

Safety data sheet

Page: 1/106

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: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

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

1.1. Product identifier

Citronellal

Chemical name: Citronellal CAS Number: 106-23-0

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 Schweiz AG
Klybeckstrasse 161
4057 Basel, SWITZERLAND

Telephone: +41 0800 227722

E-mail address: PS-BCSCHWEIZ@basf.com

1.4. Emergency telephone number

Tox Info Suisse (STIZ): Tel. 145 International emergency number: Telephone: +49 180 2273-112

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

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.

Eye Dam./Irrit. 2 H319 Causes serious eye irritation.

Skin Sens. 1B H317 May cause an allergic skin reaction.

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:

H319 Causes serious eye irritation.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

Precautionary Statements (Prevention):

P280 Wear protective gloves and eye protection or face protection.

P261 Avoid breathing mist or vapour or spray.

Precautionary Statements (Response):

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove

contact lenses, if present and easy to do. Continue rinsing.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water. P333 + P313 If skin irritation or rash occurs: Get medical attention.

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.

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

When finely distributed on porose material, self-ignition is possible.

SECTION 3: Composition/Information on Ingredients

3.1. Substances

Chemical nature

Citronellal

Skin Corr./Irrit. 2
CAS Number: 106-23-0
EC-Number: 203-376-6
Skin Sens. 1B
H319. H315. H317

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

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

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, foam, dry powder

Unsuitable extinguishing media for safety reasons: water

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. Combustible Liquid

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

When finely distributed on porose material, self-ignition is possible. Soiled textiles/cleaning rags made of natural fibres (e.g. of pure wool or of pure cotton) are capable of ignition and should not be used and/or must be desposed of in a safe manner.

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.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

6.3. Methods and material for containment and cleaning up

For small amounts: Pick up with suitable absorbent material. Do not use saw-dust or other combustible substances as an absorbant during cleanup.

For large amounts: Dike spillage. Cover with blanket of foam (alcohol-resistant foam). Pump off product.

Dispose of absorbed material in accordance with regulations. Mop up spills with non-flammable adsorbents (e.g. vermiculite, spill mats). Soiled textiles / cleaning rags / adsorbents and Silica are capable of self ignition and should be wetted with water and must be disposed of in a safe manner.

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:

Risk of self-ignition when a large surface area is produced due to fine dispersion. Soiled textiles / cleaning rags / adsorbents and Silica are capable of self ignition and should be wetted with water and must be disposed of in a safe manner. Avoid all sources of ignition: heat, sparks, open flame. Take precautionary measures against static discharges.

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 against heat.

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.

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

PNEC

freshwater: 0,00868 mg/l

marine water: 0,00087 mg/l

intermittent release: 0,0868 mg/l

sediment (freshwater): 0,159 mg/kg

sediment (marine water): 0,0159 mg/kg

soil: 0,0267 mg/kg

STP: 4 mg/l

DNEL

worker:

Long-term exposure- systemic effects, dermal: 1,7 mg/kg

worker:

Long-term exposure - local effects, dermal: 0,14 mg/cm2

worker:

Long-term exposure- systemic effects, Inhalation: 9 mg/m3

consumer:

Long-term exposure- systemic effects, dermal: 1 mg/kg

consumer:

Short-term exposure - local effects, dermal: 0,14 mg/cm2

consumer:

Long-term exposure- systemic effects, Inhalation: 2,7 mg/m3

consumer:

Long-term exposure- systemic effects, oral: 0,6 mg/kg

8.2. Exposure controls

Personal protective equipment

Respiratory protection:

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

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 recommended. 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 to yellowish clear

Odour: fruity
Odour threshold: < 100 ppm
Melting point: < -20 °C

(1.013 hPa)

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

206,9 °C Boiling point:

> (1.013 hPa) Literature data.

Flammability: Combustible liquid. (derived from flash point)

Lower explosion limit:

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: 74 °C (closed cup)

Literature data.

202 °C Auto-ignition temperature: (DIN 51794)

Thermal decomposition: >= 190 °C (DSC (DIN 51007))

SADT: Not a substance liable to self-decomposition according to UN transport

regulations, class 4.1.

pH value: approx. 7

Viscosity, kinematic: 1,82 mm2/s (OECD 114)

> (20 °C) 1,33 mm2/s (40 °C) 1,48 mPa.s

Viscosity, dynamic:

(20 °C) 0,52 mPa.s (100 °C)

Solubility in water:

88 mg/l (25 °C)

Solubility (qualitative) solvent(s): organic solvents

soluble

Partitioning coefficient n-octanol/water (log Kow): 3,62

(Directive 92/69/EEC, A.8)

(25 °C)

Vapour pressure: 0,16 hPa (OECD Guideline 104)

> (20 °C) dynamic

1,73 hPa (OECD Guideline 104)

(50 °C) dynamic

Relative density: 0,86

(20 °C)

0,85 g/cm3 Density:

(20 °Č)

Relative vapour density (air):5,31 (calculated)

(20 °C)

Heavier than air.

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Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

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.

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: 147,7; log KOC: 2,169 (calculated)

Surface tension:

Based on chemical structure, surface

activity is not to be expected.

Molar mass: 154,25 g/mol

SAPT-Temperature:

Study scientifically not justified.

Evaporation rate:

Value can be approximated from Henry's Law Constant or vapor

pressure.

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Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

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 Remarks: Forms no flammable gases in the

flammable gases: presence of water.

10.2. Chemical stability

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

10.3. Possibility of hazardous reactions

Self-ignition is possible when finely distributed on flammable surfaces in the presence of air.

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: acids, bases

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:

Of low toxicity after single ingestion. Of low toxicity after short-term skin contact.

Experimental/calculated data:

LD50 rat (oral): 2.423 mg/kg (BASF-Test) LD50 rabbit (dermal): > 2.500 - < 5.000 mg/kg

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

Irritation

Assessment of irritating effects:

Skin contact causes irritation. Eye contact causes irritation.

Experimental/calculated data:

Skin corrosion/irritation rabbit: Irritant. (BASF-Test) Serious eye damage/irritation rabbit: Irritant. (BASF-Test)

Respiratory/Skin sensitization

Assessment of sensitization:

Caused skin sensitization in animal studies.

Experimental/calculated data:

Guinea pig maximization test guinea pig: skin sensitizing

Germ cell mutagenicity

Assessment of mutagenicity:

The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture.

Carcinogenicity

Assessment of carcinogenicity:

Results from a number of long-term carcinogenity studies are available. Taking into account all of the information, there is no indication that the substance itself is carcinogenic. 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:

Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals. 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.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

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

Assessment of repeated dose toxicity:

Prolonged repeated exposure caused inflammable degenerative processes in the respiratory tract of rats. Causes irritating effects at esophagus and the gastro-intestinal tract. 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) approx. 22 mg/l, Leuciscus idus (DIN 38412 Part 15, static)

The details of the toxic effect relate to the nominal concentration.

Aquatic invertebrates:

EC50 (48 h) 8,7 mg/l, Daphnia magna (Directive 79/831/EEC, static)

The details of the toxic effect relate to the nominal concentration. The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested.

Aquatic plants:

EC50 (72 h) 13,33 mg/l (growth rate), Scenedesmus subspicatus (DIN 38412 Part 9, static) The details of the toxic effect relate to the nominal concentration.

Microorganisms/Effect on activated sludge:

EC20 (0,5 h) approx. 400 mg/l, activated sludge, domestic (OECD Guideline 209, static)

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

The details of the toxic effect relate to the nominal concentration.

Chronic toxicity to fish:

Study scientifically not justified.

Chronic toxicity to aquatic invertebrates:

Study scientifically not justified.

Assessment of terrestrial toxicity:

No data available.

Study scientifically not justified.

12.2. Persistence and degradability

Assessment biodegradation and elimination (H2O):

Readily biodegradable (according to OECD criteria).

Elimination information:

83 % CO2 formation relative to the theoretical value (28 d) (OECD 301B; ISO 9439; 92/69/EEC, C.4-C) (aerobic, activated sludge, domestic, non-adapted)

Assessment of stability in water:

Substance is readily biodegradable, therefore hydrolysis is not expected to be relevant.

12.3. Bioaccumulative potential

Assessment bioaccumulation potential:

Significant accumulation in organisms is not to be expected.

The product has not been tested. The statement has been derived from the structure of the product.

Bioaccumulation potential:

Bioconcentration factor(BCF): 113,6 (calculated)

The product has not been tested. The statement has been derived from the structure of the product.

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 not 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

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

(Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative). Self classification

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

Not classified as a dangerous good under transport regulations

UN number or ID number:
UN proper shipping name:
Transport hazard class(es):
Packing group:
Environmental hazards:
Special precautions for

Not applicable
Not applicable
Not applicable
Not applicable
Not applicable
Not applicable

user

RID

Not classified as a dangerous good under transport regulations

UN number or ID number:
UN proper shipping name:
Transport hazard class(es):
Packing group:
Environmental hazards:
Special precautions for

Not applicable
Not applicable
Not applicable
Not applicable
Not applicable
Not applicable

user

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

Inland waterway transport

ADN

Not classified as a dangerous good under transport regulations

UN number or ID number:
UN proper shipping name:
Transport hazard class(es):
Packing group:
Environmental hazards:
Special precautions for

Not applicable
Not applicable
Not applicable
Not applicable
Not applicable
Not applicable

user:

Transport in inland waterway vessel

Not evaluated

Sea transport

IMDG

Not classified as a dangerous good under transport regulations

UN number or ID number:
UN proper shipping name:
Transport hazard class(es):
Packing group:
Environmental hazards:
Special precautions for

Not applicable
Not applicable
Not applicable
Not applicable
Not applicable
Not applicable

user

Air transport

IATA/ICAO

Not classified as a dangerous good under transport regulations

UN number or ID number:
UN proper shipping name:
Transport hazard class(es):
Packing group:
Environmental hazards:
Special precautions for

Not applicable
Not applicable
Not applicable
Not applicable
Not applicable

user

14.1. UN number or ID number

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

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

Water hazard class (§6 AwSV para.4 (Legal binding announcement of the substance in the Federal Gazette)): (2) significantly water polluting. ID-No.: 1591

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

The following Swiss regulations must be observed for the professional use:

- Article 4 Paragraph 4 of the Ordinance on the Protection of young workers (SR 822.115) and Article 1 letter f of the EAER Ordinance on Dangerous Work for Young People (SR 822.115.2): Young people in an initial professional training can only work with this product (this substance / preparation) if this is foreseen in the respective education ordinance to achieve their education goal, the requirements of the education plan are fulfilled and the applicable age restrictions are observed. Young people who do not complete any initial professional training are not allowed to work with this product (this substance / this preparation). Employees of both genders up to the age of 18 are considered as young people.

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

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)

Acute Tox. 5 (oral) Skin Corr./Irrit. 2 Eye Dam./Irrit. 2A Aquatic Acute 2 Flam. Liq. 4 Acute Tox. 5 (dermal)

Acute Tox. 5 (definal)

Skin Sens. 1B

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

Eye Dam./Irrit. Serious eye damage/eye irritation

Skin Sens. Skin sensitization

H319 Causes serious eye irritation.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

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.

Page: 18/106

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 Baguleti

to Regulation (EC) No 1907/2006. Date / Revised: 18.09.2023

Version: 4.0 Previous version: 3.0

Date previous version: 09.09.2022 Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

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.

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Page: 19/106

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: 18.09.2023

Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

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 as an intermediate, (use in industrial settings)

ERC6a; PROC1, PROC2, PROC3, PROC8b, PROC9, PROC15

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

5. Use in Cleaning Agents, (use in professional settings)

ERC8a, ERC8d; PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13

6. Use in/as Air care products, (consumer use)

ERC8a: PC3

7. Use in cosmetics, (consumer use)

ERC8a; PC28, PC39

8. Use in Cleaning Agents, (consumer use)

ERC8a, ERC8d; PC31, PC35

9. other consumer applications than fragrance, (consumer use)

ERC8a, ERC8d; PC8

* * * * * * * * * * * * * * * *

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	100.000 kg	
Minimum emission days per year	250	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

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 (Assumed sewage treatment plant flow (m3/d)	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Environment	
Risk Characterization Ratio (RCR)	0,559517	
	Risk from environmental ex	rposure is driven by soil.
	714,9	
Maximum amount of safe use	kg/d	
Risk from environmental exposure is dri	iven 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	Citronellal Content: >= 0 % - <= 100 %	
Physical state	liquid	
Vapour pressure of the substance during use	16 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 skin contact. Ensure minimization of manual phases		

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Use suitable eye protection., 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)	0,002017
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - local
Exposure estimate	1 μg/cm ³
Risk Characterization Ratio (RCR)	0,007143
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0129 mg/m³
Risk Characterization Ratio (RCR)	0,001428
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	Citronellal Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	16 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 skin contact. Ensure minimization of manual phases	
Use suitable eye protection., Wear chemically resistant gloves in	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

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)	0,040336	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker	
	Worker - dermal, long-term - local	
Exposure estimate	20 μg/cm ³	
Risk Characterization Ratio (RCR)	0,142857	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker	
	Worker - inhalation, long-term - systemic	
Exposure estimate	1,1569 mg/m³	
Risk Characterization Ratio (RCR)	0,128541	
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	Citronellal Content: >= 0 % - <= 100 %	
Physical state	liquid	
Vapour pressure of the substance during use	16 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 skin contact. Ensure minimization of manual phases		
Use suitable eye protection., Wear		
chemically resistant gloves in		
combination with 'basic' employee		
training.		
Exposure estimate and reference to		
Assessment method	EASY TRA v4.1, Workplace measurements	
	Worker - dermal, long-term - systemic	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Exposure estimate	0,0691 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,040671
Assessment method	EASY TRA v4.1, Workplace measurements
	Worker - dermal, long-term - local
Exposure estimate	10,08 µg/cm ³
Risk Characterization Ratio (RCR)	0,072
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	1,9281 mg/m³
Risk Characterization Ratio (RCR)	0,214235
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		
	Citronellal	
Concentration of the substance	Content: >= 0 % - <= 100 %	
Physical state	liquid	
Vapour pressure of the substance during use	16 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	Effectiveness: 90 %	
training.		
Avoid skin contact. Ensure		
minimization of manual phases		
Use suitable eye protection., Wear		
chemically resistant gloves in		
combination with 'basic' employee		
training.		
Exposure estimate and reference to		
Assessment method	EASY TRA v4.1, Workplace measurements	
	Worker - dermal, long-term - systemic	
Exposure estimate	0,0124 mg/kg bw/day	
Risk Characterization Ratio (RCR)	0,0073	
Assessment method	EASY TRA v4.1, Workplace measurements	
	Worker - dermal, long-term - local	
Exposure estimate	1,81 μg/cm ³	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Risk Characterization Ratio (RCR)	0,012929
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	1,9281 mg/m³
Risk Characterization Ratio (RCR)	0,214235
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	Citronellal Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	16 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 skin contact. Ensure minimization of manual phases	
Use suitable eye protection., 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
Evaccura actimate	0,3429 mg/kg bw/day
Exposure estimate Risk Characterization Ratio (RCR)	0,3429 mg/kg bw/day 0,201681
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 - local
Exposure estimate	25 μg/cm ³

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Risk Characterization Ratio (RCR)	0,178571
(EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,9641 mg/m ³
Risk Characterization Ratio (RCR)	0,107118
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org	g/tra Please note that a modified version has been used (see

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	Citronellal Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	16 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 skin contact. Ensure minimization of manual phases	
Use suitable eye protection., 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)	0,806723
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - local
Exposure estimate	100 μg/cm ³
Risk Characterization Ratio (RCR)	0,714286

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3214 mg/m ³
Risk Characterization Ratio (RCR)	0,035706
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	Citronellal Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	16 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: 90 %
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Avoid skin contact. Ensure	
minimization of manual phases	
Use suitable eye protection., Wear chemically resistant gloves in combination with 'basic' employee training.	
Exposure estimate and reference to	
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)	0,10084
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 - local
Exposure estimate	25 μg/cm ³
Risk Characterization Ratio (RCR)	0,178571

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

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	0,1607 mg/m ³
Risk Characterization Ratio (RCR)	0,017853
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	DDOC45, Llog o Johorotory, records
lles descriptors sovered	PROC15: Use a laboratory reagent. Use domain: industrial
Use descriptors covered	Use domain: industrial
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance	16 Pa
during use	
Process temperature	20 °C
1 100033 temperature	
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 skin contact. Ensure	
minimization of manual phases	
Use suitable eye protection., Wear	
chemically resistant gloves in	
combination with 'basic' employee	
training.	
Exposure estimate and reference to	
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)	0,020168
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - local
Exposure estimate	10 µg/cm³
Risk Characterization Ratio (RCR)	0,071429
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	3,2135 mg/m ³

Page: 28/106

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: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

Risk Characterization Ratio (RCR)	0,357059
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org	g/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 per site	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 (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)	0,82256	
	Risk from environmental exposure is driven by soil.	
	145,9	
Maximum amount of safe use	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

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	containment conditions.
	Use domain: industrial
Operational conditions	
•	Citronellal
Concentration of the substance	Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	16 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 skin contact. Ensure	
minimization of manual phases Use suitable eye protection., Wear	+
chemically resistant gloves in	
combination with 'basic' employee	
training.	
Exposure estimate and reference to	
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)	0,000504
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 - local
Exposure estimate	0,25 μg/cm ³
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.
Even and was noticed to	Worker - inhalation, long-term - systemic
Exposure estimate	0,0032 mg/m³
Risk Characterization Ratio (RCR)	0,000357
Guidance to Downstream Users For scaling see: http://www.ecetoc.org exposure estimates)	y/tra Please note that a modified version has been used (see

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Contributing exposure scenario	
Continuum Caposure Scenario	PROC3: Manufacture or formulation in the chemical
Use descriptors covered	industry in closed batch processes with occasional
	controlled exposure or processes with equivalent
	containment condition
	Use domain: industrial
	OSE domain. industrial
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	16 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	Effectiveness: 90 %
training.	
Avoid skin contact. Ensure	
minimization of manual phases	
Use suitable eye protection., Wear	
chemically resistant gloves in	
combination with 'basic' employee	
training.	
Exposure estimate and reference to	
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	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)	0,010084
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - dermal, long-term - local
Exposure estimate	5 μg/cm ³
Risk Characterization Ratio (RCR)	0,035714
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	2,8922 mg/m³
Risk Characterization Ratio (RCR)	0,321353

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

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	Citronellal Content: >= 0 % - <= 25 %	
Physical state	liquid	
Vapour pressure of the substance during use	16 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 skin contact. Ensure minimization of manual phases		
Use suitable eye protection., 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) Assessment method	0,201681 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 - local	
Exposure estimate	50 μg/cm ³	
Risk Characterization Ratio (RCR)	0,357143	
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.	
<u> </u>	Worker - inhalation, long-term - systemic	
Exposure estimate	4,8203 mg/m³	

Page: 32/106

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: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

Risk Characterization Ratio (RCR)	0,535588	
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 Use domain: industrial
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 1 %
Physical state	liquid
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
Exposure estimate and reference to	o 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	0,1371 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,080672
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 - local
Exposure estimate	10 µg/cm ³
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	0,3856 mg/m³
Risk Characterization Ratio (RCR)	0,042847
Guidance to Downstream Users	the Discount distance I'C.
For scaling see: http://www.ecetoc.org	g/tra Please note that a modified version has been used (see

Use descriptors covered

PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017 Product: **Citronellal**

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

	Use domain: industrial
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	16 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 skin contact. Ensure minimization of manual phases	
Use suitable eye protection., 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) Assessment method	0,201681 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 - local
Exposure estimate	25 µg/cm ³
Risk Characterization Ratio (RCR)	0,178571
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	1,6068 mg/m ³
Risk Characterization Ratio (RCR)	0,178529
Guidance to Downstream Users	0,110020
	/tra Please note that a modified version has been used (see

Contributing exposure scenario

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

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	Citronellal Content: >= 0 % - <= 1 %
Physical state	liquid
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
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	0,0686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,040336
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 - local
Exposure estimate	10 μg/cm ³
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.
Exposure estimate	Worker - inhalation, long-term - systemic 0,0643 mg/m ³
Risk Characterization Ratio (RCR)	0,007141
Guidance to Downstream Users	0,007 171
	tra Please note that a modified version has been used (see

Contributing exposure scenario	
Use descriptors covered	PROC14: Tabletting, compression, extrusion, pelletisation, granulation Use domain: industrial
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 1 %

to Regulation (EC) No 1907/2006. Date / Revised: 18.09.2023

Version: 4.0 Previous version: 3.0

Date previous version: 09.09.2022 Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Physical state	liquid
Vapour pressure of the substance	16 Pa
during use	
Process temperature	20 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposure estimate and reference to	its source
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - dermal, long-term - systemic
Exposure estimate	0,0343 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,020168
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - dermal, long-term - local
Exposure estimate	5 μg/cm ³
Risk Characterization Ratio (RCR)	0,035714
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3214 mg/m³
Risk Characterization Ratio (RCR)	0,035706
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	Citronellal Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	15 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Avoid skin contact. Ensure minimization of manual phases	
Use suitable eye protection., Wear	
chemically resistant gloves in	
combination with 'basic' employee training.	
Exposure estimate and reference to	its source
Exposure estimate and reference to	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	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)	0,005042
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - dermal, long-term - local
Exposure estimate	2,5 μg/cm ³
Risk Characterization Ratio (RCR)	0,017857
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,8034 mg/m³
Risk Characterization Ratio (RCR)	0,089265
Guidance to Downstream Users	
	tra Please note that a modified version has been used (see
exposure estimates)	

3. 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 For this scenario, local exposure has not been assessed. The contribution to the regional background concentration is taken into account. No assessment required - Industrial use as intermediate under strictly controlled conditions

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

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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to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

4. 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. Use domain: industrial
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,5 %
Physical state	liquid
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
Exposure estimate and reference to	
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	0,0002 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000101
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 - local
Exposure estimate	0,05 μg/cm ³
Risk Characterization Ratio (RCR)	0,000357
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

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017 Product: **Citronellal**

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

Exposure estimate	0,0003 mg/m³	
Risk Characterization Ratio (RCR)	0,000036	
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	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,5 %
Physical state	liquid
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
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	0,0069 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,004034
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 - local
Exposure estimate	1 μg/cm ³
Risk Characterization Ratio (RCR)	0,007143
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	0,0321 mg/m ³
Risk Characterization Ratio (RCR)	0,003571
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.orgexposure estimates)	/tra Please note that a modified version has been used (see

Contributing exposure scenario

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Use domain: industrial
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,5 %
Physical state	liquid
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
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	0,0343 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,020168
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.
Functional actionals	Worker - dermal, long-term - local
Exposure estimate	5 µg/cm³
Risk Characterization Ratio (RCR) Assessment method	0,035714 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	0,1607 mg/m ³
Risk Characterization Ratio (RCR)	0,017853
Guidance to Downstream Users	1 0,011 000
	tra Please note that a modified version has been used (see

Contributing exposure scenario		
Use descriptors covered	PROC7: Industrial spraying Use domain: industrial	
Operational conditions		
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,5 %	
Physical state	liquid	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
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	0,2143 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,12605
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 - local
Exposure estimate	10 μg/cm ³
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	3,2135 mg/m ³
Risk Characterization Ratio (RCR)	0,357059
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org exposure estimates)	/tra Please note that a modified version has been used (see

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	Citronellal Content: >= 0 % - <= 0,5 %
Physical state	liquid
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
Exposure estimate and reference to its source	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - dermal, long-term - systemic
Exposure estimate	0,0686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,040336
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - dermal, long-term - local
Exposure estimate	5 μg/cm ³
Risk Characterization Ratio (RCR)	0,035714
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0321 mg/m ³
Risk Characterization Ratio (RCR)	0,003571
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org	g/tra Please note that a modified version has been used (see
exposure estimates)	

Contributing exposure scenario	
Use descriptors covered	PROC10: Roller application or brushing Use domain: industrial
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,5 %
Physical state	liquid
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Outdoor
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 v4.1, 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	0,0137 mg/kg bw/day

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Risk Characterization Ratio (RCR)	0,008067
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - dermal, long-term - local
Exposure estimate	1 µg/cm ³
Risk Characterization Ratio (RCR)	0,007143
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,2249 mg/m ³
Risk Characterization Ratio (RCR)	0,024994
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	PROC13: Treatment of articles by dipping and pouring. Use domain: industrial	
Operational conditions		
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,5 %	
Physical state	liquid	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
Duration and Frequency of activity	480 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 %	
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	0,0069 mg/kg bw/day	
Risk Characterization Ratio (RCR)	0,004034	
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.	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

	Worker - dermal, long-term - local
Exposure estimate	1 μg/cm ³
Risk Characterization Ratio (RCR)	0,007143
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0321 mg/m³
Risk Characterization Ratio (RCR)	0,003571
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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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	•	ead use of non-reactive processing aid or onto article, indoor)
Operational conditions		
Annual amount used in the EU	100.000 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 flo	w (m3/d)	2.000 m3/d
Exposure estimate and reference to	to its source	
Assessment method	EASY TRA v4.1,	ECETOC TRA v3.0, Environment

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Risk Characterization Ratio (RCR)	0,063856
	Risk from environmental exposure is driven by freshwater.
Maximum amount of safe use	0,85809 kg/d
Risk from environmental exposure is driven by freshwater.	

Contributing exposure scenario		
Use descriptors covered	ERC8d: Widespread use of the control	of non-reactive processing aid rticle, outdoor)
Operational conditions		
Annual amount used in the EU	100.000 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		Municipal STP
Assumed sewage treatment plant flow (m3/d) 2.000 m3/d		2.000 m3/d
Exposure estimate and reference to		
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Environment	
Risk Characterization Ratio (RCR)	0,063856	
		xposure is driven by freshwater.
Maximum amount of safe use	0,85809 kg/d	
Risk from environmental exposure is d		
Mak nom environmental exposure is o	invon by neshwater.	

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: professional
Operational conditions	
Concentration of the substance	Citronellal

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	Content: >= 0 % - <= 0,5 %
Physical state	liquid
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
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	0,0002 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000101
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 - local
Exposure estimate	0,05 μg/cm ³
Risk Characterization Ratio (RCR)	0,000357
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	0,0003 mg/m³
Risk Characterization Ratio (RCR)	0,000036
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/ exposure estimates)	ra Please note that a modified version has been used (see

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 Use domain: professional
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,5 %
Physical state	liquid
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
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	0,0069 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,004034
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 - local
Exposure estimate	1 μg/cm ³
Risk Characterization Ratio (RCR)	0,007143
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	0,1607 mg/m³
Risk Characterization Ratio (RCR)	0,017853
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/sexposure estimates)	tra Please note that a modified version has been used (see

Contributing exposure scenario		
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Use domain: professional	
Operational conditions		
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,5 %	
Physical state	liquid	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
Duration and Frequency of activity	480 min 5 days per week	
Indoor/Outdoor	Indoor	
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	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

Exposure estimate	0,0343 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,020168
,	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - dermal, long-term - local
Exposure estimate	5 μg/cm ³
Risk Characterization Ratio (RCR)	0,035714
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified
Assessment method	version, The concentration of the substance has been
	considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3214 mg/m³
Risk Characterization Ratio (RCR)	0,035706
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 PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Use descriptors covered Use domain: professional Operational conditions Citronellal Content: >= 0 % - <= 0,5 % Concentration of the substance Physical state liquid Vapour pressure of the substance 16 Pa during use 20 °C Process temperature 60 min 5 days per week **Duration and Frequency of activity** Indoor/Outdoor Indoor Exposure estimate and reference to its source EASY TRA v4.1, ECETOC TRA v3.0, worker, modified Assessment method version. The concentration of the substance has been considered using a linear approach. Worker - dermal, long-term - systemic 0,0686 mg/kg bw/day Exposure estimate Risk Characterization Ratio (RCR) 0,040336 EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been Assessment method considered using a linear approach. Worker - dermal, long-term - local Exposure estimate 5 µg/cm³ Risk Characterization Ratio (RCR) 0,035714

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

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	0,1607 mg/m ³
Risk Characterization Ratio (RCR)	0,017853
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see	
exposure estimates)	

Use descriptors covered	PROC8b: Transfer of substance or mixture (charging ardischarging) at dedicated facilities Use domain: professional	
Operational conditions		
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,5 %	
Physical state	liquid	
Vapour pressure of the substance during use	16 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 %	
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.	
Exposure estimate	Worker - dermal, long-term - systemic 0,0069 mg/kg bw/day	
Risk Characterization Ratio (RCR)	0,004034	
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 - local	
Exposure estimate	0,5 µg/cm ³	
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	

Page: 50/106

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: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Exposure estimate	0,0643 mg/m³
Risk Characterization Ratio (RCR)	0,007141
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	[DD0040 D II	
	PROC10: Roller application or brushing	
Use descriptors covered	Use domain: professional	
Operational conditions		
	Citronellal	
Concentration of the substance	Content: >= 0 % - <= 0,5 %	
Physical state	liquid	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
Duration and Frequency of activity	480 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposure estimate and reference to its source		
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified	
Assessment method	version, The concentration of the substance has been	
	considered using a linear approach.	
	Worker - dermal, long-term - systemic	
Exposure estimate	0,1371 mg/kg bw/day	
Risk Characterization Ratio (RCR)	0,080672	
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified	
Assessment method	version, The concentration of the substance has been	
	considered using a linear approach.	
	Worker - dermal, long-term - local	
Exposure estimate	10 μg/cm ³	
Risk Characterization Ratio (RCR)	0,071429	
	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified	
Assessment method	version, The concentration of the substance has been	
	considered using a linear approach.	
	Worker - inhalation, long-term - systemic	
Exposure estimate	0,8034 mg/m³	
Risk Characterization Ratio (RCR)	0,089265	
Guidance to Downstream Users	•	
	g/tra Please note that a modified version has been used (see	
exposure estimates)	-	

Contributing exposure scenario	
Use descriptors covered	PROC11: Non industrial spraying Use domain: professional

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Operational conditions		
	Citronellal	
Concentration of the substance	Content: >= 0 % - <= 0,5 %	
Physical state	liquid	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
Duration and Frequency of activity	480 min 5 days per week	
Indoor/Outdoor	Indoor	
Exposure estimate and reference to	its source	
•	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified	
Assessment method	version, The concentration of the substance has been	
	considered using a linear approach.	
	Worker - dermal, long-term - systemic	
Exposure estimate	0,5357 mg/kg bw/day	
Risk Characterization Ratio (RCR)	0,315126	
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 - local	
Exposure estimate	25 μg/cm ³	
Risk Characterization Ratio (RCR)	0,178571	
, ,	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified	
Assessment method	version, The concentration of the substance has been	
	considered using a linear approach.	
	Worker - inhalation, long-term - systemic	
Exposure estimate	3,2135 mg/m ³	
Risk Characterization Ratio (RCR)	0,357059	
Guidance to Downstream Users		
	/tra Please note that a modified version has been used (see	
exposure estimates)		
- p		

Contributing exposure scenario	
Use descriptors covered	PROC13: Treatment of articles by dipping and pouring. Use domain: professional
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,5 %
Physical state	liquid
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

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 %
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	0,0069 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,004034
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.
Even and and and and and and and and and an	Worker - dermal, long-term - local
Exposure estimate	1 μg/cm ³
Risk Characterization Ratio (RCR) Assessment method	0,007143 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	0,0643 mg/m³
Risk Characterization Ratio (RCR)	0,007141
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org exposure estimates)	/tra Please note that a modified version has been used (see

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6. 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	100.000 kg	
Minimum emission days per year	365	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

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)	0,063856	
	Risk from environmental exposure is driven by freshwater.	
Maximum amount of safe use	0,85809 kg/d	
Risk from environmental exposure is driven by freshwater.		

Contributing exposure scenario		
Use descriptors covered	PC3: Air care products.	
Operational conditions		
Concentration of the substance	Citronellal Content: >= 0 % - <= 3 %	
Vapour pressure of the substance during use	16 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		

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model: Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0128 mg/m³
Risk Characterization Ratio (RCR)	0,004749
	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	
Operational conditions		
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1499 %	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
Duration and Frequency of activity	Exposure duration: 240 min Relevant for inhalative exposure estimates	
Duration and Frequency of activity	90 uses per year	
Room size	58 m3	
Ventilation rate per hour	0,5	
body weight	65 kg	
Uptake fraction dermal	100 %	
Spray duration	19,8 sec	
Contact rate	269 mg/min	
Release duration	0,33 min	
	Relevant for dermal exposure estimates	
Risk Management Measures	·	
Consumer Measures	Ensure spraying away from persons.	
Exposure estimate and reference to it		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: constant	
Assessment method	application rate, Uptake model: Uptake fraction	
-	Consumer - dermal, long-term - systemic	
Exposure estimate	0,0005 mg/kg bw/day	
Risk Characterization Ratio (RCR)	0,000505	
	The calculation is based on the internal chronic dose.	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model: Exposure to spray/dust	
	Consumer - inhalation, long-term - systemic	
Exposure estimate	0,0004 mg/m³	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Risk Characterization Ratio (RCR)	0,000135	
	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.	
Operational conditions		
	Citronellal	
Concentration of the substance	Content: >= 0 % - <= 0,1499 %	
Vapour pressure of the substance	16 Pa	
during use		
Process temperature	20 °C	
body weight	65 kg	
Contact rate	269 mg/min	
Release duration	0,33 min	
	Relevant for dermal exposure estimates	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: constant	
Assessment method	application rate	
	Consumer - dermal, short-term - local	
Exposure estimate	0,0001 μg/cm ³	
Risk Characterization Ratio (RCR)	0,000054	
	The calculation is based on the external dose.	
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.	
Operational conditions		
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1499 %	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
Duration and Frequency of activity	90 uses per year	
Duration and Frequency of activity	Exposure duration: 60 min Relevant for oral exposure estimates	
Duration and Frequency of activity	90 uses per year	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

body weight	8,69 kg	
Uptake fraction dermal	100 %	
Uptake fraction oral	100 %	
Transfer coefficient	1,666667 cm ² /s	
Dislodgeable amount	0,000082 g/cm ²	
Contact time	3600 sec	
Rubbed surface	22 m²	
Ingestion rate	0,001232 mg/min	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: rubbing off, Uptake model: Uptake fraction	
	Consumer - dermal, long-term - systemic	
Exposure estimate	0,0209 mg/kg bw/day	
Risk Characterization Ratio (RCR)	0.02094	
Their Gharactenzaden Hade (Herry	The calculation is based on the internal chronic dose.	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Oral model: constant rate, Uptake model: Uptake fraction	
	Consumer - oral, long-term - systemic	
Exposure estimate	0,0001 mg/kg bw/day	
Risk Characterization Ratio (RCR)	0,000005	
	The calculation is based on the internal chronic dose.	
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.	
Operational conditions		
	Citronellal	
Concentration of the substance	Content: >= 0 % - <= 0,1499 %	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
body weight	8,69 kg	
Transfer coefficient	1,666667 cm ² /s	
Dislodgeable amount	0,000082 g/cm ²	
Contact time	3600 sec	
Rubbed surface	22 m²	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: rubbing off	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

	Consumer - dermal, short-term - local	
Exposure estimate	0,0002 μg/cm ³	
Risk Characterization Ratio (RCR)	0,001098	
The calculation is based on the external dose.		
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 (2b) 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 0,1% weight by weight (w/w) and if the substance meets the criteria in Annex XIII to this Regulation. 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.	
Operational conditions		
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	

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7. 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	100.000 kg	
Minimum emission days per year	365	
Emission factor air	100 %	
Emission factor water	100 %	
Emission factor soil	0 %	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Receive Surf. Water (Flow Rate).	18.000 m3/d		
, ,	10		
Dilution factor river			
Dilution factor coast	100		
Risk Management Measures			
Type of STP		Municipal STP	
Assumed sewage treatment plant flow	sumed sewage treatment plant flow (m3/d)		
Exposure estimate and reference to its source			
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Environment		
Risk Characterization Ratio (RCR)	0,063856		
	Risk from environmental exposure is driven by freshwater.		
	0,85809		
Maximum amount of safe use	kg/d		
Risk from environmental exposure is driven by freshwater.			

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	16 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	16 Pa	
Process temperature	20 °C	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

8. Short title of exposure scenario

Use in Cleaning Agents, (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	100.000 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	·	
Exposure estimate and reference to		
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Environment	
Risk Characterization Ratio (RCR)	0,063856	
	Risk from environmental exposure is driven by freshwater.	
0,85809		
Maximum amount of safe use	kg/d	
Risk from environmental exposure is d	riven by freshwater.	

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	100.000 kg

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0 Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

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)	0,063856	
	Risk from environmental ex	cposure is driven by freshwater.
	0,85809	
Maximum amount of safe use	kg/d	
Risk from environmental exposure is driven by freshwater.		

Contributing exposure scenario		
Use descriptors covered	PC31: Polishes and Wax Blends.	
Operational conditions		
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
Duration and Frequency of activity	26 uses per year	
body weight	65 kg	
Uptake fraction dermal	100 %	
	Amount per use 0,1 g Relevant for dermal exposure estimates	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	Consumer - dermal, long-term - systemic	
Exposure estimate	0,0001 mg/kg bw/day	
Risk Characterization Ratio (RCR)	0,000132	
	The calculation is based on the internal chronic dose.	
Guidance to Downstream Users		
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp		

Contributing exposure scenario		
Use descriptors covered	PC31: Polishes and Wax Blends.	
Operational conditions		
	Citronellal	
Concentration of the substance	Content: >= 0 % - <= 0,1199 %	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
body weight	65 kg	
	Amount per use 0,1 g Relevant for dermal exposure	
	estimates	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant	
Assessment method	application	
	Consumer - dermal, short-term - local	
Exposure estimate	0,0006 μg/cm ³	
Risk Characterization Ratio (RCR)	0,003987	
	The calculation is based on the external dose.	
Guidance to Downstream Users		
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp		

Contributing exposure scenario	
Use descriptors covered	PC31: Polishes and Wax Blends.
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 5 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	8 uses per year
Room size	34 m3

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Ventilation rate per hour	1,5
body weight	65 kg
Uptake fraction dermal	100 %
Spray duration	72 sec
Contact rate	100 mg/min
Release duration	1,2 min
	Relevant for dermal exposure estimates
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, Dermal model: constant application rate, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0001 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000049
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
Assessment method	Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0008 mg/m³
Risk Characterization Ratio (RCR)	0,000312
	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	PC31: Polishes and Wax Blends.	
Operational conditions		
	Citronellal	
Concentration of the substance	Content: >= 0 % - <= 0,1199 %	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
body weight	65 kg	
Contact rate	100 mg/min	
Release duration	1,2 min	
	Relevant for dermal exposure estimates	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: constant	
Assessmentinethou	application rate	
	Consumer - dermal, short-term - local	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Exposure estimate	0,0001 μg/cm ³
Risk Characterization Ratio (RCR)	0,000494
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	Contributing exposure scenario		
Use descriptors covered	PC31: Polishes and Wax Blends.		
Operational conditions			
	Citronellal		
Concentration of the substance	Content: >= 0 % - <= 0,1199 %		
Vapour pressure of the substance during use	16 Pa		
Process temperature	20 °C		
Duration and Frequency of activity	Exposure duration: 90 min		
	Relevant for inhalative exposure estimates Application duration: 90 min		
Duration and Frequency of activity	Relevant for inhalative exposure estimates		
Duration and Frequency of activity	2 uses per year		
Room size	58 m3		
Ventilation rate per hour	0,5		
Temperature (Application)	21 °C		
body weight	65 kg		
Uptake fraction dermal	100 %		
	Amount per use 5,5 g Relevant for dermal exposure estimates		
Release area	220000 cm ²		
	Release area increases over time		
Release duration	90 min		
	Relevant for inhalative exposure estimates		
Exposure estimate and reference to	Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant		
7.00000ment mouled	application, Uptake model: Uptake fraction		
	Consumer - dermal, long-term - systemic		
Exposure estimate	0,0006 mg/kg bw/day		
Risk Characterization Ratio (RCR)	0,000556		
	The calculation is based on the internal chronic dose.		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:		
	exposure to vapour - evaporation		
	Consumer - inhalation, long-term - systemic		
Exposure estimate	0,0107 mg/m³		
Risk Characterization Ratio (RCR)	0,003971		

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	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	PC31: Polishes and Wax Blends.
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg
	Amount per use 5,5 g Relevant for dermal exposure estimates
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0153 μg/cm ³
Risk Characterization Ratio (RCR)	0,109635
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/	healthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario	
Use descriptors covered	PC31: Polishes and Wax Blends.
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 240 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	Application duration: 90 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	1 uses per year
Room size	58 m3

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Ventilation rate per hour	0,5
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 5,5 g Relevant for dermal exposure estimates
Release area	220000 cm ²
	Release area increases over time
Release duration	90 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0003 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000278
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
Assessment method	exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,3426 mg/m³
Risk Characterization Ratio (RCR)	0,126879
	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	PC31: Polishes and Wax Blends.
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg
	Amount per use 5,5 g Relevant for dermal exposure estimates
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Exposure estimate	0,0153 μg/cm ³
Risk Characterization Ratio (RCR)	0,109635
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC31: Polishes and Wax Blends.
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 240 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	1 uses per year
Room size	58 m3
Ventilation rate per hour	0,5
body weight	65 kg
Uptake fraction dermal	100 %
Spray duration	180 sec
Contact rate	100 mg/min
Release duration	3 min
	Relevant for dermal exposure estimates
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, Dermal model: constant application rate, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0001 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000015
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
Assessment method	Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0054 mg/m³
Risk Characterization Ratio (RCR)	0,001987
	The exposure calculation is based on the mean
	concentration on the day of exposure.
Guidance to Downstream Users	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017 Product: **Citronellal**

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario	
Use descriptors covered	PC31: Polishes and Wax Blends.
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance	16 Pa
during use	20.00
Process temperature	20 °C
body weight	65 kg
Contact rate	100 mg/min
Release duration	3 min
	Relevant for dermal exposure estimates
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: constant
Assessment method	application rate
	Consumer - dermal, short-term - local
Exposure estimate	0,0002 μg/cm ³
Risk Characterization Ratio (RCR)	0,001235
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC31: Polishes and Wax Blends. 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 Article 14 (2b) 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 0,1% weight by weight (w/w) and if the substance meets the criteria in Annex XIII to this Regulation.
Operational conditions	
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C

Contributing exposure scenario

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

	PC35: Washing and Cleaning Products (including solvent
Use descriptors covered	based products).
Operational conditions	<u> </u>
•	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 0,75 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	Application duration: 0,3 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	365 uses per year
Room size	1 m3
Ventilation rate per hour	2
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 0,01 g Relevant for dermal exposure estimates
Release area	20 cm ²
	Release area is constant
Release duration	0,3 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0002 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000185
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
7.00000HIGHEHIOUIOU	exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0003 mg/m³
Risk Characterization Ratio (RCR)	0,000094
	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

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg
	Amount per use 0,01 g Relevant for dermal exposure estimates
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 μg/cm ³
Risk Characterization Ratio (RCR)	0,000399
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/	healthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	365 uses per year
body weight	65 kg
Skin contact factor	80 %
Uptake fraction dermal	100 %
Leachable fraction	0,000004 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: migration,

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017 Product: **Citronellal**

(ID no. 30035052/SDS_GEN_CH/EN)

	Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0005 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000492
	The calculation is based on the internal chronic dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg
Skin contact factor	80 %
Leachable fraction	0,000004 %
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: migration
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 μg/cm ³
Risk Characterization Ratio (RCR)	0,000016
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/h	ealthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario		
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).	
Operational conditions		
	Citronellal	
Concentration of the substance	Content: >= 0 % - <= 0,3599 %	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
Duration and Frequency of activity	Exposure duration: 3 min Relevant for inhalative exposure estimates	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Duration and Frequency of activity	Application duration: 2 min
	Relevant for inhalative exposure estimates
Duration and Frequency of activity	260 uses per year
Room size	2,5 m3
Ventilation rate per hour	2
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 2,2 g Relevant for dermal exposure
	estimates
Release area	750 cm ²
	Release area is constant
Release duration	2 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant
Assessment method	application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0868 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,086795
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
	exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0015 mg/m³
Risk Characterization Ratio (RCR)	0,000569
	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	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,3599 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	Amount per use 2,2 g Relevant for dermal exposure estimates	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant	
	application	
	Consumer - dermal, short-term - local	
Exposure estimate	0,0368 μg/cm ³	
Risk Characterization Ratio (RCR)	0,263123	
	The calculation is based on the external dose.	
Guidance to Downstream Users		
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp		

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal
	Content: >= 0 % - <= 0,3599 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 3 min
	Relevant for inhalative exposure estimates
Duration and Frequency of activity	Application duration: 2 min
Daration and Frequency of delivity	Relevant for inhalative exposure estimates
Duration and Frequency of activity	120 uses per year
Room size	2,5 m3
Ventilation rate per hour	2
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 2,2 g Relevant for dermal exposure
	estimates
Release area	750 cm ²
	Release area is constant
Release duration	2 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant
	application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0401 mg/kg bw/day

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Risk Characterization Ratio (RCR)	0,040059
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
	exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0015 mg/m ³
Risk Characterization Ratio (RCR)	0,000569
	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	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,3599 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg
	Amount per use 2,2 g Relevant for dermal exposure estimates
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant
Assessment method	application
	Consumer - dermal, short-term - local
Exposure estimate	0,0368 μg/cm ³
Risk Characterization Ratio (RCR)	0,263123
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered PC35: Washing and Cleaning Products (including based products).	
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,3599 %
Vapour pressure of the substance during use	16 Pa

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 24 h
Duration and Frequency of activity	Relevant for inhalative exposure estimates
Duration and Frequency of activity	365 uses per year
body weight	65 kg
Release duration	86400 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
Assessment method	exposure to vapour - constant rate
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0343 mg/m ³
Risk Characterization Ratio (RCR)	0,012693
	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	PC35: Washing and Cleaning Products (including solvent based products).	
Operational conditions	1	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,3599 %	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
Duration and Frequency of activity	Exposure duration: 24 h Relevant for inhalative exposure estimates	
Duration and Frequency of activity	365 uses per year	
body weight	65 kg	
Release duration	43200 min	
	Relevant for inhalative exposure estimates	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model: exposure to vapour - constant rate	
	Consumer - inhalation, long-term - systemic	
Exposure estimate	0,0294 mg/m³	
Risk Characterization Ratio (RCR)	0,01088	
	The exposure calculation is based on the mean	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	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	
	PC35: Washing and Cleaning Products (including solvent
Use descriptors covered	based products).
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance	16 Pa
during use	
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 0,75 min
Daration and Froquency of delivity	Relevant for inhalative exposure estimates
Duration and Frequency of activity	Application duration: 0,3 min
	Relevant for inhalative exposure estimates
Duration and Frequency of activity	104 uses per year
Room size	1 m3
Ventilation rate per hour	0,5
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 0,01 g Relevant for dermal exposure
	estimates
Release area	20 cm ²
Nelease area	Release area is constant
Release duration	0,3 min
release duration	Relevant for inhalative exposure estimates
Exposure estimate and reference to	
Exposure estimate and reference to	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant
Assessment method	application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0001 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,00053
2	The calculation is based on the internal chronic dose.
	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
ssessment method	exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0001 mg/m³
Risk Characterization Ratio (RCR)	0,000001
	The exposure calculation is based on the mean

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	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	PC35: Washing and Cleaning Products (including solvent based products).	
Operational conditions		
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
body weight	65 kg	
	Amount per use 0,01 g Relevant for dermal exposure estimates	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application	
	Consumer - dermal, short-term - local	
Exposure estimate	0,0001 μg/cm ³	
Risk Characterization Ratio (RCR)	0,000399	
	The calculation is based on the external dose.	
Guidance to Downstream Users		
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp		

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 240 min
	Relevant for inhalative exposure estimates
Duration and Frequency of activity	Application duration: 20 min
	Relevant for inhalative exposure estimates
Duration and Frequency of activity	104 uses per year

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017 Product: **Citronellal**

(ID no. 30035052/SDS_GEN_CH/EN)

Room size	58 m3	
Ventilation rate per hour	0,5	
Temperature (Application)	21 °C	
body weight	65 kg	
Uptake fraction dermal	100 %	
	Amount per use 19 g Relevant for dermal exposure estimates	
Release area	100000 cm ²	
	Release area increases over time	
Release duration	20 min	
	Relevant for inhalative exposure estimates	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction	
	Consumer - dermal, long-term - systemic	
Exposure estimate	0,0999 mg/kg bw/day	
Risk Characterization Ratio (RCR)	0,099945	
	The calculation is based on the internal chronic dose.	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:	
Assessment method	exposure to vapour - evaporation	
	Consumer - inhalation, long-term - systemic	
Exposure estimate	0,0236 mg/m³	
Risk Characterization Ratio (RCR)	0,008725	
	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	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg
	Amount per use 19 g Relevant for dermal exposure
	estimates
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017
Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	application
	Consumer - dermal, short-term - local
Exposure estimate	0,012 μg/cm ³
Risk Characterization Ratio (RCR)	0,085714
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	D005 W 1: 101 : D 1 : (' 1 !' 1
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 0,75 min
Duration and Frequency of activity	Relevant for inhalative exposure estimates
Duration and Frequency of activity	Application duration: 0,3 min
Duration and Frequency of activity	Relevant for inhalative exposure estimates
Duration and Frequency of activity	4 uses per year
Room size	1 m3
Ventilation rate per hour	2
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 0,01 g Relevant for dermal exposure estimates
Release area	20 cm ²
	Release area is constant
Release duration	0,3 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to	-
•	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant
Assessment method	application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0001 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000002
,	The calculation is based on the internal chronic dose.
A	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
Assessment method	exposure to vapour - evaporation

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0001 mg/m ³
Risk Characterization Ratio (RCR)	0,000001
	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	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg
	Amount per use 0,01 g Relevant for dermal exposure estimates
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 μg/cm ³
Risk Characterization Ratio (RCR)	0,000399
-	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/h	ealthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 25 min Relevant for inhalative exposure estimates

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Duration and Frequency of activity	Application duration: 20 min
	Relevant for inhalative exposure estimates
Duration and Frequency of activity	4 uses per year
Room size	10 m3
Ventilation rate per hour	2
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 19 g Relevant for dermal exposure
	estimates
Release area	64000 cm ²
	Release area increases over time
Release duration	20 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant
Assessment method	application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0038 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,003844
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
A33C33ment metrod	exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0024 mg/m ³
Risk Characterization Ratio (RCR)	0,000907
	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/h	nealthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	Amount per use 19 g Relevant for dermal exposure
	estimates
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant
Assessment method	application
	Consumer - dermal, short-term - local
Exposure estimate	0,012 μg/cm ³
Risk Characterization Ratio (RCR)	0,085714
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,2999 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 60 min
Duration and Frequency of activity	Relevant for inhalative exposure estimates
Duration and Frequency of activity	365 uses per year
Room size	15 m3
Ventilation rate per hour	2,5
body weight	65 kg
Uptake fraction dermal	100 %
Spray duration	24,6 sec
Contact rate	46 mg/min
Release duration	0,41 min
	Relevant for dermal exposure estimates
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, Dermal model: constant
Assessment method	application rate, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0009 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,00087
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0003 mg/m³
Risk Characterization Ratio (RCR)	0,000115
	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	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,2999 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg
Contact rate	46 mg/min
Release duration	0,41 min
	Relevant for dermal exposure estimates
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: constant application rate
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 μg/cm ³
Risk Characterization Ratio (RCR)	0,000194
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/	nealthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,2999 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Duration and Frequency of activity	Exposure duration: 60 min
	Relevant for inhalative exposure estimates
Duration and Frequency of activity	Application duration: 10 min
	Relevant for inhalative exposure estimates
Duration and Frequency of activity	365 uses per year
Room size	15 m3
Ventilation rate per hour	2,5
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 0,16 g Relevant for dermal exposure estimates
Release area	17100 cm ²
	Release area is constant
Release duration	10 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant
	application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0074 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,007385
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
7.00000mont motion	exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0379 mg/m³
Risk Characterization Ratio (RCR)	0,014046
	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	PC35: Washing and Cleaning Products (including solvent based products).	
Operational conditions		
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,2999 %	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

body weight	65 kg
	Amount per use 0,16 g Relevant for dermal exposure
	estimates
Exposure estimate and reference to its source	
A	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant
Assessment method	application
	Consumer - dermal, short-term - local
Exposure estimate	0,0022 μg/cm ³
Risk Characterization Ratio (RCR)	0,015947
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 25 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	52 uses per year
Room size	10 m3
Ventilation rate per hour	2
body weight	65 kg
Uptake fraction dermal	100 %
Spray duration	90 sec
Contact rate	46 mg/min
Release duration	1,5 min
	Relevant for dermal exposure estimates
Risk Management Measures	·
Consumer Measures	Ensure spraying away from persons.
Exposure estimate and reference to	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: constant application rate, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0002 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000181

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
	Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0016 mg/m ³
Risk Characterization Ratio (RCR)	0,000594
	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	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg
Contact rate	46 mg/min
Release duration	1,5 min
	Relevant for dermal exposure estimates
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: constant application rate
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 μg/cm ³
Risk Characterization Ratio (RCR)	0,000284
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/	healthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario		
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).	
Operational conditions		
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %	
Vapour pressure of the substance during use	16 Pa	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 25 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	Application duration: 20 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	52 uses per year
Room size	10 m3
Ventilation rate per hour	2
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 0,3 g Relevant for dermal exposure estimates
Release area	64000 cm ²
	Release area is constant
Release duration	20 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to i	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0008 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000789
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
Assessment method	exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0424 mg/m³
Risk Characterization Ratio (RCR)	0,015695
	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/h	ealthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario		
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).	
Operational conditions		
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %	
Vapour pressure of the substance during use	16 Pa	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Process temperature	20 °C	
body weight	65 kg	
	Amount per use 0,3 g Relevant for dermal exposure estimates	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant	
	application	
	Consumer - dermal, short-term - local	
Exposure estimate	0,0017 μg/cm ³	
Risk Characterization Ratio (RCR)	0,01196	
	The calculation is based on the external dose.	
Guidance to Downstream Users		
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp		

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 60 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	26 uses per year
Room size	15 m3
Ventilation rate per hour	2,5
body weight	65 kg
Uptake fraction dermal	100 %
Spray duration	30 sec
Contact rate	46 mg/min
Release duration	0,5 min
	Relevant for dermal exposure estimates
Risk Management Measures	
Consumer Measures	Ensure spraying away from persons.
Exposure estimate and reference to i	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: constant application rate, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Exposure estimate	0,0001 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,00003
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
	Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0002 mg/m³
Risk Characterization Ratio (RCR)	0,000056
	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	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg
Contact rate	46 mg/min
Release duration	0,5 min
	Relevant for dermal exposure estimates
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: constant application rate
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 μg/cm ³
Risk Characterization Ratio (RCR)	0,000095
-	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/h	nealthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	26 uses per year
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 0,2 g Relevant for dermal exposure
	estimates
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0003 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000263
	The calculation is based on the internal chronic dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg
	Amount per use 0,2 g Relevant for dermal exposure estimates
Exposure estimate and reference to it	ts source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0006 μg/cm ³
Risk Characterization Ratio (RCR)	0,003987
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Use descriptors covered	PC35: Washing and Cleaning Products (including solven based products).
Operational conditions	
- -	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 0,75 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	Application duration: 0,3 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	< 1 uses per year
Room size	1 m3
Ventilation rate per hour	0,5
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 0,01 g Relevant for dermal exposure estimates
Release area	20 cm ²
	Release area is constant
Release duration	0,3 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0001 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000001
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0001 mg/m ³
Risk Characterization Ratio (RCR)	0,00038
Tion SharasionZadon Nado (NON)	The exposure calculation is based on the mean concentration on the day of exposure.
Guidance to Downstream Users	Total California and any or exposure.

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	1
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg
	Amount per use 0,01 g Relevant for dermal exposure estimates
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 μg/cm ³
Risk Characterization Ratio (RCR)	0,000399
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/h	nealthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 110 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	Application duration: 110 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	< 1 uses per year
Room size	58 m3
Ventilation rate per hour	0,5
Temperature (Application)	21 °C
body weight	65 kg

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Uptake fraction dermal	100 %
·	Amount per use 27 g Relevant for dermal exposure
	estimates
Release area	220000 cm ²
	Release area increases over time
Release duration	110 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0007 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000683
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
Assessment method	exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0108 mg/m ³
Risk Characterization Ratio (RCR)	0,003989
	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	PC35: Washing and Cleaning Products (including solvent based products).	
Operational conditions		
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
body weight	65 kg	
	Amount per use 27 g Relevant for dermal exposure estimates	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application	
	Consumer - dermal, short-term - local	
Exposure estimate	0,0377 μg/cm ³	
Risk Characterization Ratio (RCR)	0,269103	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

	PC35: Washing and Cleaning Products (including solvent
Use descriptors covered	based products).
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance	16 Pa
during use	
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 22 min
. , ,	Relevant for inhalative exposure estimates
Duration and Frequency of activity	< 1 uses per year
Room size	58 m3
Ventilation rate per hour	0,5
body weight	65 kg
Uptake fraction dermal	100 %
Spray duration	1320 sec
Contact rate	5 mg/min
Release duration	22 min
	Relevant for dermal exposure estimates
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, Dermal model: constant
Assessment method	application rate, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0001 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000003
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
ASSOSSITIENT INGUIOG	Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0064 mg/m³
Risk Characterization Ratio (RCR)	0,002361
	The exposure calculation is based on the mean
	concentration on the day of exposure.
Guidance to Downstream Users	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg
Contact rate	5 mg/min
Release duration	22 min
	Relevant for dermal exposure estimates
Exposure estimate and reference to	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: constant
Assessmentmethod	application rate
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 μg/cm ³
Risk Characterization Ratio (RCR)	0,000453
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/	nealthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	14 uses per year
Duration and Frequency of activity	14 uses per year
body weight	8,69 kg
Uptake fraction dermal	100 %

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Uptake fraction oral	100 %	
	Amount ingested 0,216 mg Relevant for oral exposure estimates	
Transfer coefficient	1,666667 cm ² /s	
Dislodgeable amount	0,0003 g/cm ²	
Contact time	3600 sec	
Rubbed surface	22 m²	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: rubbing	
Assessment method	off, Uptake model: Uptake fraction	
	Consumer - dermal, long-term - systemic	
Exposure estimate	0,0095 mg/kg bw/day	
Risk Characterization Ratio (RCR)	0,009534	
	The calculation is based on the internal chronic dose.	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Oral model: direct intake,	
Assessment method	Uptake model: Uptake fraction	
	Consumer - oral, long-term - systemic	
Exposure estimate	0,0001 mg/kg bw/day	
Risk Characterization Ratio (RCR)	0,000002	
	The calculation is based on the internal chronic dose.	
Guidance to Downstream Users		
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp		

Contributing exposure scenario		
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).	
Operational conditions		
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
body weight	8,69 kg	
Transfer coefficient	1,666667 cm ² /s	
Dislodgeable amount	0,0003 g/cm ²	
Contact time	3600 sec	
Rubbed surface	22 m²	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: rubbing off	
	Consumer - dermal, short-term - local	
Exposure estimate	0,0005 μg/cm ³	
Risk Characterization Ratio (RCR)	0,003214	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	10 uses per year
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 0,07 g Relevant for dermal exposure estimates
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0001 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000035
	The calculation is based on the internal chronic dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/h	ealthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	Amount per use 0,07 g Relevant for dermal exposure estimates	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant	
	application	
	Consumer - dermal, short-term - local	
Exposure estimate	0,0004 μg/cm ³	
Risk Characterization Ratio (RCR)	0,002791	
	The calculation is based on the external dose.	
Guidance to Downstream Users		
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp		

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 60 min
Duration and Frequency of activity	Relevant for inhalative exposure estimates
Duration and Frequency of activity	Application duration: 2 min
Daration and Frequency of delivity	Relevant for inhalative exposure estimates
Duration and Frequency of activity	365 uses per year
Room size	20 m3
Ventilation rate per hour	0,6
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 0,047 g Relevant for dermal exposure
	estimates
Release area	20000 cm ²
	Release area increases over time
Release duration	2 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant
	application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0009 mg/kg bw/day

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017 Product: **Citronellal**

(ID no. 30035052/SDS_GEN_CH/EN)

Risk Characterization Ratio (RCR)	0,000868
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
	exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0062 mg/m ³
Risk Characterization Ratio (RCR)	0,002295
	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	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,1199 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg
	Amount per use 0,047 g Relevant for dermal exposure estimates
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant
Assessmentmethod	application
	Consumer - dermal, short-term - local
Exposure estimate	0,0003 μg/cm ³
Risk Characterization Ratio (RCR)	0,001874
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en.	/healthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based 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 Article 14 (2b) 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

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

	preparation is less than 0,1% weight by weight (w/w) and if the substance meets the criteria in Annex XIII to this Regulation.
Operational conditions	
Vapour pressure of the substance	16 Pa
during use	
Process temperature	20 °C

* * * * * * * * * * * * * * * *

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 (no inclusion into or onto ar	non-reactive processing aid ticle, indoor)
Operational conditions		
Annual amount used in the EU	100.000 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)	0,063856	
	Risk from environmental exposure is driven by freshwater.	
Maximum amount of safe use	0,85809	

Page: 100/106

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 Baseletian (EQ) No. 1007/2006

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	kg/d
Risk from environmental exposure is driven by freshwater.	

Contributing exposure scenario		
Use descriptors covered	ERC8d: Widespread use of (no inclusion into or onto a	f non-reactive processing aid rticle, outdoor)
Operational conditions		
Annual amount used in the EU	100.000 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		Municipal STP
Assumed sewage treatment plant flow (m3/d) 2.000 m3/d		2.000 m3/d
Exposure estimate and reference to		
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Environment	
Risk Characterization Ratio (RCR)	0,063856	
		xposure is driven by freshwater.
	0,85809	
Maximum amount of safe use	kg/d	
Risk from environmental exposure is d	riven by freshwater.	

Contributing exposure scenario	
Use descriptors covered	PC8: Biocidal Products.
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,8399 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Duration and Frequency of activity	54 uses per year	
Duration and Frequency of activity	Exposure duration: 180 min	
Buration and Frequency of activity	Relevant for oral exposure estimates	
Duration and Frequency of activity	54 uses per year	
body weight	65 kg	
Uptake fraction dermal	100 %	
Uptake fraction oral	100 %	
	Amount per use 6 g Relevant for dermal exposure	
	estimates	
Ingestion rate	0,001 mg/min	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant	
Assessment method	application, Uptake model: Uptake fraction	
	Consumer - dermal, long-term - systemic	
Exposure estimate	0,1147 mg/kg bw/day	
Risk Characterization Ratio (RCR)	0,114714	
	The calculation is based on the internal chronic dose.	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Oral model: constant	
Assessment method	rate, Uptake model: Uptake fraction	
	Consumer - oral, long-term - systemic	
Exposure estimate	0,0001 mg/kg bw/day	
Risk Characterization Ratio (RCR)	0,00006	
	The calculation is based on the internal chronic dose.	
Guidance to Downstream Users		
For scaling see: http://www.rivm.nl/en/h	ealthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario		
Use descriptors covered	PC8: Biocidal Products.	
Operational conditions	•	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,8399 %	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
body weight	65 kg	
	Amount per use 6 g Relevant for dermal exposure estimates	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

	application	
	Consumer - dermal, short-term - local	
Exposure estimate	0,0029 μg/cm ³	
Risk Characterization Ratio (RCR)	0,020571	
	The calculation is based on the external dose.	
Guidance to Downstream Users		
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp		

Contributing exposure scenario	
Use descriptors covered	PC8: Biocidal Products.
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,8399 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	54 uses per year
Duration and Frequency of activity	Exposure duration: 180 min Relevant for oral exposure estimates
Duration and Frequency of activity	54 uses per year
body weight	8,69 kg
Uptake fraction dermal	100 %
Uptake fraction oral	100 %
	Amount per use 1,5 g Relevant for dermal exposure estimates
Ingestion rate	0,001 mg/min
Exposure estimate and reference to	its source
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,2145 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,214512
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Oral model: constant
	rate, Uptake model: Uptake fraction
Exposure estimate	Consumer - oral, long-term - systemic
Exposure estimate	0,0001 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000043 The calculation is based on the internal chronic dose.
Guidance to Downstream Users	The calculation is pased on the internal childric dose.
Guidance to Downstream Users	

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Date of print 16.10.2025

For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp

Contributing exposure scenario	
Use descriptors covered	PC8: Biocidal Products.
Operational conditions	
	Citronellal
Concentration of the substance	Content: >= 0 % - <= 0,8399 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	8,69 kg
	Amount per use 1,5 g Relevant for dermal exposure estimates
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0026 μg/cm ³
Risk Characterization Ratio (RCR)	0,01875
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC8: Biocidal Products.
Operational conditions	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,8399 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 240 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	90 uses per year
Room size	58 m3
Ventilation rate per hour	0,5
body weight	65 kg
Uptake fraction dermal	100 %

to Regulation (EC) No 1907/2006.

Date / Revised: 18.09.2023 Version: 4.0
Date previous version: 09.09.2022 Previous version: 3.0
Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Spray duration	19,8 sec
Contact rate	269 mg/min
Release duration	0,33 min
	Relevant for dermal exposure estimates
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, Dermal model: constant
Assessment method	application rate, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0028 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,002829
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model:
Assessment method	Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,002 mg/m ³
Risk Characterization Ratio (RCR)	0,000756
	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	PC8: Biocidal Products.	
Operational conditions		
	Citronellal	
Concentration of the substance	Content: >= 0 % - <= 0,8399 %	
Vapour pressure of the substance	16 Pa	
during use		
Process temperature	20 °C	
body weight	65 kg	
Contact rate	269 mg/min	
Release duration	0,33 min	
	Relevant for dermal exposure estimates	
Exposure estimate and reference to	its source	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: constant	
Assessment method	application rate	
	Consumer - dermal, short-term - local	
Exposure estimate	0,0001 μg/cm ³	
Risk Characterization Ratio (RCR)	0,000304	
-	The calculation is based on the external dose.	
Guidance to Downstream Users		
For scaling see: http://www.rivm.nl/en/h	nealthanddisease/productsafety/ConsExpo.jsp	

Page: 105/106

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: 18.09.2023 Version: 4.0 Date previous version: 09.09.2022 Previous version: 3.0

Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Contributing exposure scenario		
Use descriptors covered	PC8: Biocidal Products.	
Operational conditions		
Concentration of the substance	Citronellal	
	Content: >= 0 % - <= 0,8399 %	
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	
Duration and Frequency of activity	90 uses per year	
Duration and Frequency of activity	Exposure duration: 60 min	
Duration and Frequency of activity	Relevant for oral exposure estimates	
Duration and Frequency of activity	90 uses per year	
body weight	8,69 kg	
Uptake fraction dermal	100 %	
Uptake fraction oral	100 %	
Transfer coefficient	1,666667 cm ² /s	
Dislodgeable amount	0,000082 g/cm ²	
Contact time	3600 sec	
Rubbed surface	22 m²	
Ingestion rate	0,006888 mg/min	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: rubbing off, Uptake model: Uptake fraction Consumer - dermal, long-term - systemic	
Exposure estimate		
Exposure estimate Risk Characterization Ratio (RCR)	0,1173 mg/kg bw/day 0,117267	
NISK CHARACIERIZATION KATIO (KCK)	'	
Assessment method	The calculation is based on the internal chronic dose. EASY TRA v4.1, ConsExpo v4.1, Oral model: constant	
	rate, Uptake model: Uptake fraction	
	Consumer - oral, long-term - systemic	
Exposure estimate	0,0001 mg/kg bw/day	
Risk Characterization Ratio (RCR)	0,000164	
The state of the s	The calculation is based on the internal chronic dose.	
Guidance to Downstream Users	The sales and the sales of the memor should door.	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp		
Tot doubling doc. http://www.hvm.hi/ch/hodathahadadada/productsalety/OohiaExp0.jap		

Contributing exposure scenario	
Use descriptors covered	PC8: Biocidal Products.

Date / Revised: 18.09.2023

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Date / First version: 14.08.2017

Product: Citronellal

(ID no. 30035052/SDS_GEN_CH/EN)

Operational conditions		
	Citronellal	
Concentration of the substance	Content: >= 0 % - <= 0,8399 %	
Vapour pressure of the substance	16 Pa	
during use		
Process temperature	20 °C	
body weight	8,69 kg	
Transfer coefficient	1,666667 cm ² /s	
Dislodgeable amount	0,000082 g/cm ²	
Contact time	3600 sec	
Rubbed surface	22 m ²	
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: rubbing	
	off	
	Consumer - dermal, short-term - local	
Exposure estimate	0,0009 μg/cm ³	
Risk Characterization Ratio (RCR)	0,00615	
	The calculation is based on the external dose.	
Guidance to Downstream Users		
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp		

Contributing exposure scenario		
Use descriptors covered	PC8: Biocidal 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 Article 14 (2b) 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 0,1% weight by weight (w/w) and if the substance meets the criteria in Annex XIII to this Regulation.	
Operational conditions		
Vapour pressure of the substance during use	16 Pa	
Process temperature	20 °C	