We create chemistry

Safety data sheet

BASF safety data sheet. This is a translation of the country-specific safety data sheet into a language other than that required by law. This document does not replace the safety data sheet provided according to Regulation (EC) No 1907/2006.
Date / Revised: 15.09.2022 Version: 1.0
Date previous version: not applicable Previous version: none
Date / First version: 15.09.2022
Product: **Dihydrorosan®**

(ID no. 30035075/SDS_GEN_PL/EN)
Date of print 20.10.2025

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

1.1. Product identifier

Dihydrorosan®

Chemical name: Tetrahydro-2-isobutyl-4-methyl-2H-pyran
CAS Number: 13477-62-8

REACH registration number: 01-2120079767-37-0000

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

Relevant identified uses: Chemical, Chemical for detergents, Chemical for soaps, detergents and cosmetic

For the detailed identified uses of the product see appendix of the safety data sheet.

1.3. Details of the supplier of the safety data sheet

Company:
BASF SE
67056 Ludwigshafen
GERMANY

Contact address:
BASF Polska Sp. z o.o.
Al. Jerozolimskie 142b
02-305 Warszawa
POLAND

Telephone: +48 22 5709-999 (8:00 - 17:00)
E-mail address: product-safety-poland@basf.com

1.4. Emergency telephone number

International emergency number:
Telephone: +49 180 2273-112

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 [CLP]

Skin Corr./Irrit. 2	H315 Causes skin irritation.
Aquatic Chronic 3	H412 Harmful to aquatic life with long lasting effects.

For the classifications not written out in full in this section the full text can be found in section 16.

2.2. Label elements

According to Regulation (EC) No 1272/2008 [CLP]

Pictogram:

Signal Word:

Warning

Hazard Statement:

H315	Causes skin irritation.
H412	Harmful to aquatic life with long lasting effects.

Precautionary Statements (Prevention):

P280	Wear protective gloves.
P273	Avoid release to the environment.

Precautionary Statements (Response):

P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P332 + P313	If skin irritation occurs: Get medical attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.

Precautionary Statements (Disposal):

P501	Dispose of contents and container to hazardous or special waste collection point.

2.3. Other hazards

According to Regulation (EC) No 1272/2008 [CLP]

The product does not contain a substance fulfilling the PBT (persistent/bioaccumulative/toxic) criteria or the vPvB (very persistent/very bioaccumulative) criteria. Product does not contain a substance above legal limits included in the list established in accordance with Article 59(1) of Regulation (EC) No 1907/2006 for having endocrine disrupting properties or is identified to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 3: Composition/Information on Ingredients

3.1. Substances

Chemical nature

Tetrahydro-2-isobutyl-4-methyl-2H-pyran

	Skin Corr./Irrit. 2
CAS Number: 13477-62-8	Aquatic Chronic 3
EC-Number: 236-770-1	H315, H412

For the classifications not written out in full in this section, including the hazard classes and the hazard statements, the full text is listed in section 16.

3.2. Mixtures

Not applicable

SECTION 4: First-Aid Measures

4.1. Description of first aid measures

Remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention.

On skin contact:
Wash thoroughly with soap and water

On contact with eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:
Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

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

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11., (Further) symptoms and / or effects are not known so far

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

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing media

Suitable extinguishing media:
water spray, dry powder, alcohol-resistant foam, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water jet

5.2. Special hazards arising from the substance or mixture

Endangering substances: harmful vapours, carbon oxides
Advice: The substances/groups of substances mentioned can be released in case of fire.
Combustible Liquid

5.3. Advice for fire-fighters

Special protective equipment:
Wear a self-contained breathing apparatus.

Further information:
Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations. Cool endangered containers with water-spray.

SECTION 6: Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective clothing. Information regarding personal protective measures, see section 8.
Ensure adequate ventilation. Do not breathe vapour/spray. Avoid contact with the skin, eyes and clothing.

6.2. Environmental precautions

Do not discharge into drains/surface waters/groundwater. Inform authorities in the event of product spillage to water courses or sewage systems.

6.3. Methods and material for containment and cleaning up

For large amounts: Dike spillage. Cover with blanket of foam (alcohol-resistant foam). Pump off product.
For residues: Contain with absorbent material (e.g. sand, silica gel, acid binder, general purpose binder, sawdust).
Dispose of absorbed material in accordance with regulations.

6.4. Reference to other sections

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

SECTION 7: Handling and Storage

7.1. Precautions for safe handling

Ensure thorough ventilation of stores and work areas. Wear suitable protective clothing and eye/face protection. Avoid contact with the skin, eyes and clothing. Keep container tightly sealed. This product may cause irritations; wash your hands after every contact.

Protection against fire and explosion:
Take precautionary measures against static discharges. Avoid all sources of ignition: heat, sparks, open flame.

7.2. Conditions for safe storage, including any incompatibilities

Further information on storage conditions: Keep container tightly closed and dry; store in a cool place.

7.3. Specific end use(s)

See exposure scenario(s) in the attachment to this safety data sheet.

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Components with occupational exposure limits

No substance specific occupational exposure limits known.

PNEC

freshwater: 0,0332 mg/l

marine water: 0,00332 mg/l

intermittent release: 0,332 mg/l

STP: 100 mg/l

sediment (freshwater): 2,52 mg/kg

sediment (marine water): 0,252 mg/kg

soil: 0,483 mg/kg

oral (secondary poisoning):
No PNEC value available.

DNEL

worker:
Long-term exposure- systemic effects, by inhalation: 14,69 mg/m3

worker:
Long-term exposure- systemic effects, dermal: 4,17 mg/kg

consumer:
Long-term exposure- systemic effects, by inhalation: 3,62 mg/m3

consumer:
Long-term exposure- systemic effects, dermal: 2,08 mg/kg

consumer:
Long-term exposure- systemic effects, oral: 2,08 mg/kg

8.2. Exposure controls

Personal protective equipment

Respiratory protection:
Respiratory protection in case of vapour/aerosol release. Particle filter with medium efficiency for solid and liquid particles (e.g. EN 143 or 149, Type P2 or FFP2)

Consider the risk management measures as outlined in the exposure scenario.

Hand protection:
Suitable chemical resistant safety gloves (EN ISO 374-1) also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1): E.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm) etc.
Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.
Manufacturer's directions for use should be observed because of great diversity of types.

Consider the risk management measures as outlined in the exposure scenario.

Eye protection:
Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Consider the risk management measures as outlined in the exposure scenario.

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

Consider the risk management measures as outlined in the exposure scenario.

General safety and hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is recommended. Avoid contact with skin. No eating, drinking, smoking or tobacco use at the place of work. Hands and/or face should be washed before breaks and at the end of the shift. Store work clothing separately.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

State of matter:	liquid	
Form:	liquid	
Colour:	colourless	
Odour:	flowery	
Odour threshold:	< 100 ppm	
Melting point:	< -130 °C (1.013,25 hPa)	(OECD Guideline 102)
glass transition temperature:	-120 °C (1.013,25 hPa)	(OECD Guideline 102)
Boiling point:	181,9 °C (1.013,25 hPa)	(measured)
Flammability:	Combustible liquid.	(derived from flash point)
Lower explosion limit:	0,6 %(V) For liquids not relevant for classification and labelling., The lower explosion point may be 5 - 15 °C below the flash point.	
Upper explosion limit:	For liquids not relevant for classification and labelling.	
Flash point:	62 °C	(Directive 92/69/EEC, A.9, closed cup)
Auto-ignition temperature:	225 °C	(Directive 92/69/EEC, A.15)
Thermal decomposition:	approx. 460 °C (DSC (DIN 51007))	
pH value:	5,1 - 5,3 (0,13 g/l, 20 °C)	(OECD Guideline 105)
Viscosity, kinematic:	No data available.	
Viscosity, dynamic:	No data available.	

Solubility in water:	0,13 g/l (20 °C, pH 5,1 - 5,3)	(OECD Guideline 105)
Solubility (qualitative) solvent(s):	Ethanol soluble	
Partitioning coefficient n-octanol/water (log Kow):	4,4 - 5,2 (25 °C; pH value: 5,3)	(OECD Guideline 117)
Vapour pressure:	1,1 hPa (20 °C)	(OECD Guideline 104)
	1,5 hPa (25 °C)	(OECD Guideline 104)
	7,2 hPa (50 °C)	(OECD Guideline 104)
Relative density:	0,8388 (20 °C) Literature data.	
Density:	0,8388 g/cm3 (20 °C) Literature data.	
Relative vapour density (air):	> 1 (20 °C) Heavier than air.	(calculated)

9.2. Other information

Information with regard to physical hazard classes

Explosives

Explosion hazard: Based on the chemical structure there is no indication of explosive properties.

Oxidizing properties

Fire promoting properties: Based on its structural properties the product is not classified as oxidizing.

Pyrophoric properties

Self-ignition temperature: Test type: Spontaneous self-ignition at room-temperature.

Based on its structural properties the product is not classified as self-igniting.

Self-heating substances and mixtures

Self heating ability: not applicable, the product is a liquid

Substances and mixtures, which emit flammable gases in contact with water

Formation of flammable gases:

Forms no flammable gases in the presence of water.

Corrosion to metals

Corrosive effects to metal are not anticipated.

Other safety characteristics

Adsorption/water - soil:	KOC: 722,7; log KOC: 2,86	(calculated)
Surface tension:	Based on chemical structure, surface activity is not to be expected.	
SAPT-Temperature:	Study scientifically not justified.	
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.	

SECTION 10: Stability and Reactivity

10.1. Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:	Corrosive effects to metal are not anticipated.	
Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.

10.2. Chemical stability

The product is stable if stored and handled as prescribed/indicated.

10.3. Possibility of hazardous reactions

Evolution of flammable gases/vapours.

10.4. Conditions to avoid

Avoid all sources of ignition: heat, sparks, open flame. See SDS section 7 - Handling and storage.

10.5. Incompatible materials

Substances to avoid:
None known during use and storage if used according to instructions.

10.6. Hazardous decomposition products

Hazardous decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated.

SECTION 11: Toxicological Information

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

Acute toxicity

Assessment of acute toxicity:
Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact.

Experimental/calculated data:
LD50 rat (oral): > 5.000 mg/kg (BASF-Test)

other rat (by inhalation): 23,1 mg/l 7 h (IRT)
Inhalation-risk test (IRT): No mortality within 7 hours as shown in animal studies. The inhalation of a highly saturated vapor-air mixture represents no acute hazard. The vapour was tested.

LD50 rat (dermal): > 2.000 mg/kg (BASF-Test)

Irritation

Assessment of irritating effects:
Skin contact causes irritation. Not irritating to the eyes.

Experimental/calculated data:
Skin corrosion/irritation
rabbit: Irritant. (OECD Guideline 404)

Serious eye damage/irritation
rabbit: non-irritant (OECD Guideline 405)

Respiratory/Skin sensitization

Assessment of sensitization:
No sensitizing effect.

Experimental/calculated data:
Human Maximization Test human: Non-sensitizing. (Human patch test)

In-vitro test In vitro assay: Non-sensitizing. (OECD Guidelines 442C/D)

Germ cell mutagenicity

Assessment of mutagenicity:
No mutagenic effect was found in various tests with bacteria and mammalian cell culture.

Experimental/calculated data:
Ames-test
negative (OECD Guideline 471)

HGPRT assay
negative (OECD Guideline 476)

Micronucleus assay
negative (OECD Guideline 487)

Carcinogenicity

Assessment of carcinogenicity:
No data available concerning carcinogenic effects.

Reproductive toxicity

Assessment of reproduction toxicity:
The results of animal studies gave no indication of a fertility impairing effect. The results were determined in a Screening test (OECD 421/422).

Developmental toxicity

Assessment of teratogenicity:
No indications of a developmental toxic / teratogenic effect were seen in animal studies. The results were determined in a Screening test (OECD 421/422).

Specific target organ toxicity (single exposure)

Assessment of STOT single:
Based on available data, the classification criteria are not met.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:
No substance-specific organtoxicity was observed after repeated administration to animals.

Aspiration hazard

No data available.

Interactive effects

No data available.

11.2. Information on other hazards

Endocrine disrupting properties

The substance is not identified to have endocrine disrupting properties according to Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 nor is included in the Candidate List of substances of very high concern according to EU REACh Article 59 for having endocrine disrupting properties.

SECTION 12: Ecological Information

12.1. Toxicity

Assessment of aquatic toxicity:
Acutely harmful for aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish:
LC50 (96 h) 77,6 mg/l, Brachydanio rerio (OECD Guideline 203, semistatic)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. The statement of the toxic effect relates to the analytically determined concentration.

Aquatic invertebrates:
EC50 (48 h) 33,2 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. The details of the toxic effect relate to the nominal concentration.

Aquatic plants:
EC50 (72 h) 79,7 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. The statement of the toxic effect relates to the analytically determined concentration.

EC10 (72 h) 38,1 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. The statement of the toxic effect relates to the analytically determined concentration.

Microorganisms/Effect on activated sludge:
EC20 (30 min) approx. 550 mg/l, activated sludge (OECD Guideline 209, aerobic)

EC20 (3 h) > 1.000 mg/l, activated sludge, domestic (OECD Guideline 209, static)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. The details of the toxic effect relate to the nominal concentration.

Chronic toxicity to fish:
No data available.

Chronic toxicity to aquatic invertebrates:
No data available.

Assessment of terrestrial toxicity:
No data available concerning terrestrial toxicity.
Study scientifically not justified.

Soil living organisms:
Study scientifically not justified.

Terrestrial plants:
Study scientifically not justified.

Other terrestrial non-mammals:
Study scientifically not justified.

12.2. Persistence and degradability

Assessment biodegradation and elimination (H2O):
Inherently biodegradable. Under enhanced conditions

Elimination information:
18 % CO2 formation relative to the theoretical value (28 d) (OECD Guideline 310) (aerobic, activated sludge, domestic, non-adapted)

75 % CO2 formation relative to the theoretical value (60 d) (OECD Guideline 310) (aerobic, activated sludge, domestic, non-adapted)
Enhanced conditions: prolonged incubation

Assessment of stability in water:
According to structural properties, hydrolysis is not expected/probable.

12.3. Bioaccumulative potential

Assessment bioaccumulation potential:
Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is possible.

12.4. Mobility in soil

Assessment transport between environmental compartments:
Volatility: The substance will slowly evaporate into the atmosphere from the water surface.
Adsorption in soil: Adsorption to solid soil phase is possible.

12.5. Results of PBT and vPvB assessment

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not fulfill the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative).

12.6. Endocrine disrupting properties

The substance is not identified to have endocrine disrupting properties according to Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 nor is included in the Candidate List of substances of very high concern according to EU REACh Article 59 for having endocrine disrupting properties.

12.7. Other adverse effects

The substance is not listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Observe national and local legal requirements.

Regulation of the minister of climate from January, 2nd, 2020 on classification of wastes (Law gazette no. 2020, item 10)(Poland)
Regulation regarding wastes from December, 14th, 2012 (consolidated text law gazette no. 2020 pos. 797 with amendments) and law from August, 13th, 2013 regarding packaging and packaging wastes (consolidated text law gazette no. 2020 pos. 1114 with amendments) (Poland)

SECTION 14: Transport Information

Land transport

ADR

Not classified as a dangerous good under transport regulations

UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

RID

Not classified as a dangerous good under transport regulations

UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

Inland waterway transport

ADN

Not classified as a dangerous good under transport regulations

UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user:	None known

Transport in inland waterway vessel
Not evaluated

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

Air transport

IATA/ICAO

	Not classified as a dangerous good under transport regulations
UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

14.1. UN number or ID number
See corresponding entries for “UN number or ID number” for the respective regulations in the tables above.

14.2. UN proper shipping name
See corresponding entries for “UN proper shipping name” for the respective regulations in the tables above.

14.3. Transport hazard class(es)
See corresponding entries for “Transport hazard class(es)” for the respective regulations in the tables above.

14.4. Packing group
See corresponding entries for “Packing group” for the respective regulations in the tables above.

14.5. Environmental hazards
See corresponding entries for “Environmental hazards” for the respective regulations in the tables above.

14.6. Special precautions for user
See corresponding entries for “Special precautions for user” for the respective regulations in the tables above.

14.7. Maritime transport in bulk according to IMO instruments

Maritime transport in bulk is not intended.

SECTION 15: Regulatory Information

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

Prohibitions, Restrictions and Authorizations

Annex XVII of Regulation (EC) No 1907/2006: Number on List: 3

Directive 2012/18/EU - Control of Major Accident Hazards involving dangerous substances (EU):
Listed in above regulation: no

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

Regulation of February, 25th, 2011 regarding chemical substances and mixtures (law gazette 2020, pos. 2289), and amendments.
Any handling of the substance must correspond to the requirements of the regulation of the Minister for work and social politics from 26. September 1997 on general occupational safety and safety at work regulations (consolidated tex law gazette no. 169, pos. 1650, of 2003)and amendments. (Poland)
Ordinance of the secretary for labour and welfare from Juni 12, 2018 about the maximal allowed limits of concentration and luminosity of hazardous factors at the working place (law gazette no.2018 pos.1286 and amendments)
Law from June, 19th, 1997 regarding prohibition of use of products, that contain asbestos (consolidated text law gazette no. 2020, pos. 1680)(Poland)
Montreal protocol from September, 16th, 1987 on substances that deplete the ozone layer (law gazette no. 98, pos. 490, from 1992 with amendments) and law from Mai, 15th, 2015 regarding substances that deplete the ozone layer and some fluorinated greenhouse gases (consolidated text law gazette no. 2019 pos.2158)(Poland).

15.2. Chemical Safety Assessment

Chemical Safety Assessment performed

SECTION 16: Other Information

Assessment of the hazard classes according to UN GHS criteria (most recent version)

Skin Corr./Irrit. 2
Flam. Liq. 4
Aquatic Acute 3
Aquatic Chronic 3

Any other intended applications should be discussed with the manufacturer. Corresponding occupational protection measurements must be followed.

Full text of the classifications, including the hazard classes and the hazard statements, if mentioned in section 2 or 3:

Skin Corr./Irrit.	Skin corrosion/irritation
Aquatic Chronic	Hazardous to the aquatic environment - chronic
H315	Causes skin irritation.
H412	Harmful to aquatic life with long lasting effects.

Abbreviations

ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road. ADN = The European Agreement concerning the International Carriage of Dangerous Goods by Inland waterways. ATE = Acute Toxicity Estimates. CAO = Cargo Aircraft Only. CAS = Chemical Abstract Service. CLP = Classification, Labelling and Packaging of substances and mixtures. DIN = German national organization for standardization. DNEL = Derived No Effect Level. EC50 = Effective concentration median for 50% of the population. EC = European Community. EN = European Standards. IARC = International Agency for Research on Cancer. IATA = International Air Transport Association. IBC-Code = Intermediate Bulk Container code. IMDG = International Maritime Dangerous Goods Code. ISO = International Organization for Standardization. STEL = Short-Term Exposure Limit. LC50 = Lethal concentration median for 50% of the population. LD50 = Lethal dose median for 50% of the population. TLV = Threshold Limit Value. MARPOL = The International Convention for the Prevention of Pollution from Ships. NEN = Dutch Norm. NOEC = No Observed Effect Concentration. OEL = Occupational Exposure Limit. OECD = Organization for Economic Cooperation and Development. PBT = Persistent, Bioaccumulative and Toxic. PNEC = Predicted No Effect Level. PPM = Parts per million. RID = The European Agreement concerning the International Carriage of Dangerous Goods by Rail. TWA = Time Weight Average. UN-number = UN number at transport. vPvB = very Persistent and very Bioaccumulative.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Annex: Exposure Scenarios

Index
1. Compounding, (use in industrial settings)
ERC2; PROC1, PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC15

2. Formulation, (use in industrial settings)
ERC2; PROC1, PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15

3. Use in Cleaning Agents, (use in industrial settings)
ERC4; PROC1, PROC2, PROC4, PROC7, PROC8b, PROC10, PROC13

4. Use as an intermediate, (use in industrial settings)
ERC6a; PROC2, PROC8b

5. Use in Cleaning Agents, (use in professional settings)
ERC8a, ERC8d; PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13

6. Use in polishes, wax blends, washing and cleaning products, (consumer use)
ERC8a, ERC8d; PC31, PC35

7. Use in/as Air care products, (consumer use)
ERC8a; PC3

8. Use in cosmetics, (consumer use)
ERC8a; PC28, PC39

9. other consumer applications than fragrance, (consumer use)
ERC8a, ERC8d; PC8

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1. Short title of exposure scenario
Compounding, (use in industrial settings)
ERC2; PROC1, PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC15

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC2: Formulation into mixture
Operational conditions	
Annual amount used in the EU	30.000 kg
Minimum emission days per year	250

Emission factor air	2,5 %
Emission factor water	0,2 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,091903
	Risk from environmental exposure is driven by marine water.
Maximum amount of safe use	1.305,7 kg/d
Risk from environmental exposure is driven by marine water.	

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	110 Pa
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker

	Worker - dermal, long-term - systemic
Exposure estimate	0,0034 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000822
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,013 mg/m³
Risk Characterization Ratio (RCR)	0,000886
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	110 Pa
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,016444
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	8,2039 mg/m³
Risk Characterization Ratio (RCR)	0,55847
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario

Use descriptors covered	PROC5: Mixing or blending in batch processes Use domain: industrial
Operational conditions	
Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	110 Pa
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,3714 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,32888
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	1,9533 mg/m³
Risk Characterization Ratio (RCR)	0,132969
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	110 Pa
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	

Local exhaust ventilation	Effectiveness: 90 %
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,8229 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,197328
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	2,344 mg/m³
Risk Characterization Ratio (RCR)	0,159563
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	110 Pa
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,3714 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,32888
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	6,511 mg/m³
Risk Characterization Ratio (RCR)	0,44323
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Use domain: industrial
Operational conditions	
Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	110 Pa
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,4114 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,098664
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	3,9066 mg/m³
Risk Characterization Ratio (RCR)	0,265938
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	110 Pa
Duration and Frequency of activity	15 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	

Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0343 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,008222
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	3,2555 mg/m³
Risk Characterization Ratio (RCR)	0,221615
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

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2. Short title of exposure scenario

Formulation, (use in industrial settings)
ERC2; PROC1, PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC2: Formulation into mixture
Operational conditions	
Annual amount used in the EU	30.000 kg
Minimum emission days per year	250
Emission factor air	0 %
Emission factor water	1 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	

Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,457474
	Risk from environmental exposure is driven by marine water.
Maximum amount of safe use	262,3 kg/d
Risk from environmental exposure is driven by marine water.	

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	110 Pa
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0021 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000493
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0078 mg/m³
Risk Characterization Ratio (RCR)	0,000532
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial

Operational conditions	
Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	110 Pa
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0411 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,009866
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	7,0319 mg/m³
Risk Characterization Ratio (RCR)	0,478689
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes Use domain: industrial
Operational conditions	
Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	110 Pa
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Exposure estimate and reference to its source	

Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,8229 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,197328
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	11,7199 mg/m³
Risk Characterization Ratio (RCR)	0,797814
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - < 1 %
Physical state	liquid
Vapour pressure of the substance during use	110 Pa
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,1371 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,032888
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	3,9066 mg/m³
Risk Characterization Ratio (RCR)	0,265938
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial

Operational conditions	
Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	110 Pa
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,8229 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,197328
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	3,9066 mg/m³
Risk Characterization Ratio (RCR)	0,265938
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Use domain: industrial
Operational conditions	
Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - < 1 %
Physical state	liquid
Vapour pressure of the substance during use	110 Pa
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Exposure estimate and reference to its source	

Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,016444
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,6511 mg/m³
Risk Characterization Ratio (RCR)	0,044323
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC14: Tabletting, compression, extrusion, pelletisation, granulation Use domain: industrial
Operational conditions	
Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - < 1 %
Physical state	liquid
Vapour pressure of the substance during use	110 Pa
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0343 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,008222
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	3,2555 mg/m³
Risk Characterization Ratio (RCR)	0,221615
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	

Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	110 Pa
Duration and Frequency of activity	15 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0206 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,004933
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	1,9533 mg/m³
Risk Characterization Ratio (RCR)	0,132969
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

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3. Short title of exposure scenario

Use in Cleaning Agents, (use in industrial settings)
ERC4; PROC1, PROC2, PROC4, PROC7, PROC8b, PROC10, PROC13

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
Operational conditions	

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the

	substance in a preparation is less than 0.1%.

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.

Contributing exposure scenario	
Use descriptors covered	PROC7: Industrial spraying In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.

Contributing exposure scenario	
Use descriptors covered	PROC10: Roller application or brushing In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.

Contributing exposure scenario	
Use descriptors covered	PROC13: Treatment of articles by dipping and pouring.

	In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.

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4. Short title of exposure scenario

Use as an intermediate, (use in industrial settings)
ERC6a; PROC2, PROC8b

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC6a: Use of intermediate No assessment required - Industrial use as intermediate under strictly controlled conditions
Operational conditions	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions No assessment required - Industrial use as intermediate under strictly controlled conditions

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities No assessment required - Industrial use as intermediate under strictly controlled conditions

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5. Short title of exposure scenario

Use in Cleaning Agents, (use in professional settings)
ERC8a, ERC8d; PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC8a: Widespread use of non-reactive processing aid

	(no inclusion into or onto article, indoor)
Operational conditions	
Annual amount used in the EU	30.000 kg
Minimum emission days per year	365
Emission factor air	100 %
Emission factor water	100 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,00677
	Risk from environmental exposure is driven by marine water.
Maximum amount of safe use	2,4 kg/d
Risk from environmental exposure is driven by marine water.	

Contributing exposure scenario	
Use descriptors covered	ERC8d: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
Operational conditions	
Annual amount used in the EU	30.000 kg
Minimum emission days per year	365
Emission factor air	100 %
Emission factor water	100 %
Emission factor soil	20 %
Receive Surf. Water (Flow Rate).	18.000 m3/d

Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,00677
	Risk from environmental exposure is driven by marine water.
Maximum amount of safe use	2,4 kg/d
Risk from environmental exposure is driven by marine water.	

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.

Contributing exposure scenario

Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.

Contributing exposure scenario	
Use descriptors covered	PROC10: Roller application or brushing In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.

Contributing exposure scenario	
Use descriptors covered	PROC11: Non industrial spraying In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.

Contributing exposure scenario	
Use descriptors covered	PROC13: Treatment of articles by dipping and pouring. In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.

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6. Short title of exposure scenario

Use in polishes, wax blends, washing and cleaning products, (consumer use)
ERC8a, ERC8d; PC31, PC35

Control of exposure and risk management measures

Contributing exposure scenario		
Use descriptors covered	ERC8a: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)	
Operational conditions		
Annual amount used in the EU	30.000 kg	
Minimum emission days per year	365	
Emission factor air	100 %	
Emission factor water	100 %	
Emission factor soil	0 %	
Receive Surf. Water (Flow Rate).	18.000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Risk Management Measures		
Type of STP		Municipal STP
Assumed sewage treatment plant flow (m3/d)		2.000 m3/d
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment	
Risk Characterization Ratio (RCR)	0,00677	
	Risk from environmental exposure is driven by marine water.	
Maximum amount of safe use	2,4 kg/d	
Risk from environmental exposure is driven by marine water.		

Contributing exposure scenario	
Use descriptors covered	ERC8d: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
Operational conditions	
Annual amount used in the EU	30.000 kg
Minimum emission days per year	365
Emission factor air	100 %
Emission factor water	100 %

Emission factor soil	20 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,00677
	Risk from environmental exposure is driven by marine water.
Maximum amount of safe use	2,4 kg/d
Risk from environmental exposure is driven by marine water.	

Contributing exposure scenario	
Use descriptors covered	PC31: Polishes and Wax Blends. In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.
Operational conditions	
Vapour pressure of the substance during use	110 Pa

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products). In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.
Operational conditions	
Vapour pressure of the substance during use	110 Pa

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7. Short title of exposure scenario

Use in/as Air care products, (consumer use)
ERC8a; PC3

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC8a: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
Operational conditions	
Annual amount used in the EU	30.000 kg
Minimum emission days per year	365
Emission factor air	100 %
Emission factor water	100 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,00677
	Risk from environmental exposure is driven by marine water.
Maximum amount of safe use	2,4 kg/d
Risk from environmental exposure is driven by marine water.	

Contributing exposure scenario	
Use descriptors covered	PC3: Air care products.
Operational conditions	
Concentration of the substance	Tetrahydro-2-isobutyl-4-methyl-2H-pyran Content: >= 0 % - <= 0,5 %
Vapour pressure of the substance during use	110 Pa

Duration and Frequency of activity	Exposure duration: 480 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	150 uses per year
Room size	16 m3
Ventilation rate per hour	1
body weight	65 kg
Spray duration	28800 sec
Risk Management Measures	
Consumer Measures	Ensure spraying away from persons.
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0021 mg/m³
Risk Characterization Ratio (RCR)	0,00059
	The exposure calculation is based on the mean concentration on the day of exposure.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC3: Air care products. Other products of this category do either not exceed a concentration of 0.1% for this substance or exposure estimations are covered by the calculations made for this product category. In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.
Operational conditions	
Vapour pressure of the substance during use	110 Pa

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8. Short title of exposure scenario

Use in cosmetics, (consumer use)
ERC8a; PC28, PC39

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC8a: Widespread use of non-reactive processing aid

	(no inclusion into or onto article, indoor)
Operational conditions	
Annual amount used in the EU	30.000 kg
Minimum emission days per year	365
Emission factor air	100 %
Emission factor water	100 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,00677
	Risk from environmental exposure is driven by marine water.
Maximum amount of safe use	2,4 kg/d
Risk from environmental exposure is driven by marine water.	

Contributing exposure scenario	
Use descriptors covered	PC28: Perfumes, Fragrances. In accordance to the Article 14 (5b) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed for end uses in cosmetic products within the scope of Directive EC 1223/2009.
Operational conditions	
Vapour pressure of the substance during use	110 Pa

Contributing exposure scenario	
Use descriptors covered	PC39: Cosmetics, personal care products. In accordance to the Article 14 (5b) of the REACh Regulation (EC) No 1907/2006, exposure estimation and

	risk characterisation needs not to be performed for end uses in cosmetic products within the scope of Directive EC 1223/2009.
Operational conditions	
Vapour pressure of the substance during use	110 Pa

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9. Short title of exposure scenario

other consumer applications than fragrance, (consumer use)
ERC8a, ERC8d; PC8

Control of exposure and risk management measures

Contributing exposure scenario		
Use descriptors covered	ERC8a: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)	
Operational conditions		
Annual amount used in the EU	30.000 kg	
Minimum emission days per year	365	
Emission factor air	100 %	
Emission factor water	100 %	
Emission factor soil	0 %	
Receive Surf. Water (Flow Rate).	18.000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Risk Management Measures		
Type of STP		Municipal STP
Assumed sewage treatment plant flow (m3/d)		2.000 m3/d
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment	
Risk Characterization Ratio (RCR)	0,00677	
	Risk from environmental exposure is driven by marine water.	
Maximum amount of safe use	2,4 kg/d	

Risk from environmental exposure is driven by marine water.	

Contributing exposure scenario		
Use descriptors covered	ERC8d: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)	
Operational conditions		
Annual amount used in the EU	30.000 kg	
Minimum emission days per year	365	
Emission factor air	100 %	
Emission factor water	100 %	
Emission factor soil	20 %	
Receive Surf. Water (Flow Rate).	18.000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Risk Management Measures		
Type of STP		Municipal STP
Assumed sewage treatment plant flow (m3/d)		2.000 m3/d
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment	
Risk Characterization Ratio (RCR)	0,00677	
	Risk from environmental exposure is driven by marine water.	
Maximum amount of safe use	2,4 kg/d	
Risk from environmental exposure is driven by marine water.		

Contributing exposure scenario	
Use descriptors covered	PC8: Biocidal Products. In accordance to the Article 14 (2a-f) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation needs not to be performed if the substance in a preparation is less than 0.1%.
Operational conditions	
Vapour pressure of the substance during use	110 Pa

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