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: 10.10.2023 Version: 1.1
Date previous version: 09.09.2022 Previous version: 1.0
Date / First version: 09.09.2022
Product: **Citronellyl Acetate**

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

1.1. Product identifier

Citronellyl Acetate

Chemical name: Citronellyl acetate
CAS Number: 150-84-5

REACH registration number: 01-2119959860-27-0000

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

Relevant identified uses: Chemical, Chemical for detergents, Cosmetic and oral care chemical, flavoring substance

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 France SAS
176, rue Montmartre
75002 PARIS
FRANCE

Telephone: +33 1 4964-5732
E-mail address: securite-produits.france@basf.com

1.4. Emergency telephone number

Tél.: 01 45 42 59 59 (APPEL D'URGENCE ORFILA)
Fax: 01 49 64 53 80 (heures de bureau)
International emergency number (Numéro d'urgence international):

contact speaking the language of the calling country (contact parlant la langue du pays d'appel)
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 2	H411 Toxic 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.
H411	Toxic 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.
P391	Collect spillage.

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

Citronellyl acetate

	Skin Corr./Irrit. 2
CAS Number: 150-84-5	Aquatic Chronic 2
EC-Number: 205-775-0	H315, H411

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:
carbon dioxide, dry powder, foam

Unsuitable extinguishing media for safety reasons:
water jet

5.2. Special hazards arising from the substance or mixture

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

5.3. Advice for fire-fighters

Special protective equipment:
Wear self-contained breathing apparatus and chemical-protective clothing.

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

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

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 small amounts: Contain with absorbent material (e.g. sand, silica gel, acid binder, general purpose binder, sawdust).
For large amounts: Dike spillage. Pump off product.

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

Odour-sensitive: Segregate from products releasing odours.
Further information on storage conditions: Keep container tightly closed and dry; store in a cool place. Protect contents from the effects of light.

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: 0,00348 mg/l

marine water: 0,000348 mg/l

intermittent release: 0,0348 mg/l

STP: 10 mg/l

sediment (freshwater): 0,851 mg/kg

sediment (marine water): 0,0851 mg/kg

soil: 0,168 mg/kg

oral (secondary poisoning):
No PNEC value available.

DNEL

worker:
Long-term exposure- systemic effects, Inhalation: 17 mg/m3

worker:
Long-term exposure- systemic effects, dermal: 4,8 mg/kg

consumer:
Long-term exposure- systemic effects, Inhalation: 4,2 mg/m3

consumer:
Long-term exposure- systemic effects, dermal: 2,4 mg/kg

consumer:
Long-term exposure- systemic effects, oral: 2,4 mg/kg

8.2. Exposure controls

Personal protective equipment

Respiratory protection:
Suitable respiratory protection for higher concentrations or long-term effect: Gas filter for gases/vapours of organic compounds (boiling point >65 °C, e. g. EN 14387 Type A)

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 required additionally to the stated personal protection equipment. Avoid contact with the skin, eyes and clothing. 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, clear	
Odour:	flowery, fruity	
Odour threshold:	< 100 ppm	
Melting point:	< -100 °C	(OECD Guideline 102)
Boiling point:	239,8 °C (1.013 hPa)	(measured)
Flammability:	hardly combustible	(derived from flash point)
Lower explosion limit:	0,6 %(V) (90,7 °C)	(air)
Upper explosion limit:	For liquids not relevant for classification and labelling.	
Flash point:	93,5 °C	(ASTM D93, closed cup)
Auto-ignition temperature:	235 °C	(DIN 51794)
Thermal decomposition:	>= 390 °C (DSC (DIN 51007)) No exothermic decomposition within the mentioned temperature range.	
SADT:	Study scientifically not justified.	
pH value:	4,4 (0,0159 g/l, 20 °C)	(pH Meter)
Viscosity, kinematic:	2,66 mm2/s (20 °C)	(OECD Guideline 114)

	1,81 mm2/s (40 °C)	(OECD Guideline 114)
Viscosity, dynamic:	2,37 mPa.s (20 °C) The value was determined by calculation from the detected kinematic viscosity.	(OECD Guideline 114)
	1,58 mPa.s (40 °C) The value was determined by calculation from the detected kinematic viscosity.	(OECD Guideline 114)
Solubility in water:	15,9 mg/l (25 °C)	(Directive 92/69/EEC, A.6)
Solubility (qualitative) solvent(s):	organic solvents soluble	
Partitioning coefficient n-octanol/water (log Kow):	4,9 (25 °C)	(Directive 92/69/EEC, A.8)
Vapour pressure:	0,0197 hPa (20 °C) Extrapolated value, dynamic	(measured)
Relative density:	0,888 (25 °C) Literature data.	
Density:	0,888 g/cm3 (20 - 25 °C) Literature data.	
	0,862 g/cm3 (55 °C)	
Relative vapour density (air):	6,83 (20 °C) Heavier than air.	(calculated)

Particle characteristics

Particle size distribution: The substance / product is marketed or used in a non solid or granular form. -

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.
Impact sensitivity:	not shock-sensitive Based on the chemical structure there is no shock-sensitivity.

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: It is not a substance capable of spontaneous heating.

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

pKA:
Study scientifically not justified.

Adsorption/water - soil: KOC: 2409; log KOC: 3,382 (calculated)

Surface tension:
Based on chemical structure, surface activity is not to be expected.

Molar mass: 198,31 g/mol

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

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

10.4. Conditions to avoid

See SDS section 7 - Handling and storage.

10.5. Incompatible materials

Substances to avoid:
oxidizing agents

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): 6.800 mg/kg
LD50 rabbit (dermal): > 2.000 mg/kg

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:

Skin sensitizing effects were not observed in animal studies. A controlled medical study in humans did not reveal a skin sensitizing effect.

Experimental/calculated data:

Buehler test guinea pig: Non-sensitizing. (OECD Guideline 406)
Human Maximization Test human: Non-sensitizing.

Germ cell mutagenicity

Assessment of mutagenicity:

In the majority of tests performed (bacteria/microorganisms/cell cultures) a mutagenic effect was not found. A mutagenic effect was also not observed in in-vivo assays. The product has not been fully tested. The statements have been derived in parts from products of a similar structure or composition.

Carcinogenicity

Assessment of carcinogenicity:
In long-term studies in rats and mice in which the substance was given by gavage, a carcinogenic effect was not observed. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Reproductive toxicity

Assessment of reproduction toxicity:
The results of animal studies gave no indication of a fertility impairing effect. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Developmental toxicity

Assessment of teratogenicity:

In animal studies the substance did not cause malformations. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

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. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Aspiration hazard

No aspiration hazard expected.

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 toxic 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) 6,1 mg/l, Brachydanio rerio (OECD Guideline 203, semistatic)
The statement of the toxic effect relates to the analytically determined concentration.

Aquatic invertebrates:
EC50 (48 h) 3,48 mg/l, Daphnia magna (OECD Guideline 202, part 1, semistatic)
The statement of the toxic effect relates to the analytically determined concentration. The product has low solubility in the test medium. A saturated solution has been tested.

Aquatic plants:
EC50 (72 h) > 7,2 mg/l (growth rate), Desmodesmus subspicatus (OECD Guideline 201, static)
The statement of the toxic effect relates to the analytically determined concentration.

No observed effect concentration (72 h) 2,22 mg/l (growth rate), Desmodesmus subspicatus (OECD Guideline 201, static)
The statement of the toxic effect relates to the analytically determined concentration.

Microorganisms/Effect on activated sludge:
EC20 (30 min) > 1.000 mg/l, activated sludge (OECD Guideline 209, aerobic)

Chronic toxicity to fish:
No data available regarding toxicity to fish.

Chronic toxicity to aquatic invertebrates:
No data available regarding toxicity to daphnids.

Assessment of terrestrial toxicity:
No data available concerning terrestrial toxicity.

12.2. Persistence and degradability

Assessment biodegradation and elimination (H2O):
Readily biodegradable (according to OECD criteria).

Elimination information:
93 % CO2 formation relative to the theoretical value (28 d) (OECD Guideline 310) (aerobic, activated sludge, domestic, adapted)

Assessment of stability in water:
In contact with water the substance will hydrolyse slowly.

Information on Stability in Water (Hydrolysis):
$t_{1/2}$ 4.101 h (20 °C, pH value4), (OECD Guideline 111, pH 4)

$t_{1/2}$ 2.523 h (25 °C, pH value4), (OECD Guideline 111, pH 4)

$t_{1/2}$ 8.191 h (20 °C, pH value7), (OECD Guideline 111, pH 7)

$t_{1/2}$ 4.905 h (25 °C, pH value7), (OECD Guideline 111, pH 7)

$t_{1/2}$ 337 h (20 °C, pH value9), (OECD Guideline 111, pH 9)

$t_{1/2}$ 185 h (25 °C, pH value9), (OECD Guideline 111, pH 9)

12.3. Bioaccumulative potential

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

Bioaccumulation potential:
No data available.

12.4. Mobility in soil

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

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.

SECTION 14: Transport Information

Land transport

ADR

UN number or ID number:	UN3082
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRONELLYL ACETATE)
Transport hazard class(es):	9, EHSM
Packing group:	III
Environmental hazards:	yes
Special precautions for user:	None known

RID

UN number or ID number:	UN3082
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRONELLYL ACETATE)

Transport hazard class(es):	9, EHSM
Packing group:	III
Environmental hazards:	yes
Special precautions for user:	None known

Inland waterway transport

ADN

UN number or ID number:	UN3082
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRONELLYL ACETATE)

Transport hazard class(es):	9, EHSM
Packing group:	III
Environmental hazards:	yes
Special precautions for user:	None known

Transport in inland waterway vessel
Not evaluated

Sea transport

IMDG

UN number or ID number:	UN 3082
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRONELLYL ACETATE)

Transport hazard class(es):	9, EHSM
Packing group:	III
Environmental hazards:	yes Marine pollutant: YES
Special precautions for user:	EmS: F-A; S-F

Air transport

IATA/ICAO

UN number or ID number:	UN 3082
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CITRONELLYL ACETATE)

Transport hazard class(es):	9, EHSM
Packing group:	III
Environmental hazards:	yes
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.

Further information
Product may be shipped as non-hazardous in suitable packages containing a net quantity of 5 L or less under the provisions of various regulatory agencies: ADR, RID, ADN: Special Provision 375; IMDG: 2.10.2.7; IATA: A197; TDG: Special Provision 99(2); 49CFR: §171.4 (c) (2) and also the Special Provision 375 in Appendix B which is regulated in China "Regulations Concerning Road Transportation of Dangerous Goods Part 3: Index of dangerous goods name and transportation requirements" (JT/T 617.3)

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): List entry in regulation: E2

Storage class in France (Nomenclature ICPE): 4511

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

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
Aquatic Acute 2
Aquatic Chronic 2

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.
H411	Toxic 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

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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	200.000 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 v4.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,487731
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	328 kg/d
Risk from environmental exposure is driven by soil.	

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	Citronellyl acetate Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Avoid splashing.	
Wear chemically resistant gloves in	

combination with 'basic' employee training.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0034 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000714
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0165 mg/m³
Risk Characterization Ratio (RCR)	0,000972
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	Citronellyl acetate Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Avoid splashing.	
Wear chemically resistant gloves in combination with 'basic' employee training.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,014286
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker

	Worker - inhalation, long-term - systemic
Exposure estimate	1,4873 mg/m³
Risk Characterization Ratio (RCR)	0,087486
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	Citronellyl acetate Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Wear chemically resistant gloves in combination with specific activity training	Effectiveness: 95 %
Avoid splashing.	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,6857 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,142857
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	2,4788 mg/m³
Risk Characterization Ratio (RCR)	0,14581
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	Citronellyl acetate Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour)	Effectiveness: 70 %
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Avoid splashing.	
Wear chemically resistant gloves in combination with 'basic' employee training.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - dermal, long-term - systemic
Exposure estimate	0,3429 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,071429
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	3,7182 mg/m³
Risk Characterization Ratio (RCR)	0,218715
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

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	Citronellyl acetate Content: >= 0 % - <= 100 %

Physical state	liquid
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 95 %
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Avoid splashing.	
Wear chemically resistant gloves in combination with 'basic' employee training.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,3714 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,285714
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,4131 mg/m³
Risk Characterization Ratio (RCR)	0,024302
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	Citronellyl acetate Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	

Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Avoid splashing.	
Wear chemically resistant gloves in combination with 'basic' employee training.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - dermal, long-term - systemic
Exposure estimate	0,1714 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,035714
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	2,0656 mg/m³
Risk Characterization Ratio (RCR)	0,121509
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Concentration of the substance	Citronellyl acetate Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C
Duration and Frequency of activity	15 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Avoid splashing.	
Wear chemically resistant gloves in combination with 'basic' employee training.	

Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0343 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,007143
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	4,1313 mg/m³
Risk Characterization Ratio (RCR)	0,243017
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	AISE SPERC 2.1.a.v2: AISE SPERC 2.1.a.v2
Operational conditions	
Annual amount used in the EU	90.000 kg
Minimum emission days per year	250
Emission factor air	0 %
Emission factor water	0,01 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Wastewater treatment measures considered suitable are, e.g.	Precipitation, Coagulation, Must be eliminated from water by chemical flocculation.
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 v4.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,074831
	Risk from environmental exposure is driven by freshwater sediment.
Maximum amount of safe use	4.810,8 kg/d
Risk from environmental exposure is driven by freshwater sediment.	

Contributing exposure scenario		
Use descriptors covered	AISE SPERC 2.1.b.v2: AISE SPERC 2.1.b.v2	
Operational conditions		
Annual amount used in the EU	36.000 kg	
Minimum emission days per year	250	
Emission factor air	0 %	
Emission factor water	0,1 %	
Emission factor soil	0 %	
Receive Surf. Water (Flow Rate).	18.000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Risk Management Measures		
Wastewater treatment measures considered suitable are, e.g.		Precipitation, Coagulation, Must be eliminated from water by chemical flocculation.
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 v4.1, ECETOC TRA v3.0, Environment	
Risk Characterization Ratio (RCR)	0,227327	
	Risk from environmental exposure is driven by freshwater sediment.	
Maximum amount of safe use	633,4 kg/d	
Risk from environmental exposure is driven by freshwater sediment.		

Contributing exposure scenario	
Use descriptors covered	AISE SPERC 2.1.c.v2: AISE SPERC 2.1.c.v2

Operational conditions	
Annual amount used in the EU	28.000 kg
Minimum emission days per year	250
Emission factor air	0 %
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	
Wastewater treatment measures considered suitable are, e.g.	Precipitation, Coagulation, Must be eliminated from water by chemical flocculation.
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 v4.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,340821
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	328,6 kg/d
Risk from environmental exposure is driven by soil.	

Contributing exposure scenario	
Use descriptors covered	AISE SPERC 2.1.j.v2: AISE SPERC 2.1.j.v2
Operational conditions	
Annual amount used in the EU	26.000 kg
Minimum emission days per year	250
Emission factor air	0 %
Emission factor water	0,1 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d

Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Wastewater treatment measures considered suitable are, e.g.	Nanofiltration (NR), Ultrafiltration (UF) or Reverse Osmosis (OR), Coagulation, Must be eliminated from water by chemical flocculation.
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 v4.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,170847
	Risk from environmental exposure is driven by freshwater sediment.
Maximum amount of safe use	608,7 kg/d
Risk from environmental exposure is driven by freshwater sediment.	

Contributing exposure scenario	
Use descriptors covered	AISE SPERC 2.1.k.v2: AISE SPERC 2.1.k.v2
Operational conditions	
Annual amount used in the EU	14.000 kg
Minimum emission days per year	250
Emission factor air	0 %
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	
Wastewater treatment measures considered suitable are, e.g.	Nanofiltration (NR), Ultrafiltration (UF) or Reverse Osmosis (OR), Coagulation, Must be eliminated from water by chemical flocculation.

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 v4.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,182143
	Risk from environmental exposure is driven by freshwater sediment.
Maximum amount of safe use	307,5 kg/d
Risk from environmental exposure is driven by freshwater sediment.	

Contributing exposure scenario	
Use descriptors covered	AISE SPERC 2.1.l.v2: AISE SPERC 2.1.l.v2
Operational conditions	
Annual amount used in the EU	14.000 kg
Minimum emission days per year	250
Emission factor air	0 %
Emission factor water	0,4 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Wastewater treatment measures considered suitable are, e.g.	Nanofiltration (NR), Ultrafiltration (UF) or Reverse Osmosis (OR), Coagulation, Must be eliminated from water by chemical flocculation.
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 v4.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,340821
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	164,3 kg/d
Risk from environmental exposure is driven by soil.	

Contributing exposure scenario	
Use descriptors covered	ERC2: Formulation into mixture
Operational conditions	
Annual amount used in the EU	40.000 kg
Minimum emission days per year	250
Emission factor air	0 %
Emission factor water	0 %
Emission factor soil	0,01 %
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 v4.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,024
	Risk from environmental exposure is driven by freshwater sediment.
Maximum amount of safe use	6.666,8 kg/d
Risk from environmental exposure is driven by freshwater sediment.	

Contributing exposure scenario	
Use descriptors covered	ERC2: Formulation into mixture
Operational conditions	
Annual amount used in the EU	4.000 kg
Minimum emission days per year	250
Emission factor air	0 %
Emission factor water	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 v4.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,486853
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	32,9 kg/d
Risk from environmental exposure is driven by soil.	

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	Citronellyl acetate Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Avoid splashing.	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.

	Worker - dermal, long-term - systemic
Exposure estimate	0,0009 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000179
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0041 mg/m³
Risk Characterization Ratio (RCR)	0,000243
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

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	Citronellyl acetate Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Avoid splashing.	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - dermal, long-term - systemic
Exposure estimate	0,0171 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,003571
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified

	version, The concentration of the substance has been considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	3,7182 mg/m³
Risk Characterization Ratio (RCR)	0,218715
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes Use domain: industrial
Operational conditions	
Concentration of the substance	Citronellyl acetate Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Avoid splashing.	
Wear chemically resistant gloves in combination with 'basic' employee training.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - dermal, long-term - systemic
Exposure estimate	0,3429 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,071429
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	6,1969 mg/m³
Risk Characterization Ratio (RCR)	0,364526
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see	

exposure estimates)

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

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	Citronellyl acetate Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	Effectiveness: 90 %
Avoid splashing.	
Wear chemically resistant gloves in combination with ‘basic’ employee training.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - dermal, long-term - systemic
Exposure estimate	0,3429 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,071429
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.

	Worker - inhalation, long-term - systemic
Exposure estimate	2,0656 mg/m³
Risk Characterization Ratio (RCR)	0,121509
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

Contributing exposure scenario	
Use descriptors covered	PROC14: Tabletting, compression, extrusion, pelletisation, granulation In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Concentration of the substance	Citronellyl acetate Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C
Duration and Frequency of activity	15 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Wear chemically resistant gloves in combination with ‘basic’ employee	Effectiveness: 90 %

training.	
Avoid splashing.	
Wear chemically resistant gloves in combination with 'basic' employee training.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - dermal, long-term - systemic
Exposure estimate	0,0086 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001786
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	1,0328 mg/m³
Risk Characterization Ratio (RCR)	0,060754
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

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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) For this scenario, local exposure has not been assesssed. The contribution to the regional background concentration is taken into account. In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.
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 Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

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 Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

Contributing exposure scenario	
Use descriptors covered	PROC7: Industrial spraying In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

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

	the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

Contributing exposure scenario	
Use descriptors covered	PROC10: Roller application or brushing In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

Contributing exposure scenario	
Use descriptors covered	PROC13: Treatment of articles by dipping and pouring. In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

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4. Short title of exposure scenario

Use as an intermediate, (use in industrial settings)
ERC6a; PROC1, PROC2, PROC3, PROC8b, PROC9, PROC15

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	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. No assessment required - Industrial use as intermediate under strictly controlled 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	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition 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

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). No assessment required - Industrial use as intermediate under strictly controlled conditions

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. 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/as Surface care and Polishes, (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	200.000 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 v4.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,178739
	Risk from environmental exposure is driven by freshwater sediment.
Maximum amount of safe use	0,613124 kg/d
Risk from environmental exposure is driven by freshwater sediment.	

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	200.000 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 v4.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,178739
	Risk from environmental exposure is driven by freshwater sediment.
Maximum amount of safe use	0,613124 kg/d
Risk from environmental exposure is driven by freshwater sediment.	

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 Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

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 Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

Contributing exposure scenario	
Use descriptors covered	PROC10: Roller application or brushing In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

Contributing exposure scenario	
Use descriptors covered	PROC11: Non industrial spraying In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

Contributing exposure scenario	
Use descriptors covered	PROC13: Treatment of articles by dipping and pouring. In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the

	concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.

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6. Short title of exposure scenario

Use in Cleaning Agents, Use in/as Surface care and Polishes, (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	200.000 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 v4.1, ECETOC TRA v3.0, Environment	
Risk Characterization Ratio (RCR)	0,178739	
	Risk from environmental exposure is driven by freshwater sediment.	
Maximum amount of safe use	0,613124 kg/d	
Risk from environmental exposure is driven by freshwater sediment.		

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	200.000 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 v4.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,178739
	Risk from environmental exposure is driven by freshwater sediment.
Maximum amount of safe use	0,613124 kg/d
Risk from environmental exposure is driven by freshwater sediment.	

Contributing exposure scenario	
Use descriptors covered	PC31: Polishes and Wax Blends. In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.
Operational conditions	
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products). In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.
Operational conditions	
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C

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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	200.000 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 v4.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,178739
	Risk from environmental exposure is driven by freshwater sediment.
Maximum amount of safe use	0,613124 kg/d
Risk from environmental exposure is driven by freshwater sediment.	

Contributing exposure scenario	
Use descriptors covered	PC3: Air care products.
Operational conditions	
Concentration of the substance	Citronellyl acetate Content: >= 0 % - <= 2,5 %
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C
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 v4.1, ConsExpo v4.1, Inhalation model: Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0107 mg/m³
Risk Characterization Ratio (RCR)	0,002544
	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. In accordance to Article 14 (2a) of the REACh Regulation

	(EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.
Operational conditions	
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C

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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	200.000 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 v4.1, ECETOC TRA v3.0, Environment	
Risk Characterization Ratio (RCR)	0,178739	

	Risk from environmental exposure is driven by freshwater sediment.
Maximum amount of safe use	0,613124 kg/d
Risk from environmental exposure is driven by freshwater sediment.	

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	1,97 Pa
Process temperature	20 °C

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	1,97 Pa
Process temperature	20 °C

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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	200.000 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 v4.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,178739
	Risk from environmental exposure is driven by freshwater sediment.
Maximum amount of safe use	0,613124 kg/d
Risk from environmental exposure is driven by freshwater sediment.	

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	200.000 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 v4.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,178739
	Risk from environmental exposure is driven by freshwater sediment.
Maximum amount of safe use	0,613124 kg/d
Risk from environmental exposure is driven by freshwater sediment.	

Contributing exposure scenario	
Use descriptors covered	PC8: Biocidal Products. In accordance to Article 14 (2a) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a preparation is less than the cut-off value referred to in Article 11, paragraph 3 of Regulation (EC) No 1272/2008.
Operational conditions	
Vapour pressure of the substance during use	1,97 Pa
Process temperature	20 °C

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