kg bw/day				
Man via environment-Co	mbined I	N/A	<0,01			
routes						
RCR=Risk characterization ratio (PEC/PNEC or Exposure estimate/DNEL); PEC=Predicted environmental concentration.						
4. Guidance to the Downstream User to evaluate whether he works inside the boundaries set by the ES						
Health:	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational					
	Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions					
are adopted, then users should ensure that risks are managed to at least equivalent levels.						
Environment:	Environment: Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be					
	necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater					
	can be achieved using onsite/offsite technologies, either alone or in combination. If scaling reveals a condition of					
	unsafe use	(i.e., RCRs > 1), additional I	RMMs or a site-speci	fic chemical safety assessment is required.		