We create chemistry

Safety data sheet

BASF safety data sheet. This is a translation of the country-specific safety data sheet into a language other than that required by law. This document does not replace the safety data sheet provided according to Regulation (EC) No 1907/2006.
Date / Revised: 28.08.2023 Version: 15.0
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Product: **Citral N**

(ID no. 30035011/SDS_GEN_CH/EN)
Date of print 21.10.2025

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

1.1. Product identifier

Citral N

Chemical name: citral
INDEX-Number: 605-019-00-3
CAS Number: 5392-40-5

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

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

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

1.3. Details of the supplier of the safety data sheet

Company:
BASF SE
67056 Ludwigshafen
GERMANY

Contact address:
BASF Schweiz AG
Klybeckstrasse 161
4057 Basel, SWITZERLAND

Telephone: +41 0800 227722
E-mail address: PS-BCSCHWEIZ@basf.com

1.4. Emergency telephone number

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

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

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

Skin Sens. 1	H317 May cause an allergic skin reaction.
Eye Irrit. 2	H319 Causes serious eye irritation.
Skin Irrit. 2	H315 Causes skin irritation.

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]

When finely distributed on porose material, self-ignition is possible.
The product does not contain a substance fulfilling the PBT (persistent/bioaccumulative/toxic) criteria or the vPvB (very persistent/very bioaccumulative) criteria. Product does not contain a substance above legal limits included in the list established in accordance with Article 59(1) of Regulation (EC) No 1907/2006 for having endocrine disrupting properties or is identified to have endocrine disrupting

properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 3: Composition/Information on Ingredients

3.1. Substances

Chemical nature

citral

	Skin Corr./Irrit. 2
CAS Number: 5392-40-5	Eye Dam./Irrit. 2
EC-Number: 226-394-6	Skin Sens. 1
INDEX-Number: 605-019-00-3	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.

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:
dry powder, foam, carbon dioxide, water spray

Unsuitable extinguishing media for safety reasons:
water jet

5.2. Special hazards arising from the substance or mixture

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

5.3. Advice for fire-fighters

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

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

SECTION 6: Accidental Release Measures

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

6.1. Personal precautions, protective equipment and emergency procedures

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

6.2. Environmental precautions

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

6.3. Methods and material for containment and cleaning up

For small amounts: 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. 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

Further information on storage conditions: Keep container tightly closed in a cool, well-ventilated place. Protect from the effects of light.

7.3. Specific end use(s)

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

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Components with occupational exposure limits

No substance specific occupational exposure limits known.

PNEC

freshwater: 0,00678 mg/l

marine water: 0,000678 mg/l

intermittent release: 0,0678 mg/l

sediment (freshwater): 0,125 mg/kg

sediment (marine water): 0,0125 mg/kg

soil: 0,0209 mg/kg

STP: 1,6 mg/l

DNEL

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

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

worker:
Long- and short-term exposure - local effects, dermal: 140 µg/cm³

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

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

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

consumer:
Long- and short-term exposure - local effects, dermal: 140 µg/cm³

8.2. Exposure controls

Personal protective equipment

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

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

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

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

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

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

General safety and hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is required additionally to the stated personal protection equipment. Avoid contact with the skin, eyes and clothing. Do not breathe vapour/spray. 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	
Odour:	of lemon	
Odour threshold:	< 100 ppm	
glass transition temperature:	-115 °C	(DSC (DIN 51007))

Boiling point:	approx. 230 °C (1.013 hPa) The substance / product decomposes.	(other)
Flammability:	hardly combustible	(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:	98 °C Literature data.	(other)
Auto-ignition temperature:	225 °C Literature data.	(DIN 51794)
Thermal decomposition:	approx. 180 °C (DSC (DIN 51007))	
SADT:	> 75 °C Heat accumulation / Dewar 500 ml (SADT, UN-Test H.4, 28.4.4)	
pH value:	not applicable	
Viscosity, kinematic:	2,42 mm2/s (20 °C)	(OECD 114)
	1,67 mm2/s (40 °C)	(OECD 114)
Viscosity, dynamic:	2,15 mPa.s (20 °C)	(calculated (from kinematic viscosity))
	1,46 mPa.s (40 °C)	(calculated (from kinematic viscosity))
Solubility in water:	moderately soluble 0,42 g/l (25 °C)	(other)
Partitioning coefficient n-octanol/water (log Kow):	2,76 (25 °C)	(OECD Guideline 107)
Vapour pressure:	0,046 hPa (20 °C)	(calculated)
	0,071 hPa (25 °C)	(calculated)
	1,003 hPa (59,29 °C)	(measured)
Relative density:	0,89 (20 °C) Literature data.	(other)
Density:	0,89 g/cm3 (20 °C) Literature data.	

Relative vapour density (air):5,24 (calculated)
(20 °C)
Heavier than air.

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:
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

No corrosive effect on metal.

Other safety characteristics

pKA:
The substance does not dissociate., Study scientifically not justified.

Adsorption/water - soil: log KOC: 2,1 (calculated)

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

SAPT-Temperature:
Study scientifically not justified.

Evaporation rate:
Value can be approximated from Henry's Law Constant or vapor pressure.

SECTION 10: Stability and Reactivity

10.1. Reactivity

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

Corrosion to metals:	No corrosive effect on metal.	
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): approx. 6.800 mg/kg (BASF-Test)
LD50 rat (dermal): > 2.000 mg/kg (BASF-Test)

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. Caused sensitization in humans.

Experimental/calculated data:

Guinea pig maximization test guinea pig: skin sensitizing

Germ cell mutagenicity

Assessment of mutagenicity:

The substance was not mutagenic in bacteria. In the majority of tests performed (mammalian cell culture) a mutagenic effect was not found. A mutagenic effect was also not observed in in-vivo assays.

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.

Reproductive toxicity

Assessment of reproduction toxicity:
The results of animal studies gave no indication of a fertility impairing effect.

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.

Specific target organ toxicity (single exposure)

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

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

Assessment of repeated dose toxicity:

Prolonged repeated exposure caused inflammable degenerative processes in the respiratory tract of rats. Causes irritating effects at esophagus and the gastro-intestinal tract.

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. Depending on local conditions and existing concentrations, disturbances in the biodegradation process of activated sludge are possible.

Toxicity to fish:
LC50 (96 h) 6,8 mg/l, Leuciscus idus (DIN 38412 Part 15, static)
The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.

Aquatic invertebrates:
EC50 (48 h) approx. 7 mg/l, Daphnia magna (Directive 79/831/EEC, static)
The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.

Aquatic plants:
EC50 (72 h) 103,8 mg/l (growth rate), Scenedesmus subspicatus (DIN 38412 Part 9, static)
The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.

Microorganisms/Effect on activated sludge:
EC50 (30 min) 2.100 mg/l, Pseudomonas putida (DIN 38412 Part 27 (draft), aquatic)
The product has low solubility in the test medium. An aqueous solution prepared with solubilizers has been tested. The details of the toxic effect relate to the nominal concentration.

EC20 (30 min) approx. 68 mg/l, activated sludge, domestic (OECD Guideline 209, aquatic)

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

12.2. Persistence and degradability

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

Elimination information:
92 % BOD of the ThOD (28 d) (OECD 301C; ISO 9408; 92/69/EEC, C.4-F) (aerobic, activated sludge, domestic)

> 90 % BOD of the ThOD (28 d) (OECD 301F; ISO 9408; 92/69/EEC, C.4-D) (aerobic, activated sludge, domestic)

Assessment of stability in water:
Substance is readily biodegradable, therefore hydrolysis is not expected to be relevant.
Study scientifically not justified.

12.3. Bioaccumulative potential

Assessment bioaccumulation potential:
Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

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 (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

Inland waterway transport

ADN

	Not classified as a dangerous good under transport regulations
UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable

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

Transport in inland waterway vessel
Not evaluated

Sea transport

IMDG

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

Air transport

IATA/ICAO

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

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

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

14.3. Transport hazard class(es)

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

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

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

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

14.7. Maritime transport in bulk according to IMO instruments

Maritime transport in bulk is not intended.

SECTION 15: Regulatory Information

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

Water hazard class (§6 AwSV para.4 (Legal binding announcement of the substance in the Federal Gazette)): (1) Weakly water polluting. ID-No.: 1173

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

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

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

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)

Aquatic Acute 2
Acute Tox. 5 (dermal)
Skin Irrit. 2
Eye Irrit. 2A
Acute Tox. 5 (oral)
Skin Sens. 1

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 Sens.	Skin sensitization
Eye Irrit.	Eye irritation
Skin Irrit.	Skin irritation
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.

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

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

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

Annex: Exposure Scenarios

Index

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

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

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

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

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

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

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

8. Use in Cleaning Agents, (consumer use)
ERC8a, ERC8d; PC31, PC35

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

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1. Short title of exposure scenario

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

Control of exposure and risk management measures

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

Contributing exposure scenario

Use descriptors covered	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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2. 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 per site	105.000 kg
Minimum emission days per year	250
Emission factor air	2,5 %
Emission factor water	0,2 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,758684
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	553,6 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	citral Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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 v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - local
Exposure estimate	0,001 mg/cm²/day
Risk Characterization Ratio (RCR)	0,007143
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,0127 mg/m³
Risk Characterization Ratio (RCR)	0,00141
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	citral Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Wear chemically resistant gloves in combination with 'basic' employee	Effectiveness: 90 %

training.	
Avoid skin contact. Ensure minimization of manual phases	
Use suitable eye protection., Wear chemically resistant gloves in combination with 'basic' employee training.	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,0686 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,040336
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - local
Exposure estimate	0,02 mg/cm²/day
Risk Characterization Ratio (RCR)	0,142857
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	1,1418 mg/m³
Risk Characterization Ratio (RCR)	0,126861
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	citral Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, Workplace measurements
	Worker - dermal, long-term - systemic
Exposure estimate	0,0691 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,040671
Assessment method	EASY TRA v4.2, Workplace measurements
	Worker - dermal, long-term - local
Exposure estimate	0,0101 mg/cm²/day
Risk Characterization Ratio (RCR)	0,072
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	1,9029 mg/m³
Risk Characterization Ratio (RCR)	0,211435
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	citral Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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 v4.2, Workplace measurements
	Worker - dermal, long-term - local
Exposure estimate	0,0018 mg/cm²/day
Risk Characterization Ratio (RCR)	0,012929
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	1,9029 mg/m³
Risk Characterization Ratio (RCR)	0,211435
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	citral Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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 v4.2, 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	0,025 mg/cm²/day
Risk Characterization Ratio (RCR)	0,178571
Assessment method	EASY TRA v4.2, 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	0,9515 mg/m³
Risk Characterization Ratio (RCR)	0,105718
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	citral Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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 v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - local
Exposure estimate	0,1 mg/cm²/day
Risk Characterization Ratio (RCR)	0,714286
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3172 mg/m³
Risk Characterization Ratio (RCR)	0,035239
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	citral Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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 v4.2, 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	0,025 mg/cm²/day
Risk Characterization Ratio (RCR)	0,178571
Assessment method	EASY TRA v4.2, 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	1,5858 mg/m³
Risk Characterization Ratio (RCR)	0,176196
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	citral Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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 v4.2, ECETOC TRA v3.0, Worker
	Worker - dermal, long-term - local
Exposure estimate	0,01 mg/cm²/day

Risk Characterization Ratio (RCR)	0,071429
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	3,1715 mg/m³
Risk Characterization Ratio (RCR)	0,352392
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

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3. Short title of exposure scenario

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

Control of exposure and risk management measures

Contributing exposure scenario		
Use descriptors covered	AISE SPERC 2.1.a.v2: AISE SPERC 2.1.a.v2	
Operational conditions		
Annual amount used in the EU	405.000 kg	
Minimum emission days per year	250	
Emission factor air	0 %	
Emission factor water	0,01 %	
Emission factor soil	0 %	
Receive Surf. Water (Flow Rate).	18.000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Risk Management Measures		
Wastewater treatment measures considered suitable are, e.g.		Precipitation, Coagulation, Must be eliminated from water by chemical flocculation.
Type of STP		Municipal STP
Assumed sewage treatment plant flow (m3/d)		2.000 m3/d
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment	
Risk Characterization Ratio (RCR)	0,15352	
	Risk from environmental exposure is driven by freshwater.	
Maximum amount of safe use	10.552,4	

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

Contributing exposure scenario		
Use descriptors covered	AISE SPERC 2.1.b.v2: AISE SPERC 2.1.b.v2	
Operational conditions		
Annual amount used in the EU	162.000 kg	
Minimum emission days per year	250	
Emission factor air	0 %	
Emission factor water	0,1 %	
Emission factor soil	0 %	
Receive Surf. Water (Flow Rate).	18.000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Risk Management Measures		
Wastewater treatment measures considered suitable are, e.g.		Precipitation, Coagulation, Must be eliminated from water by chemical flocculation.
Type of STP		Municipal STP
Assumed sewage treatment plant flow (m3/d)		2.000 m3/d
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment	
Risk Characterization Ratio (RCR)	0,572208	
	Risk from environmental exposure is driven by soil.	
Maximum amount of safe use	1.132,5 kg/d	
Risk from environmental exposure is driven by soil.		

Contributing exposure scenario	
Use descriptors covered	AISE SPERC 2.1.c.v2: AISE SPERC 2.1.c.v2
Operational conditions	
Annual amount used in the EU	126.000 kg
Minimum emission days per year	250
Emission factor air	0 %

Emission factor water	0,2 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100

Risk Management Measures	
Wastewater treatment measures considered suitable are, e.g.	Precipitation, Coagulation, Must be eliminated from water by chemical flocculation.
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d

Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,793612
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	567 kg/d

Risk from environmental exposure is driven by soil.

Contributing exposure scenario	
Use descriptors covered	AISE SPERC 2.1.j.v2: AISE SPERC 2.1.j.v2
Operational conditions	
Annual amount used in the EU	117.000 kg
Minimum emission days per year	250
Emission factor air	0 %
Emission factor water	0,1 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100

Risk Management Measures	
Wastewater treatment measures considered suitable are, e.g.	Nanofiltration (NR),

	Ultrafiltration (UF) or Reverse Osmosis (OR), Coagulation, Must be eliminated from water by chemical flocculation.
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,414063
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	1.130,3 kg/d
Risk from environmental exposure is driven by soil.	

Contributing exposure scenario	
Use descriptors covered	AISE SPERC 2.1.k.v2: AISE SPERC 2.1.k.v2
Operational conditions	
Annual amount used in the EU	63.000 kg
Minimum emission days per year	250
Emission factor air	0 %
Emission factor water	0,2 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Wastewater treatment measures considered suitable are, e.g.	Nanofiltration (NR), Ultrafiltration (UF) or Reverse Osmosis (OR), Coagulation, Must be eliminated from water by chemical flocculation.
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,445692
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	565,4

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

Contributing exposure scenario		
Use descriptors covered	AISE SPERC 2.1.l.v2: AISE SPERC 2.1.l.v2	
Operational conditions		
Annual amount used in the EU	63.000 kg	
Minimum emission days per year	250	
Emission factor air	0 %	
Emission factor water	0,4 %	
Emission factor soil	0 %	
Receive Surf. Water (Flow Rate).	18.000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Risk Management Measures		
Wastewater treatment measures considered suitable are, e.g.		Nanofiltration (NR), Ultrafiltration (UF) or Reverse Osmosis (OR), Coagulation, Must be eliminated from water by chemical flocculation.
Type of STP		Municipal STP
Assumed sewage treatment plant flow (m3/d)		2.000 m3/d
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment	
Risk Characterization Ratio (RCR)	0,888499	
	Risk from environmental exposure is driven by soil.	
Maximum amount of safe use	283,6 kg/d	
Risk from environmental exposure is driven by soil.		

Contributing exposure scenario	
Use descriptors covered	ERC2: Formulation into mixture
Operational conditions	
Annual amount used in the EU	180.000 kg
Minimum emission days per year	250

Emission factor air	0 %
Emission factor water	0 %
Emission factor soil	0,01 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,060068
	Risk from environmental exposure is driven by freshwater.
Maximum amount of safe use	11.986,3 kg/d
Risk from environmental exposure is driven by freshwater.	

Contributing exposure scenario	
Use descriptors covered	ERC2: Formulation into mixture
Operational conditions	
Annual amount per site	12.000 kg
Minimum emission days per year	250
Emission factor air	0 %
Emission factor water	2 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d

Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,846327
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	56,7 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	citral Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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 v4.2, 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	0,0003 mg/cm²/day
Risk Characterization Ratio (RCR)	0,001786
Assessment method	EASY TRA v4.2, 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)	0,000352
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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 v4.2, 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	0,005 mg/cm²/day
Risk Characterization Ratio (RCR)	0,035714
Assessment method	EASY TRA v4.2, 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	2,8544 mg/m³
Risk Characterization Ratio (RCR)	0,317153
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes Use domain: industrial
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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 v4.2, 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 mg/cm²/day
Risk Characterization Ratio (RCR)	0,357143
Assessment method	EASY TRA v4.2, 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	4,7573 mg/m³
Risk Characterization Ratio (RCR)	0,528588
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	citral Content: >= 0 % - <= 1 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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 v4.2, 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	0,01 mg/cm²/day
Risk Characterization Ratio (RCR)	0,071429
Assessment method	EASY TRA v4.2, 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	0,3806 mg/m³
Risk Characterization Ratio (RCR)	0,042287
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	citral Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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 v4.2, 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	0,025 mg/cm²/day

Risk Characterization Ratio (RCR)	0,178571
Assessment method	EASY TRA v4.2, 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	1,5858 mg/m³
Risk Characterization Ratio (RCR)	0,176196
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Use domain: industrial
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 1 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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 v4.2, 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	0,01 mg/cm²/day
Risk Characterization Ratio (RCR)	0,071429
Assessment method	EASY TRA v4.2, 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	0,0634 mg/m³
Risk Characterization Ratio (RCR)	0,007048
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: Tabletting, compression, extrusion, pelletisation, granulation Use domain: industrial
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 1 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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 v4.2, 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	0,005 mg/cm²/day
Risk Characterization Ratio (RCR)	0,035714
Assessment method	EASY TRA v4.2, 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	0,3172 mg/m³
Risk Characterization Ratio (RCR)	0,035239
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	citral Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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 v4.2, 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	0,0025 mg/cm²/day
Risk Characterization Ratio (RCR)	0,017857
Assessment method	EASY TRA v4.2, 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	0,7929 mg/m³
Risk Characterization Ratio (RCR)	0,088098
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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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	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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	0,0004 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000242
Assessment method	EASY TRA v4.2, 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	0,0008 mg/m³
Risk Characterization Ratio (RCR)	0,000085
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	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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	0,0165 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,009681
Assessment method	EASY TRA v4.2, 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	0,0761 mg/m³
Risk Characterization Ratio (RCR)	0,008457
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: industrial
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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	0,0823 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,048403
Assessment method	EASY TRA v4.2, 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	0,3806 mg/m³
Risk Characterization Ratio (RCR)	0,042287
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	PROC7: Industrial spraying Use domain: industrial
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Outdoor
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, 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	0,5143 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,302521
Assessment method	EASY TRA v4.2, 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	0,024 mg/cm²/day
Risk Characterization Ratio (RCR)	0,171429

Assessment method	EASY TRA v4.2, Workplace measurements
	Worker - inhalation, long-term - systemic
Exposure estimate	0,06 mg/m³
Risk Characterization Ratio (RCR)	0,006667
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	PROC7: Industrial spraying Use domain: industrial
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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: 95 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, 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	0,5143 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,302521
Assessment method	EASY TRA v4.2, 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	0,024 mg/cm²/day
Risk Characterization Ratio (RCR)	0,171429
Assessment method	EASY TRA v4.2, Workplace measurements
	Worker - inhalation, long-term - systemic
Exposure estimate	0,12 mg/m³
Risk Characterization Ratio (RCR)	0,013333
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	PROC7: Industrial spraying Use domain: industrial
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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	0,5143 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,302521
Assessment method	EASY TRA v4.2, 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	0,024 mg/cm²/day
Risk Characterization Ratio (RCR)	0,171429
Assessment method	EASY TRA v4.2, Workplace measurements
	Worker - inhalation, long-term - systemic
Exposure estimate	0,29 mg/m³
Risk Characterization Ratio (RCR)	0,032222
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	PROC7: Industrial spraying Use domain: industrial
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C

Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Outdoor
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, 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	0,5143 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,302521
Assessment method	EASY TRA v4.2, 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	0,024 mg/cm²/day
Risk Characterization Ratio (RCR)	0,171429
Assessment method	EASY TRA v4.2, Workplace measurements
	Worker - inhalation, long-term - systemic
Exposure estimate	0,09 mg/m³
Risk Characterization Ratio (RCR)	0,01
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	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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	0,1646 mg/kg bw/day

Risk Characterization Ratio (RCR)	0,096807
Assessment method	EASY TRA v4.2, 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	0,0761 mg/m³
Risk Characterization Ratio (RCR)	0,008457
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	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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	0,0329 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,019361
Assessment method	EASY TRA v4.2, 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	0,5328 mg/m³
Risk Characterization Ratio (RCR)	0,059202
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	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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	0,0165 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,009681
Assessment method	EASY TRA v4.2, 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	0,0761 mg/m³
Risk Characterization Ratio (RCR)	0,008457
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra Please note that a modified version has been used (see exposure estimates)	

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5. Short title of exposure scenario

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

Control of exposure and risk management measures

Contributing exposure scenario

Use descriptors covered	ERC8a: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
Operational conditions	
Annual amount used in the EU	900.000 kg
Minimum emission days per year	365
Emission factor air	100 %
Emission factor water	100 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,436161
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	1,1 kg/d
Risk from environmental exposure is driven by soil.	

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	900.000 kg
Minimum emission days per year	365
Emission factor air	100 %
Emission factor water	100 %
Emission factor soil	20 %
Receive Surf. Water (Flow Rate).	18.000 m3/d

Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,436161
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	1,1 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: professional
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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	0,0004 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000242
Assessment method	EASY TRA v4.2, 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	0,0008 mg/m³
Risk Characterization Ratio (RCR)	0,000085

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	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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	0,0165 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,009681
Assessment method	EASY TRA v4.2, 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	0,3806 mg/m³
Risk Characterization Ratio (RCR)	0,042287
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	citral Content: >= 0 % - <= 1,1999 %

Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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	0,0823 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,048403
Assessment method	EASY TRA v4.2, 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	0,7612 mg/m³
Risk Characterization Ratio (RCR)	0,084574
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	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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	0,1646 mg/kg bw/day

Risk Characterization Ratio (RCR)	0,096807
Assessment method	EASY TRA v4.2, 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	0,3806 mg/m³
Risk Characterization Ratio (RCR)	0,042287
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	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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	0,0165 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,009681
Assessment method	EASY TRA v4.2, 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	0,1522 mg/m³
Risk Characterization Ratio (RCR)	0,016915
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	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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	0,3291 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,193613
Assessment method	EASY TRA v4.2, 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	1,9029 mg/m³
Risk Characterization Ratio (RCR)	0,211435
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
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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	1,2857 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,756302
Assessment method	EASY TRA v4.2, 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	0,06 mg/cm²/day
Risk Characterization Ratio (RCR)	0,428571
Assessment method	EASY TRA v4.2, Workplace measurements
	Worker - inhalation, long-term - systemic
Exposure estimate	0,18 mg/m³
Risk Characterization Ratio (RCR)	0,02
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
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Outdoor
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, 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	1,2857 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,756302
Assessment method	EASY TRA v4.2, 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	0,06 mg/cm²/day
Risk Characterization Ratio (RCR)	0,428571
Assessment method	EASY TRA v4.2, Workplace measurements
	Worker - inhalation, long-term - systemic
Exposure estimate	0,06 mg/m³
Risk Characterization Ratio (RCR)	0,006667
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
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
Duration and Frequency of activity	480 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 v4.2, 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	0,1286 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,07563
Assessment method	EASY TRA v4.2, 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	0,006 mg/cm²/day
Risk Characterization Ratio (RCR)	0,042857
Assessment method	EASY TRA v4.2, Workplace measurements
	Worker - inhalation, long-term - systemic
Exposure estimate	0,29 mg/m³

Risk Characterization Ratio (RCR)	0,032222
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	citral Content: >= 0 % - <= 1,1999 %
Physical state	liquid
Vapour pressure of the substance during use	4,6 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 v4.2, 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	0,0165 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,009681
Assessment method	EASY TRA v4.2, 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	0,1522 mg/m³
Risk Characterization Ratio (RCR)	0,016915
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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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	900.000 kg
Minimum emission days per year	365
Emission factor air	100 %
Emission factor water	100 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,436161
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	1,1 kg/d
Risk from environmental exposure is driven by soil.	

Contributing exposure scenario	
Use descriptors covered	PC3: Air care products.
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 9 %
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 480 min

	Relevant for inhalative exposure estimates
Duration and Frequency of activity	150 uses per year
Room size	16 m3
Ventilation rate per hour	1
body weight	65 kg
Spray duration	28800 sec
Risk Management Measures	
Consumer Measures	Ensure spraying away from persons.
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0385 mg/m³
Risk Characterization Ratio (RCR)	0,014247
	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	citral Content: >= 0 % - <= 0,45 %
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 240 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	90 uses per year
Room size	58 m3
Ventilation rate per hour	0,5
body weight	65 kg
Uptake fraction dermal	100 %
Spray duration	19,8 sec
Contact rate	269 mg/min
Release duration	0,33 min
	Relevant for dermal exposure estimates
Risk Management Measures	
Consumer Measures	Ensure spraying away from persons.

Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: constant application rate, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0015 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001515
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0018 mg/m³
Risk Characterization Ratio (RCR)	0,000677
	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	citral Content: >= 0 % - <= 0,45 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: constant application rate
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 mg/cm²/day
Risk Characterization Ratio (RCR)	0,000163
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC3: Air care products.
Operational conditions	
Concentration of the substance	citral

	Content: >= 0 % - <= 0,45 %
Vapour pressure of the substance during use	4,6 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 cm²/s
Dislodgeable amount	0,000082 g/cm²
Contact time	3600 sec
Rubbed surface	22 m²
Ingestion rate	0,003688 mg/min
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: rubbing off, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0628 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,062821
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, 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)	0,000047
	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	citral Content: >= 0 % - <= 0,45 %
Vapour pressure of the substance during use	4,6 Pa

Process temperature	20 °C
body weight	8,69 kg
Transfer coefficient	1,666667 cm²/s
Dislodgeable amount	0,000082 g/cm²
Contact time	3600 sec
Rubbed surface	22 m²
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: rubbing off
	Consumer - dermal, short-term - local
Exposure estimate	0,0005 mg/cm²/day
Risk Characterization Ratio (RCR)	0,003295
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC3: Air care products. 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	4,6 Pa
Process temperature	20 °C

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7. Short title of exposure scenario

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

Control of exposure and risk management measures

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

	(no inclusion into or onto article, indoor)
Operational conditions	
Annual amount used in the EU	900.000 kg
Minimum emission days per year	365
Emission factor air	100 %
Emission factor water	100 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,436161
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	1,1 kg/d
Risk from environmental exposure is driven by soil.	

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	4,6 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	4,6 Pa
Process temperature	20 °C

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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	900.000 kg	
Minimum emission days per year	365	
Emission factor air	100 %	
Emission factor water	100 %	
Emission factor soil	0 %	
Receive Surf. Water (Flow Rate).	18.000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Risk Management Measures		
Type of STP		Municipal STP
Assumed sewage treatment plant flow (m3/d)		2.000 m3/d
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment	
Risk Characterization Ratio (RCR)	0,436161	
	Risk from environmental exposure is driven by soil.	

Maximum amount of safe use	1,1 kg/d
Risk from environmental exposure is driven by soil.	

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	900.000 kg	
Minimum emission days per year	365	
Emission factor air	100 %	
Emission factor water	100 %	
Emission factor soil	20 %	
Receive Surf. Water (Flow Rate).	18.000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Risk Management Measures		
Type of STP		Municipal STP
Assumed sewage treatment plant flow (m3/d)		2.000 m3/d
Exposure estimate and reference to its source		
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment	
Risk Characterization Ratio (RCR)	0,436161	
	Risk from environmental exposure is driven by soil.	
Maximum amount of safe use	1,1 kg/d	
Risk from environmental exposure is driven by soil.		

Contributing exposure scenario	
Use descriptors covered	PC31: Polishes and Wax Blends.
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, 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)	0,000175
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0007 mg/cm²/day
Risk Characterization Ratio (RCR)	0,005316
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 5 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	8 uses per year
Room size	34 m3
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 v4.2, 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)	0,000065
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0011 mg/m³
Risk Characterization Ratio (RCR)	0,000416
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance	4,6 Pa

during use	
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 v4.2, ConsExpo v4.1, Dermal model: constant application rate
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 mg/cm²/day
Risk Characterization Ratio (RCR)	0,000659
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 m3
Ventilation rate per hour	0,5
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 5,5 g Relevant for dermal exposure estimates
Release area	220000 cm²
	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 v4.2, 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)	0,000742
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0041 mg/m³
Risk Characterization Ratio (RCR)	0,001529
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0205 mg/cm²/day
Risk Characterization Ratio (RCR)	0,146179
	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	citral Content: >= 0 % - <= 0,16 %

Vapour pressure of the substance during use	4,6 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
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 cm²
	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 v4.2, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0004 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000371
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,1349 mg/m³
Risk Characterization Ratio (RCR)	0,049967
	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	citral Content: >= 0 % - <= 0,16 %

Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0205 mg/cm²/day
Risk Characterization Ratio (RCR)	0,146179
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 240 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	1 uses per year
Room size	58 m3
Ventilation rate per hour	0,5
body weight	65 kg
Uptake fraction dermal	100 %
Spray duration	180 sec
Contact rate	100 mg/min
Release duration	3 min
	Relevant for dermal exposure estimates
Risk Management Measures	
Consumer Measures	Ensure spraying away from persons.
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, 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)	0,00002
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0072 mg/m³
Risk Characterization Ratio (RCR)	0,002649
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: constant application rate
	Consumer - dermal, short-term - local
Exposure estimate	0,0002 mg/cm²/day
Risk Characterization Ratio (RCR)	0,001646
	The calculation is based on the external dose.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC31: Polishes and Wax Blends. Other products of this category do either not exceed a concentration of 0.1% for this substance or exposure estimations are covered by the calculations made for this product category. In accordance to Article 14 (2b) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be

	performed if the concentration of the substance in a preparation is less than 0,1% weight by weight (w/w) and if the substance meets the criteria in Annex XIII to this Regulation.
Operational conditions	
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products).
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 0,75 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	Application duration: 0,3 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	365 uses per year
Room size	1 m3
Ventilation rate per hour	2
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 0,01 g Relevant for dermal exposure estimates
Release area	20 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 v4.2, 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)	0,000246

	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0001 mg/m³
Risk Characterization Ratio (RCR)	0,000036
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 mg/cm²/day
Risk Characterization Ratio (RCR)	0,000532
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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	0,000005 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: migration, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0006 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000615
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
body weight	65 kg
Skin contact factor	80 %
Leachable fraction	0,000005 %
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: migration
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 mg/cm²/day
Risk Characterization Ratio (RCR)	0,00002
	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	citral Content: >= 0 % - <= 0,4799 %
Vapour pressure of the substance during use	4,6 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	260 uses per year
Room size	2,5 m3
Ventilation rate per hour	2
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 2,2 g Relevant for dermal exposure estimates
Release area	750 cm^2
	Release area is constant
Release duration	2 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,1157 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,115726
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0006 mg/m^3
Risk Characterization Ratio (RCR)	0,00022
	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	citral Content: >= 0 % - <= 0,4799 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0491 mg/cm²/day
Risk Characterization Ratio (RCR)	0,350831
	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	citral Content: >= 0 % - <= 0,4799 %
Vapour pressure of the substance during use	4,6 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 m3
Ventilation rate per hour	2
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %

	Amount per use 2,2 g Relevant for dermal exposure estimates
Release area	750 cm²
	Release area is constant
Release duration	2 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0534 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,053412
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0006 mg/m³
Risk Characterization Ratio (RCR)	0,00022
	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	citral Content: >= 0 % - <= 0,4799 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0491 mg/cm²/day
Risk Characterization Ratio (RCR)	0,350831
	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	citral Content: >= 0 % - <= 0,4799 %
Vapour pressure of the substance during use	4,6 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	86400 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - constant rate
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0457 mg/m³
Risk Characterization Ratio (RCR)	0,016924
	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	citral Content: >= 0 % - <= 0,4799 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - constant rate
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0392 mg/m³
Risk Characterization Ratio (RCR)	0,014506
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 m3
Ventilation rate per hour	0,5
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 0,01 g Relevant for dermal exposure estimates
Release area	20 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 v4.2, 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)	0,00007
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0001 mg/m³
Risk Characterization Ratio (RCR)	0,000001
	The exposure calculation is based on the mean 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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 mg/cm²/day
Risk Characterization Ratio (RCR)	0,000532
	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	citral

	Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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
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 cm²
	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 v4.2, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,1333 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,13326
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,009 mg/m³
Risk Characterization Ratio (RCR)	0,003346
	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	citral

	Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,016 mg/cm²/day
Risk Characterization Ratio (RCR)	0,114286
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, 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)	0,000003
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0001 mg/m³
Risk Characterization Ratio (RCR)	0,000001
	The exposure calculation is based on the mean 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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 mg/cm²/day
Risk Characterization Ratio (RCR)	0,000532
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 Pa
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	4 uses per year
Room size	10 m3
Ventilation rate per hour	2
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 19 g Relevant for dermal exposure estimates
Release area	64000 cm²
	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 v4.2, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0051 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,005125
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0009 mg/m³
Risk Characterization Ratio (RCR)	0,000348
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,016 mg/cm²/day
Risk Characterization Ratio (RCR)	0,114286
	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	citral Content: >= 0 % - <= 0,4 %
Vapour pressure of the substance during use	4,6 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 m3
Ventilation rate per hour	2,5
body weight	65 kg
Uptake fraction dermal	100 %
Spray duration	24,6 sec
Contact rate	46 mg/min

Release duration	0,41 min
	Relevant for dermal exposure estimates
Risk Management Measures	
Consumer Measures	Ensure spraying away from persons.
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: constant application rate, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0012 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001161
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0004 mg/m³
Risk Characterization Ratio (RCR)	0,000153
	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	citral Content: >= 0 % - <= 0,4 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: constant application rate
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 mg/cm²/day
Risk Characterization Ratio (RCR)	0,000259
	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	citral Content: >= 0 % - <= 0,4 %
Vapour pressure of the substance during use	4,6 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: 10 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	365 uses per year
Room size	15 m3
Ventilation rate per hour	2,5
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 0,16 g Relevant for dermal exposure estimates
Release area	17100 cm²
	Release area is constant
Release duration	10 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0098 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,009846
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0146 mg/m³
Risk Characterization Ratio (RCR)	0,005424
	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	citral Content: >= 0 % - <= 0,4 %
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,003 mg/cm²/day
Risk Characterization Ratio (RCR)	0,021262
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, 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)	0,000242
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0021 mg/m³
Risk Characterization Ratio (RCR)	0,000792
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: constant application rate
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 mg/cm²/day
Risk Characterization Ratio (RCR)	0,000379
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 25 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	Application duration: 20 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	52 uses per year
Room size	10 m3
Ventilation rate per hour	2
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 0,3 g Relevant for dermal exposure estimates
Release area	64000 cm²
	Release area is constant
Release duration	20 min
	Relevant for inhalative exposure estimates
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0011 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001052
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0413 mg/m³
Risk Characterization Ratio (RCR)	0,015304
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 Pa
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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0022 mg/cm²/day
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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 60 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	26 uses per year
Room size	15 m3
Ventilation rate per hour	2,5
body weight	65 kg

Uptake fraction dermal	100 %
Spray duration	30 sec
Contact rate	46 mg/min
Release duration	0,5 min
	Relevant for dermal exposure estimates
Risk Management Measures	
Consumer Measures	Ensure spraying away from persons.
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, 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)	0,00004
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0002 mg/m³
Risk Characterization Ratio (RCR)	0,000075
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: constant application rate
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 mg/cm²/day
Risk Characterization Ratio (RCR)	0,000126

	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0004 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,000351
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0007 mg/cm²/day
Risk Characterization Ratio (RCR)	0,005316
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 0,75 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	Application duration: 0,3 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	< 1 uses per year
Room size	1 m3
Ventilation rate per hour	0,5
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 0,01 g Relevant for dermal exposure estimates
Release area	20 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 v4.2, 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 v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0001 mg/m³
Risk Characterization Ratio (RCR)	0,000015
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 mg/cm²/day
Risk Characterization Ratio (RCR)	0,000532
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 Pa

Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 110 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	Application duration: 110 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	< 1 uses per year
Room size	58 m3
Ventilation rate per hour	0,5
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %
	Amount per use 27 g Relevant for dermal exposure estimates
Release area	220000 cm²
	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 v4.2, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0009 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,00091
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0041 mg/m³
Risk Characterization Ratio (RCR)	0,00153
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0502 mg/cm²/day
Risk Characterization Ratio (RCR)	0,358804
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 m3
Ventilation rate per hour	0,5
body weight	65 kg
Uptake fraction dermal	100 %
Spray duration	1320 sec
Contact rate	5 mg/min
Release duration	22 min
	Relevant for dermal exposure estimates
Risk Management Measures	
Consumer Measures	Ensure spraying away from persons.
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, 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)	0,000004
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0085 mg/m³
Risk Characterization Ratio (RCR)	0,003148
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: constant application rate
	Consumer - dermal, short-term - local
Exposure estimate	0,0001 mg/cm²/day
Risk Characterization Ratio (RCR)	0,000604
	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	citral Content: >= 0 % - <= 0,16 %

Vapour pressure of the substance during use	4,6 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 %
Uptake fraction oral	100 %
	Amount ingested 0,288 mg Relevant for oral exposure estimates
Transfer coefficient	1,666667 cm²/s
Dislodgeable amount	0,0003 g/cm²
Contact time	3600 sec
Rubbed surface	22 m²
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: rubbing off, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0127 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,012712
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, 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)	0,000003
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C

body weight	8,69 kg
Transfer coefficient	1,666667 cm²/s
Dislodgeable amount	0,0003 g/cm²
Contact time	3600 sec
Rubbed surface	22 m²
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: rubbing off
	Consumer - dermal, short-term - local
Exposure estimate	0,0006 mg/cm²/day
Risk Characterization Ratio (RCR)	0,004286
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, 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)	0,000047
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
body weight	65 kg
	Amount per use 0,07 g Relevant for dermal exposure estimates
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0005 mg/cm²/day
Risk Characterization Ratio (RCR)	0,003721
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 m3
Ventilation rate per hour	0,6
Temperature (Application)	21 °C
body weight	65 kg
Uptake fraction dermal	100 %

	Amount per use 0,047 g Relevant for dermal exposure estimates
Release area	20000 cm²
	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 v4.2, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0012 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001157
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: exposure to vapour - evaporation
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0027 mg/m³
Risk Characterization Ratio (RCR)	0,001018
	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	citral Content: >= 0 % - <= 0,16 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0003 mg/cm²/day
Risk Characterization Ratio (RCR)	0,002498
	The calculation is based on the external dose.
Guidance to Downstream Users	

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

Contributing exposure scenario	
Use descriptors covered	PC35: Washing and Cleaning Products (including solvent based products). Other products of this category do either not exceed a concentration of 0.1% for this substance or exposure estimations are covered by the calculations made for this product category. In accordance to Article 14 (2b) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation does not need to be performed if the concentration of the substance in a 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	4,6 Pa
Process temperature	20 °C

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9. Short title of exposure scenario

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

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC8a: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
Operational conditions	
Annual amount used in the EU	900.000 kg
Minimum emission days per year	365
Emission factor air	100 %
Emission factor water	100 %
Emission factor soil	0 %
Receive Surf. Water (Flow Rate).	18.000 m3/d

Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,436161
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	1,1 kg/d
Risk from environmental exposure is driven by soil.	

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	900.000 kg
Minimum emission days per year	365
Emission factor air	100 %
Emission factor water	100 %
Emission factor soil	20 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Type of STP	Municipal STP
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Environment
Risk Characterization Ratio (RCR)	0,436161
	Risk from environmental exposure is driven by soil.
Maximum amount of safe use	1,1 kg/d
Risk from environmental exposure is driven by soil.	

Contributing exposure scenario	
Use descriptors covered	PC8: Biocidal Products.
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 0,1 %
Vapour pressure of the substance during use	4,6 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	65 kg
Uptake fraction dermal	100 %
Uptake fraction oral	100 %
	Amount per use 6 g Relevant for dermal exposure estimates
Ingestion rate	0,00133 mg/min
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: instant application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0137 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,013656
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, 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)	0,000001
	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	citral

	Content: >= 0 % - <= 0,1 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0003 mg/cm²/day
Risk Characterization Ratio (RCR)	0,002449
	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	citral Content: >= 0 % - <= 0,1 %
Vapour pressure of the substance during use	4,6 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	0,00083 mg/min
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: instant

	application, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0255 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,025537
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, 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)	0,000004
	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	citral Content: >= 0 % - <= 0,1 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: instant application
	Consumer - dermal, short-term - local
Exposure estimate	0,0003 mg/cm²/day
Risk Characterization Ratio (RCR)	0,002232
	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	citral Content: >= 0 % - <= 5 %
Vapour pressure of the substance during use	4,6 Pa

Process temperature	20 °C
Duration and Frequency of activity	Exposure duration: 240 min Relevant for inhalative exposure estimates
Duration and Frequency of activity	90 uses per year
Room size	58 m3
Ventilation rate per hour	0,5
body weight	65 kg
Uptake fraction dermal	100 %
Spray duration	19,8 sec
Contact rate	269 mg/min
Release duration	0,33 min
	Relevant for dermal exposure estimates
Risk Management Measures	
Consumer Measures	Ensure spraying away from persons.
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: constant application rate, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0168 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,016837
	The calculation is based on the internal chronic dose.
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Inhalation model: Exposure to spray/dust
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0203 mg/m³
Risk Characterization Ratio (RCR)	0,007517
	The exposure calculation is based on the mean concentration on the day of exposure.
Guidance to Downstream Users	
For scaling see: http://www.rivm.nl/en/healthanddisease/productsafety/ConsExpo.jsp	

Contributing exposure scenario	
Use descriptors covered	PC8: Biocidal Products.
Operational conditions	
Concentration of the substance	citral Content: >= 0 % - <= 5 %
Vapour pressure of the substance during use	4,6 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 v4.2, ConsExpo v4.1, Dermal model: constant application rate
	Consumer - dermal, short-term - local
Exposure estimate	0,0003 mg/cm²/day
Risk Characterization Ratio (RCR)	0,001812
	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	citral Content: >= 0 % - <= 5 %
Vapour pressure of the substance during use	4,6 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 cm²/s
Dislodgeable amount	0,000082 g/cm²
Contact time	3600 sec
Rubbed surface	22 m²
Ingestion rate	0,041 mg/min
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: rubbing off, Uptake model: Uptake fraction
	Consumer - dermal, long-term - systemic
Exposure estimate	0,698 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,698015
	The calculation is based on the internal chronic dose.

Assessment method	EASY TRA v4.2, ConsExpo v4.1, Oral model: constant rate, Uptake model: Uptake fraction
	Consumer - oral, long-term - systemic
Exposure estimate	0,0035 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,005817
	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	citral Content: >= 0 % - <= 5 %
Vapour pressure of the substance during use	4,6 Pa
Process temperature	20 °C
body weight	8,69 kg
Transfer coefficient	1,666667 cm²/s
Dislodgeable amount	0,000082 g/cm²
Contact time	3600 sec
Rubbed surface	22 m²
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ConsExpo v4.1, Dermal model: rubbing off
	Consumer - dermal, short-term - local
Exposure estimate	0,0051 mg/cm²/day
Risk Characterization Ratio (RCR)	0,036607
	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	4,6 Pa
Process temperature	20 °C

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