

Safety data sheet

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Date / Revised: 07.09.2023

Version: 1.1

Date previous version: 30.08.2022

Previous version: 1.0

Date / First version: 30.08.2022

Product: **Citronellal**

(ID no. 30035052/SDS_GEN_DE/EN)

Date of print 13.10.2025

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

REACH registration number: 01-2119474900-37-0000

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

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

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

1.3. Details of the supplier of the safety data sheet

Company:

BASF SE

67056 Ludwigshafen

GERMANY

Operating Division Nutrition and Health

Telephone: +49 621 60-48434

E-mail address: EN-global-safety-data@basf.com

1.4. Emergency telephone number

International emergency number:

Telephone: +49 180 2273-112

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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.

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

SECTION 3: Composition/Information on Ingredients

3.1. Substances

Chemical nature

Citronellal

CAS Number: 106-23-0

EC-Number: 203-376-6

Skin Corr./Irrit. 2

Eye Dam./Irrit. 2

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

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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 disposed 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.

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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.

Storage class according to TRGS 510 (originally VCI, Germany): (10) Combustible liquids

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.

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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:

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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)

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Boiling point:	206,9 °C (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 Literature data.	(closed cup)
Auto-ignition temperature:	202 °C	(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 mm ² /s (20 °C) 1,33 mm ² /s (40 °C)	(OECD 114)
Viscosity, dynamic:	1,48 mPa.s (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 (25 °C)	(Directive 92/69/EEC, A.8)
Vapour pressure:	0,16 hPa (20 °C) dynamic 1,73 hPa (50 °C) dynamic	(OECD Guideline 104) (OECD Guideline 104)
Relative density:	0,86 (20 °C)	
Density:	0,85 g/cm ³ (20 °C)	
Relative vapour density (air):	5,31 (20 °C) Heavier than air.	(calculated)

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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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SECTION 10: Stability and Reactivity

10.1. Reactivity

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

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

10.2. Chemical stability

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

10.3. Possibility of hazardous reactions

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

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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.

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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)

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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

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

RID

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

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Inland waterway transport

ADN

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

Transport in inland waterway vessel

Not evaluated

Sea transport

IMDG

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

Air transport

IATA/ICAO

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

14.1. UN number or ID number

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See corresponding entries for "UN number or ID number" for the respective regulations in the tables above.

14.2. UN proper shipping name

See corresponding entries for "UN proper shipping name" for the respective regulations in the tables above.

14.3. Transport hazard class(es)

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

14.4. Packing group

See corresponding entries for "Packing group" for the respective regulations in the tables above.

14.5. Environmental hazards

See corresponding entries for "Environmental hazards" for the respective regulations in the tables above.

14.6. Special precautions for user

See corresponding entries for "Special precautions for user" for the respective regulations in the tables above.

14.7. Maritime transport in bulk according to IMO instruments

Maritime transport in bulk is not intended.

SECTION 15: Regulatory Information

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

Prohibitions, Restrictions and Authorizations

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

Hazardous Incident Ordinance (Germany):

Listed in above regulation: no

Directive 2012/18/EU - Control of Major Accident Hazards involving dangerous substances (EU):

Listed in above regulation: no

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

The specifications of the Technical Rule for Hazardous Substances (TRGS) 401 must be observed (TRGS 401: Risks resulting from skin contact - identification, assessment, measures).

Law on the Protection of Working Youth

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German Regulation TA Luft (Technical Instruction on Air Quality Control, i.e. first Directive to the Federal Immission Control Ordinance)

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)

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

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Weight Average. UN-number = UN number at transport. vPvB = very Persistent and very Bioaccumulative.

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Vertical lines in the left hand margin indicate an amendment from the previous version.

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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)

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4. Use in Cleaning Agents, (use in industrial settings)

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

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

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7. Use in cosmetics, (consumer use)

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8. Use in Cleaning Agents, (consumer use)

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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

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Emission factor air	2,5 %
Emission factor water	0,2 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,559517
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	714,9 kg/d
Risk from environmental exposure is driven by soil.	

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	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	

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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/m ³
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	

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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/m ³
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 its source	
Assessment method	EASY TRA v4.1, Workplace measurements
	Worker - dermal, long-term - systemic

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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/cm³
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	
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 its source	
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/cm³

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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/m ³
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
Exposure estimate	0,3429 mg/kg bw/day
Risk Characterization Ratio (RCR)	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

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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	0,9641 mg/m ³
Risk Characterization Ratio (RCR)	0,107118
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

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

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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 its source	
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - dermal, long-term - systemic
Exposure estimate	0,1714 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,10084
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

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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	
Use descriptors covered	PROC15: Use a laboratory reagent. 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	15 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Wear chemically resistant gloves in combination with 'basic' employee training.	Effectiveness: 90 %
Avoid 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	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/cm ³
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

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Risk Characterization Ratio (RCR)	0,357059
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

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 (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)	0,82256
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	145,9 kg/d
	Risk from environmental exposure is driven by soil.

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent

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	containment conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 25\%$
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	0,0009 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/cm³
Risk Characterization Ratio (RCR)	0,001786
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0032 mg/m³
Risk Characterization Ratio (RCR)	0,000357
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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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 % - <= 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	0,0171 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,010084
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	5 µg/cm ³
Risk Characterization Ratio (RCR)	0,035714
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	2,8922 mg/m ³
Risk Characterization Ratio (RCR)	0,321353

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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
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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)	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	50 µg/cm³
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.
	Worker - inhalation, long-term - systemic
Exposure estimate	4,8203 mg/m³

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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 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/m ³
Risk Characterization Ratio (RCR)	0,042847
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

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

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	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)	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/cm³
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/m³
Risk Characterization Ratio (RCR)	0,178529
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

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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: $\geq 0\%$ - $\leq 1\%$
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.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0643 mg/m ³
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	
Use descriptors covered	PROC14: Tableting, compression, extrusion, pelletisation, granulation Use domain: industrial
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 1\%$

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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.
	Worker - dermal, long-term - local
Exposure estimate	5 µg/cm ³
Risk Characterization Ratio (RCR)	0,035714
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3214 mg/m ³
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	

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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	0,0086 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,005042
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	2,5 µg/cm ³
Risk Characterization Ratio (RCR)	0,017857
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	0,8034 mg/m ³
Risk Characterization Ratio (RCR)	0,089265
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/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

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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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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: $\geq 0\%$ - $\leq 0,5\%$
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

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Exposure estimate	0,0003 mg/m ³
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.org/tra Please note that a modified version has been used (see exposure estimates)	

Contributing exposure scenario

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Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Use domain: industrial
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,5\%$
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.
	Worker - dermal, long-term - local
Exposure estimate	5 µg/cm ³
Risk Characterization Ratio (RCR)	0,035714
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,1607 mg/m ³
Risk Characterization Ratio (RCR)	0,017853
Guidance to Downstream Users	
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Contributing exposure scenario	
Use descriptors covered	PROC7: Industrial spraying Use domain: industrial
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,5\%$
Physical state	liquid

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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/cm³
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/m³
Risk Characterization Ratio (RCR)	0,357059
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

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

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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	5 µg/cm ³
Risk Characterization Ratio (RCR)	0,035714
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0321 mg/m ³
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)	

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

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Risk Characterization Ratio (RCR)	0,008067
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	0,2249 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.

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	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.org/tra Please note that a modified version has been used (see exposure estimates)	

5. Short title of exposure scenario

Use in Cleaning Agents, (use in professional settings)

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

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC8a: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
Operational conditions	
Annual amount used in the EU	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

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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 non-reactive processing aid (no inclusion into or onto article, 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
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	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

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	Content: $\geq 0\%$ - $\leq 0,5\%$
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/cm³
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/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: professional
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,5\%$
Physical state	liquid
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C

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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/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	
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

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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.
	Worker - dermal, long-term - local
Exposure estimate	5 µg/cm ³
Risk Characterization Ratio (RCR)	0,035714
Assessment method	EASY TRA v4.1, ECETOC TRA v3.0, worker, modified version, The concentration of the substance has been considered using a linear approach.
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3214 mg/m ³
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	PROC8a: Transfer of substance or mixture (charging and discharging) at non-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
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	5 µg/cm ³
Risk Characterization Ratio (RCR)	0,035714

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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	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) 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.
	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	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

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Exposure estimate	0,0643 mg/m ³
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	
Use descriptors covered	PROC10: Roller application or brushing 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
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	0,8034 mg/m ³
Risk Characterization Ratio (RCR)	0,089265
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	PROC11: Non industrial spraying Use domain: professional

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Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,5\%$
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	0,5357 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
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/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: professional
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,5\%$
Physical state	liquid
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C

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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.
	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	0,0643 mg/m ³
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)	

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

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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	

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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/m ³
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 m ³
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 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	0,0005 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/m ³

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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/healthandddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC3: Air care products.
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,1499\%$
Vapour pressure of the substance during use	16 Pa
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 application rate
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 $\mu\text{g}/\text{cm}^3$
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/healthandddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC3: Air care products.
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,1499\%$
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

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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 m ²
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
	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	
Concentration of the substance	Citronellal 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 m ²
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Dermal model: rubbing off

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Product: **Citronellal**

(ID no. 30035052/SDS_GEN_DE/EN)

Date of print 13.10.2025

	Consumer - dermal, short-term - local
Exposure estimate	0,0002 µg/cm³
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/healthandddisease/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

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 %

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Product: **Citronellal**

(ID no. 30035052/SDS_GEN_DE/EN)

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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	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

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Product: **Citronellal**

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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 (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	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

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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 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	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

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Product: **Citronellal**

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	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	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,1199\%$
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 application
	Consumer - dermal, short-term - local
Exposure estimate	0,0006 $\mu\text{g}/\text{cm}^3$
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: $\geq 0\%$ - $\leq 0,1199\%$
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 m ³

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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: Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0008 mg/m ³
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	
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	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 application rate
	Consumer - dermal, short-term - local

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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/healthandddisease/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: 90 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	2 uses per year
Room size	58 m ³
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	0,0006 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/m ³
Risk Characterization Ratio (RCR)	0,003971

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	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: $\geq 0\%$ - $\leq 0,1199\%$
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/cm³
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: $\geq 0\%$ - $\leq 0,1199\%$
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

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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: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,3426 mg/m ³
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	
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

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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/healthandddisease/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	1 uses per year
Room size	58 m ³
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: Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0054 mg/m ³
Risk Characterization Ratio (RCR)	0,001987
	The exposure calculation is based on the mean concentration on the day of exposure.
Guidance to Downstream Users	

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For scaling see: <http://www.rivm.nl/en/healthandddisease/productsafety/ConsExpo.jsp>

Contributing exposure scenario	
Use descriptors covered	PC31: Polishes and Wax Blends.
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,1199\%$
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg
Contact rate	100 mg/min
Release duration	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 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/healthandddisease/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

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Product: **Citronellal**

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Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,1199\%$
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 m ³
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 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	0,0002 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: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0003 mg/m ³
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	

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Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,1199\%$
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 $\mu\text{g}/\text{cm}^3$
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: $\geq 0\%$ - $\leq 0,1199\%$
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,

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	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: $\geq 0\%$ - $\leq 0,1199\%$
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/cm³
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/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: $\geq 0\%$ - $\leq 0,3599\%$
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

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Product: **Citronellal**

(ID no. 30035052/SDS_GEN_DE/EN)

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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 m ³
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 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/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	
Concentration of the substance	Citronellal Content: >= 0 % - <= 0,3599 %
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg

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	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 Relevant for inhalative exposure estimates
Duration and Frequency of activity	120 uses per year
Room size	2,5 m ³
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 application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0401 mg/kg bw/day

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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/healthandddisease/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
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 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/healthandddisease/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

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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	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: 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	
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/m ³
Risk Characterization Ratio (RCR)	0,01088
	The exposure calculation is based on the mean

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	concentration on the day of exposure.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthandddisease/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: $\geq 0\%$ - $\leq 0,1199\%$
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	104 uses per year
Room size	1 m ³
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 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)	0,000053
	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)	0,000001
	The exposure calculation is based on the mean

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	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: $\geq 0\%$ - $\leq 0,1199\%$
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 $\mu\text{g}/\text{cm}^3$
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: $\geq 0\%$ - $\leq 0,1199\%$
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

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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: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0236 mg/m ³
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

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	application
	Consumer - dermal, short-term - local
Exposure estimate	0,012 µg/cm³
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	
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: 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	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 cm²
	Release area is constant
Release duration	0,3 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	0,0001 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000002
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.1, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation

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	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/healthandddisease/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/healthandddisease/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

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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 m ³
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 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: 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/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

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	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 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	
Concentration of the substance	Citronellal 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 Relevant for inhalative exposure estimates
Duration and Frequency of activity	365 uses per year
Room size	15 m ³
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 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:

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	Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0003 mg/m ³
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/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

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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 m ³
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 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	0,0074 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: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0379 mg/m ³
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

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body weight	65 kg
	Amount per use 0,16 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	0,0022 µg/cm³
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 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	0,0002 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000181

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	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

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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 m ³
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 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	0,0008 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: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0424 mg/m ³
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/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

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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 m ³
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 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

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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/m ³
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/healthandddisease/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/healthandddisease/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 %

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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/healthandddisease/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 its 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/healthandddisease/productsafety/ConsExpo.jsp	

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Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,1199\%$
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 m ³
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 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)	0,000001
	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)	0,000038
	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/healthandddisease/productsafety/ConsExpo.jsp	

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Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,1199\%$
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 $\mu\text{g}/\text{cm}^3$
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: $\geq 0\%$ - $\leq 0,1199\%$
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 m ³
Ventilation rate per hour	0,5
Temperature (Application)	21 °C
body weight	65 kg

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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: 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

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	The calculation is based on the external dose.
Guidance to Downstream Users	
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Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,1199\%$
Vapour pressure of the substance during use	16 Pa
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 m ³
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 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: Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0064 mg/m ³
Risk Characterization Ratio (RCR)	0,002361
	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/healthandddisease/productsafety/ConsExpo.jsp	

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Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,1199\%$
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 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 $\mu\text{g}/\text{cm}^3$
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/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: $\geq 0\%$ - $\leq 0,1199\%$
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 %

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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 m ²
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	0,0095 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, 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 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	0,0005 µg/cm ³
Risk Characterization Ratio (RCR)	0,003214

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	The calculation is based on the external dose.
Guidance to Downstream Users	
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Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,1199\%$
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/healthandddisease/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: $\geq 0\%$ - $\leq 0,1199\%$
Vapour pressure of the substance during use	16 Pa
Process temperature	20 °C
body weight	65 kg

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	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	
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	Application duration: 2 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	365 uses per year
Room size	20 m ³
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 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	0,0009 mg/kg bw/day

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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/healthandddisease/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 0,047 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 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/healthandddisease/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

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	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

9. Short title of exposure scenario

other consumer applications than fragrance, (consumer use)

ERC8a, ERC8d; PC8

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC8a: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
Operational conditions	
Annual amount used in the EU	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

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	kg/d
Risk from environmental exposure is driven 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
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 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	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

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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	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 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 rate, Uptake model: Uptake fraction
	Consumer - oral, long-term - systemic
Exposure estimate	0,0001 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000006
	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	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

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	application
	Consumer - dermal, short-term - local
Exposure estimate	0,0029 µg/cm³
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/healthandddisease/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
	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	

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Contributing exposure scenario	
Use descriptors covered	PC8: Biocidal Products.
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,8399\%$
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: $\geq 0\%$ - $\leq 0,8399\%$
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 m ³
Ventilation rate per hour	0,5
body weight	65 kg
Uptake fraction dermal	100 %

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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 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: 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/healthandddisease/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
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 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/healthandddisease/productsafety/ConsExpo.jsp	

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Contributing exposure scenario	
Use descriptors covered	PC8: Biocidal Products.
Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,8399\%$
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 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 m ²
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	0,1173 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,117267
	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)	0,000164
	The calculation is based on the internal chronic dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthandddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC8: Biocidal Products.

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Operational conditions	
Concentration of the substance	Citronellal Content: $\geq 0\%$ - $\leq 0,8399\%$
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 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
