Safety data sheet according to Regulation (EC) No 1907/2006, Annex II (last amended by Regulation (EU) 2020/878)
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Duftstoff Citrone
Art.: 167999

Safety data sheet according to Regulation (EC) No 1907/2006, Annex II (last amended by Regulation (EU) 2020/878)

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

1.1 Product identifier

Duftstoff Citrone
Art.: 167999

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

Relevant identified uses of the substance or mixture:
perfumes

Uses advised against:
No information available at present.

1.3 Details of the supplier of the safety data sheet

Koch-Chemie GmbH
Einsteinstrasse 42
59423 Unna
Telefon: +49 (0) 2303 / 9 86 70 - 0
Fax: +49 (0) 2303 / 9 86 70 - 26
info@koch-chemie.com
www.koch-chemie.com

Qualified person's e-mail address: info@chemical-check.de, k.schnurbusch@chemical-check.de Please DO NOT use for requesting Safety Data Sheets.

1.4 Emergency telephone number

Emergency information services / official advisory body:
IRL

National Poisons Information Centre, Beaumont Hospital, Dublin 9, Ireland, Tel.:
+353 (0)1 809 2166 (Public Poisons Info Line, 8am-10pm, 7 days a week)
+353 (0)1 809 2566 (Info for Healthcare Professionals ONLY, 24 h, 7 days a week)

Telephone number of the company in case of emergencies:
+1 872 5888271 (KCC)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) 1272/2008 (CLP)

Hazard class	Hazard category	Hazard statement
Flam. Liq.	3	H226-Flammable liquid and vapour.
Acute Tox.	4	H332-Harmful if inhaled.
Eye Irrit.	2	H319-Causes serious eye irritation.
Skin Irrit.	2	H315-Causes skin irritation.
Skin Sens.	1	H317-May cause an allergic skin reaction.

Asp. Tox.	1	H304-May be fatal if swallowed and enters airways.
Aquatic Acute	1	H400-Very toxic to aquatic life.
Aquatic Chronic	3	H412-Harmful to aquatic life with long lasting effects.

2.2 Label elements
Labeling according to Regulation (EC) 1272/2008 (CLP)

Danger

H226-Flammable liquid and vapour. H332-Harmful if inhaled. H319-Causes serious eye irritation. H315-Causes skin irritation. H317-May cause an allergic skin reaction. H304-May be fatal if swallowed and enters airways. H410-Very toxic to aquatic life with long lasting effects.

P210-Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261-Avoid breathing vapours or spray. P273-Avoid release to the environment. P280-Wear protective gloves / eye protection / face protection. P301+P310-IF SWALLOWED: Immediately call a POISON CENTER / doctor. P312-Call a POISON CENTRE / doctor if you feel unwell. P331-Do NOT induce vomiting.

2-Butoxyethanol
(R)-p-mentha-1,8-diene
Citral
cineole

2.3 Other hazards
The mixture does not contain any vPvB substance (vPvB = very persistent, very bioaccumulative) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).
The mixture does not contain any PBT substance (PBT = persistent, bioaccumulative, toxic) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).
The mixture does not contain any substance with endocrine disrupting properties (< 0,1 %).

SECTION 3: Composition/information on ingredients

3.1 Substances
n.a.

3.2 Mixtures

(R)-p-mentha-1,8-diene	
Registration number (REACH)	01-2119529223-47-XXXX
Index	601-096-00-2
EINECS, ELINCS, NLP, REACH-IT List-No.	227-813-5
CAS	5989-27-5
content %	25-<50

Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 3, H412

2-Butoxyethanol	**Substance for which an EU exposure limit value applies.**
Registration number (REACH)	01-2119475108-36-XXXX
Index	603-014-00-0
EINECS, ELINCS, NLP, REACH-IT List-No.	203-905-0
CAS	111-76-2
content %	25-<50
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Acute Tox. 3, H331 Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319
Specific Concentration Limits and ATE	ATE (oral): 1200 mg/kg ATE (as inhalation, Aerosol): 0,5 mg/l/4h ATE (as inhalation, Vapours): 3 mg/l

2-(2-butoxyethoxy)ethanol	**Substance for which an EU exposure limit value applies.**
Registration number (REACH)	01-2119475104-44-XXXX
Index	603-096-00-8
EINECS, ELINCS, NLP, REACH-IT List-No.	203-961-6
CAS	112-34-5
content %	10-<25
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Eye Irrit. 2, H319

Citral	
Registration number (REACH)	01-2119462829-23-XXXX
Index	605-019-00-3
EINECS, ELINCS, NLP, REACH-IT List-No.	226-394-6
CAS	5392-40-5
content %	1-<5
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317

7-methyl-3-methyleneocta-1,6-diene	
Registration number (REACH)	01-2119514321-56-XXXX
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	204-622-5
CAS	123-35-3
content %	0,1-<2,5
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 2, H411

cineole	
Registration number (REACH)	01-2119967772-24-XXXX
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	207-431-5
CAS	470-82-6

content %	0,1-<2,5
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Flam. Liq. 3, H226 Skin Sens. 1B, H317

For the text of the H-phrases and classification codes (GHS/CLP), see Section 16.
The substances named in this section are given with their actual, appropriate classification!
For substances that are listed in appendix VI, table 3.1 of the regulation (EC) no. 1272/2008 (CLP regulation) this means that all notes that may be given here for the named classification have been taken into account.
The addition of the highest concentrations listed here can result in a classification. Only when this classification is listed in Section 2 does it apply. In all other cases the total concentration is below the classification.

SECTION 4: First aid measures

4.1 Description of first aid measures
First-aiders should ensure they are protected!
Never pour anything into the mouth of an unconscious person!

Inhalation
Supply person with fresh air and consult doctor according to symptoms.

Skin contact
Remove polluted, soaked clothing immediately, wash thoroughly with plenty of water and soap, in case of irritation of the skin (flare), consult a doctor.

Eye contact
Remove contact lenses.
Wash thoroughly for several minutes using copious water. Seek medical help if necessary.

Ingestion
Rinse the mouth thoroughly with water.
Do not induce vomiting. Consult doctor immediately.
In case of vomiting, keep head low so that the stomach content does not reach the lungs.

4.2 Most important symptoms and effects, both acute and delayed
If applicable delayed symptoms and effects can be found in section 11 and the absorption route in section 4.1.
In certain cases, the symptoms of poisoning may only appear after an extended period / after several hours.
eyes, reddened
watering eyes
reddening of the skin
Dermatitis (skin inflammation)
Allergic reaction
nausea
vomiting
Danger of aspiration.
oedema of the lungs
Chemical pneumonitis (condition similar to pneumonia)

4.3 Indication of any immediate medical attention and special treatment needed
Gastric lavage (stomach washing) only under endotracheal intubation.
Subsequent observation for pneumonia and pulmonary oedema.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media
Water jet spray / alcohol resistant foam / CO2 / dry extinguisher.

Unsuitable extinguishing media
High volume water jet

5.2 Special hazards arising from the substance or mixture
In case of fire the following can develop:
Oxides of carbon
Toxic gases
Possible build up of explosive/highly flammable vapour/air mixture.

5.3 Advice for firefighters
For personal protective equipment see Section 8.
In case of fire and/or explosion do not breathe fumes.
Protective respirator with independent air supply.
According to size of fire
Full protection, if necessary.
Cool container at risk with water.
Dispose of contaminated extinction water according to official regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
6.1.1 For non-emergency personnel
In case of spillage or accidental release, wear personal protective equipment as specified in section 8 to prevent contamination.
Ensure sufficient ventilation, remove sources of ignition.
Avoid dust formation with solid or powder products.
Leave the danger zone if possible, use existing emergency plans if necessary.
Avoid contact with eyes or skin.
If applicable, caution - risk of slipping.
6.1.2 For emergency responders
See section 8 for suitable protective equipment and material specifications.
6.2 Environmental precautions
If leakage occurs, dam up.
Resolve leaks if this possible without risk.
Prevent surface and ground-water infiltration, as well as ground penetration.
Prevent from entering drainage system.
If accidental entry into drainage system occurs, inform responsible authorities.
6.3 Methods and material for containment and cleaning up
Soak up with absorbent material (e.g. universal binding agent, sand, diatomaceous earth, sawdust) and dispose of according to Section 13.
Fill the absorbed material into lockable containers.
6.4 Reference to other sections
For personal protective equipment see Section 8 and for disposal instructions see Section 13.

SECTION 7: Handling and storage

In addition to information given in this section, relevant information can also be found in section 8 and 6.1.
7.1 Precautions for safe handling
7.1.1 General recommendations
Ensure good ventilation.
Keep away from sources of ignition - Do not smoke.
Take measures against electrostatic charging, if appropriate.
Avoid contact with eyes or skin.
Eating, drinking, smoking, as well as food-storage, is prohibited in work-room.
Observe directions on label and instructions for use.
Use working methods according to operating instructions.
7.1.2 Notes on general hygiene measures at the workplace
General hygiene measures for the handling of chemicals are applicable.
Wash hands before breaks and at end of work.
Keep away from food, drink and animal feedingstuffs.
Remove contaminated clothing and protective equipment before entering areas in which food is consumed.
7.2 Conditions for safe storage, including any incompatibilities
Keep out of access to unauthorised individuals.
Store product closed and only in original packing.
Not to be stored in gangways or stair wells.
Do not store with flammable or self-igniting materials.

Protect from direct sunlight and warming.
Store in a well ventilated place.
Store cool.
Observe special storage conditions.

7.3 Specific end use(s)

No information available at present.
Observe the instructions for good working practice and the recommendations for risk assessment.
Consult hazardous substance information systems, e.g. from the professional associations, the chemical industry or different industries,
depending on the application (building materials, wood, chemistry, laboratory, leather, metal).

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

GB **Chemical Name**	2-Butoxyethanol	
WEL-TWA: 25 ppm (123 mg/m3) (WEL-TWA), 20 ppm (98 mg/m3) (EU)	WEL-STEL: 50 ppm (246 mg/m3) (WEL-STEL, EU)	---
Monitoring procedures:	- Compur - KITA-190 U(C) (548 873) DFG Meth.-Nr. 2 (D) (Loesungsmittelgemische 3), DFG (E) (Solvent mixtures 3) - 2014, 2002 - EU project BC/CEN/ENTR/000/2002-16 card 32-2 (2004) - NIOSH 1403 (ALCOHOLS IV) - 2003 - NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996 - OSHA 83 (2-Butoxyethanol (Butyl Cellosolve)) - 1990	
BMGV: 240 mmol butoxyacetic acid/mol creatinine in urine, post shift (BMGV)		Other information: Sk (WEL)

IRL **Chemical Name**	2-Butoxyethanol	
OELV-8h: 20 ppm (98 mg/m3) (OELV-8h, EU)	OELV-15min: 50 ppm (246 mg/m3) (OELV-15min, EU)	---
Monitoring procedures:	- Compur - KITA-190 U(C) (548 873) DFG Meth.-Nr. 2 (D) (Loesungsmittelgemische 3), DFG (E) (Solvent mixtures 3) - 2014, 2002 - EU project BC/CEN/ENTR/000/2002-16 card 32-2 (2004) - NIOSH 1403 (ALCOHOLS IV) - 2003 - NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996 - OSHA 83 (2-Butoxyethanol (Butyl Cellosolve)) - 1990	
BLV: 200 mg/g creatinine (Butoxyacetic acid (BAA) in urine, h) (ACGIH-BEI)		Other information: IOELV, Skin

M **Chemical Name**	2-Butoxyethanol	
OELV-8h: 20 ppm (98 mg/m3) (OELV-8h, EU)	OELV-ST: 50 ppm (246 mg/m3) (OELV-ST, EU)	---
Monitoring procedures:	- Compur - KITA-190 U(C) (548 873) DFG Meth.-Nr. 2 (D) (Loesungsmittelgemische 3), DFG (E) (Solvent mixtures 3) - 2014, 2002 - EU project BC/CEN/ENTR/000/2002-16 card 32-2 (2004) - NIOSH 1403 (ALCOHOLS IV) - 2003 - NIOSH 2549 (VOLATILE ORGANIC COMPOUNDS (SCREENING)) - 1996 - OSHA 83 (2-Butoxyethanol (Butyl Cellosolve)) - 1990	
BMGV: 240 mmol butoxyacetic acid/mol creatinine in urine, post shift (BMGV)		Other information: Skin

GB **Chemical Name**	2-(2-butoxyethoxy)ethanol	
WEL-TWA: 10 ppm (67,5 mg/m3) (WEL-TWA, EU)	WEL-STEL: 15 ppm (101,2 mg/m3) (WEL-STEL, EU)	---
Monitoring procedures:	---	
BMGV: ---		Other information: ---

IRL **Chemical Name**	2-(2-butoxyethoxy)ethanol	
OELV-8h: 10 ppm (67,5 mg/m3) (OELV-8h, EU)	OELV-15min: 15 ppm (101,2 mg/m3) (OELV-15min, EU)	---
Monitoring procedures:	---	
BLV: ---		Other information: IOELV

M **Chemical Name**	2-(2-butoxyethoxy)ethanol	
OELV-8h: 10 ppm (67,5 mg/m3) (OELV-8h, EU)	OELV-ST: 15 ppm (101,2 mg/m3) (OELV-ST, EU)	---

Monitoring procedures: ---	
BMGV: ---	Other information: ---

IRL	Chemical Name	Citral	
OELV-8h: 5 ppm (IFV)	OELV-15min: ---	---	
Monitoring procedures: ---			
BLV: ---	Other information: ---		

(R)-p-mentha-1,8-diene

Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	14	µg/l	
	Environment - marine		PNEC	1,4	µg/l	
	Environment - sewage treatment plant		PNEC	1,8	mg/l	
	Environment - sediment, freshwater		PNEC	3,85	mg/kg dry weight	
	Environment - sediment, marine		PNEC	0,3851	mg/kg dry weight	
	Environment - soil		PNEC	0,763	mg/kg dry weight	
	Environment - oral (animal feed)		PNEC	133	mg/kg	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	66,7	mg/m3	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	9,5	mg/kg body weight/day	

2-Butoxyethanol

Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	8,8	mg/l	
	Environment - marine		PNEC	0,88	mg/l	
	Environment - sediment, freshwater		PNEC	34,6	mg/kg dw	
	Environment - soil		PNEC	2,8	mg/kg dw	
	Environment - sewage treatment plant		PNEC	463	mg/l	
	Environment - sediment, marine		PNEC	3,46	mg/kg dw	
	Environment - sporadic (intermittent) release		PNEC	9,1	mg/l	
	Environment - soil		PNEC	2,33	mg/kg	
	Environment - oral (animal feed)		PNEC	20	mg/kg	
Consumer	Human - inhalation	Long term, local effects	DNEL	123	mg/m3	
Consumer	Human - dermal	Short term, systemic effects	DNEL	44,5	mg/kg bw/d	
Consumer	Human - inhalation	Short term, systemic effects	DNEL	426	mg/m3	
Consumer	Human - oral	Short term, systemic effects	DNEL	13,4	mg/kg bw/d	
Consumer	Human - inhalation	Short term, local effects	DNEL	147	mg/m3	

Consumer	Human - dermal	Long term, systemic effects	DNEL	38	mg/kg bw/d	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	49	mg/m3	
Consumer	Human - oral	Long term, systemic effects	DNEL	3,2	mg/kg bw/d	
Workers / employees	Human - dermal	Short term, systemic effects	DNEL	89	mg/kg bw/d	
Workers / employees	Human - inhalation	Short term, systemic effects	DNEL	663	mg/m3	
Workers / employees	Human - inhalation	Short term, local effects	DNEL	246	mg/m3	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	75	mg/kg bw/d	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	98	mg/m3	

2-(2-butoxyethoxy)ethanol						
Area of application	**Exposure route / Environmental compartment**	**Effect on health**	**Descriptor**	**Value**	**Unit**	**Note**
	Environment - marine		PNEC	0,11	mg/l	
	Environment - water, sporadic (intermittent) release		PNEC	11	mg/l	
	Environment - sediment, freshwater		PNEC	4,4	mg/kg	
	Environment - sediment, marine		PNEC	0,44	mg/kg	
	Environment - soil		PNEC	0,32	mg/kg	
	Environment - sewage treatment plant		PNEC	100	mg/l	
	Environment - oral (animal feed)		PNEC	56	mg/kg	
	Environment - freshwater		PNEC	1,1	mg/l	
Consumer	Human - inhalation	Short term, local effects	DNEL	7,5	mg/m3	
Consumer	Human - dermal	Long term, systemic effects	DNEL	10	mg/kg bw/d	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	40,5	mg/m3	
Consumer	Human - oral	Long term, systemic effects	DNEL	5	mg/kg bw/d	
Consumer	Human - oral	Long term, systemic effects	DNEL	6,25	mg/kg bw/d	
Consumer	Human - inhalation	Long term, local effects	DNEL	5	mg/m3	
Workers / employees	Human - oral	Long term, local effects	DNEL	67,5	mg/m3	
Workers / employees	Human - dermal	Short term, systemic effects	DNEL	89	mg/kg bw/d	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	67,5	mg/m3	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	20	mg/kg	
Workers / employees	Human - inhalation	Short term, local effects	DNEL	101,2	mg/m3	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	67,5	mg/m3	

Citral						
Area of application	**Exposure route / Environmental compartment**	**Effect on health**	**Descriptor**	**Value**	**Unit**	**Note**
	Environment - freshwater		PNEC	0,00678	mg/l	
	Environment - marine		PNEC	0,000678	mg/l	
	Environment - water, sporadic (intermittent) release		PNEC	0,0678	mg/l	
	Environment - sewage treatment plant		PNEC	1,6	mg/l	
	Environment - sediment, freshwater		PNEC	0,125	mg/kg	
	Environment - sediment, marine		PNEC	0,0125	mg/kg	
	Environment - soil		PNEC	0,0209	mg/kg	
Consumer	Human - dermal	Long term, systemic effects	DNEL	1	mg/kg	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	2,7	mg/m3	
Consumer	Human - oral	Long term, systemic effects	DNEL	0,6	mg/kg	
Consumer	Human - dermal	Long term, local effects	DNEL	0,14	mg/cm2	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	1,7	mg/kg	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	9	mg/m3	
Workers / employees	Human - dermal	Long term, local effects	DNEL	0,14	mg/cm2	

cineole						
Area of application	**Exposure route / Environmental compartment**	**Effect on health**	**Descriptor**	**Value**	**Unit**	**Note**
	Environment - freshwater		PNEC	57	µg/l	
	Environment - marine		PNEC	5,7	µg/l	
	Environment - sewage treatment plant		PNEC	10	mg/l	
	Environment - sediment, freshwater		PNEC	1,425	mg/kg	
	Environment - sediment, marine		PNEC	0,142	mg/kg	
	Environment - soil		PNEC	0,25	mg/kg	
Consumer	Human - dermal	Long term, systemic effects	DNEL	1	mg/kg bw/day	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	1,74	mg/m3	
Consumer	Human - oral	Long term, systemic effects	DNEL	600	mg/kg bw/day	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	2	mg/kg bw/day	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	7,05	mg/m3	

GB - United Kingdom | WEL-TWA = Workplace Exposure Limit - Long-term exposure limit - 8-hour TWA (= time weighted average) reference period (EH40/2005 Workplace exposure limits (Fourth Edition 2020)).
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU:

(8) = Inhalable fraction (2004/37/CE, 2017/164/EU). (9) = Respirable fraction (2004/37/CE, 2017/164/EU). (11) = Inhalable fraction (2004/37/CE). (12) = Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of this Directive, a biomonitoring system with a biological limit value not exceeding 0,002 mg Cd/g creatinine in urine (2004/37/CE). |
| WEL-STEL = Workplace Exposure Limit - Short-term exposure limit - 15-minute reference period (EH40/2005 Workplace exposure limits (Fourth Edition 2020)).
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU:
(8) = Inhalable fraction (2004/37/EC, 2017/164/EU). (9) = Respirable fraction (2004/37/EC, 2017/164/EU). (10) = Short-term exposure limit value in relation to a reference period of 1 minute (2017/164/EU). |
| BMGV = Biological monitoring guidance value (EH40/2005 Workplace exposure limits (Fourth Edition 2020)).
(EU) = Directive 98/24/EC or 2004/37/EC or SCOEL (Biological Limit Value - BLV, Recommendation from the Scientific Committee on Occupational Exposure Limits (SCOEL)) |
| Other information (EH40/2005 Workplace exposure limits (Fourth Edition 2020)): Sen = Capable of causing occupational asthma. Sk = Can be absorbed through skin. Carc = Capable of causing cancer and/or heritable genetic damage.
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, 2019/1831/EU or 2024/869/EU:
(13) = The substance can cause sensitisation of the skin and of the respiratory tract (98/24/EC, 2004/37/CE), (14) = The substance can cause sensitisation of the skin (2004/37/CE), (15) = Substantial contribution to the total body burden via dermal exposure possible. |

IRL - Ireland/Éire | OELV-8h = Occupational Exposure Limit Value - 8-hour reference period (Chemical Agents and Carcinogens CoP (Code of Practice) 2024, HSA (Health and Safety Authority)): (IFV) = Inhalable Fraction and Vapour. (I) = Inhalable Fraction. (R) = Respirable Fraction.
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU:
(8) = Inhalable fraction (2004/37/EC, 2017/164/EU). (9) = Respirable fraction (2004/37/EC, 2017/164/EU). (11) = Inhalable fraction (2004/37/CE). (12) = Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of this Directive, a biomonitoring system with a biological limit value not exceeding 0,002 mg Cd/g creatinine in urine (2004/37/CE). |
| OELV-15min = Occupational Exposure Limit Value - 15-minute reference period (Chemical Agents and Carcinogens CoP (Code of Practice) 2024, HSA (Health and Safety Authority)): (IFV) = Inhalable Fraction and Vapour. (I) = Inhalable Fraction. (R) = Respirable Fraction.
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU:
(8) = Inhalable fraction (2004/37/EC, 2017/164/EU). (9) = Respirable fraction (2004/37/EC, 2017/164/EU). (10) = Short-term exposure limit value in relation to a reference period of 1 minute (2017/164/EU). |
| BMGV = Biological Monitoring Guidance Value (Biological Monitoring Guidelines 2011, HSA (Health and Safety Authority)): ACGIH-BEI = BMGV have been sourced from Biological Exposure Indices (BEI) as issued by the American Conference of Governmental Industrial Hygienists (ACGIH). SCOEL = BMGV have been sourced from the Scientific Committee on Occupational Exposure Limit Values (SCOEL) which was set up by a Commission Decision (95/320/EC) with the mandate to advise the European Commission on occupational exposure limits for chemicals in the workplace. HSE = BMGV have been sourced from the Health and Safety Executive (HSE), UK.
(EU) = Directive 98/24/EC or 2004/37/EC or SCOEL (Biological Limit Value - BLV, Recommendation from the Scientific Committee on Occupational Exposure Limits (SCOEL)) |
| Other information (Chemical Agents and Carcinogens CoP (Code of Practice) 2024, HSA (Health and Safety Authority)): Carc1A, Carc1B = carcinogenic substance, Cat. 1A or 1B. Muta1A, Muta1B = mutagenic substance, Cat. 1A or 1B. Repr1A, Repr1B = Substances known to be toxic for reproduction, Cat. 1A or 1B. Skin = Can be absorbed through skin. Asphx = asphyxiant. Sens = The substance can cause sensitisation. BOELV = Binding Occupational Exposure Limit Values. IOELV = Indicative Occupational Exposure Limit Values.
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, 2019/1831/EU or 2024/869/EU:
(13) = The substance can cause sensitisation of the skin and of the respiratory tract (98/24/EC, 2004/37/CE), (14) = The substance can cause sensitisation of the skin (2004/37/CE), (15) = Substantial contribution to the total body burden via dermal exposure possible. |

M - Malta | OELV-8h = Occupational Exposure Limit Value - 8 h (8-hour reference period as a time-weighted average) [S.L.424.24, last amended by L.N. 356 of 2021]: [9] = Inhalable fraction, [10] = Respirable fraction.
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU:
(8) = Inhalable fraction (2004/37/EC, 2017/164/EU). (9) = Respirable fraction (2004/37/EC, 2017/164/EU). (11) = Inhalable fraction (2004/37/CE). (12) = Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of this Directive, a biomonitoring system with a biological limit value not exceeding 0,002 mg Cd/g creatinine in urine (2004/37/CE). |
| OELV-ST = Occupational Exposure Limit Value - Short-term (15-minute reference period) [S.L.424.24, last amended by L.N. 356 of 2021]: [8] = Short-term exposure limit value in relation to a reference period of 1 minute, [9] = Inhalable fraction, [10] = Respirable fraction.
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU:

(8) = Inhalable fraction (2004/37/EC, 2017/164/EU). (9) = Respirable fraction (2004/37/EC, 2017/164/EU). (10) = Short-term exposure limit value in relation to a reference period of 1 minute (2017/164/EU). |
| BMGV = Biological monitoring guidance value (EH40/2005 Workplace exposure limits (Fourth Edition 2020), United Kingdom). (EU) = Directive 98/24/EC or 2004/37/EC or SCOEL (Biological Limit Value - BLV, Recommendation from the Scientific Committee on Occupational Exposure Limits (SCOEL)) |
| Other information [S.L.424.24, last amended by L.N. 356 of 2021]: Skin = Possibility of a significant uptake through the skin. [11] = When selecting an appropriate exposure monitoring method , account should be taken of potential limitations and interferences that may arise in the presence of other sulphur compounds. [12] = The mist is defined as the thoracic fraction. [13] = Established in accordance with the Annex to Directive 91/322/EEC. [14] = During exposure monitoring for mercury and its divalent inorganic compounds, account should be taken of relevant biological monitoring techniques that complement the OELV.
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, 2019/1831/EU or 2024/869/EU:
(EU13) = The substance can cause sensitisation of the skin and of the respiratory tract (2004/37/CE), (EU14) = The substance can cause sensitisation of the skin (2004/37/CE), (EU15) = Substantial contribution to the total body burden via dermal exposure possible. |

8.2 Exposure controls
8.2.1 Appropriate engineering controls

Ensure good ventilation. This can be achieved by local suction or general air extraction.
If this is insufficient to maintain the concentration under the WEL or AGW values, suitable breathing protection should be worn.
Applies only if maximum permissible exposure values are listed here.
Suitable assessment methods for reviewing the effectiveness of protection measures adopted include metrological and non-metrological investigative techniques.
These are specified by e.g. EN 14042.
EN 14042 "Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents".

8.2.2 Individual protection measures, such as personal protective equipment

General hygiene measures for the handling of chemicals are applicable.
Wash hands before breaks and at end of work.
Keep away from food, drink and animal feedingstuffs.
Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

Eye/face protection:
Tight fitting protective goggles with side protection (EN 166).

Skin protection - Hand protection:
Chemical resistant protective gloves (EN ISO 374).
If applicable
Protective gloves in butyl rubber (EN ISO 374).
Protective Neoprene® / polychloroprene gloves (EN ISO 374).
Protective nitrile gloves (EN ISO 374).
Protective PVC gloves (EN ISO 374).
Minimum layer thickness in mm:
0,5
Permeation time (penetration time) in minutes:
480
Protective hand cream recommended.
The breakthrough times determined in accordance with EN 16523-1 were not obtained under practical conditions.
The recommended maximum wearing time is 50% of breakthrough time.

Skin protection - Other:
Protective working garments (e.g. safety shoes EN ISO 20345, long-sleeved protective working garments).

Respiratory protection:
If OES or MEL is exceeded.
Gas mask filter A (EN 14387), code colour brown
Observe wearing time limitations for respiratory protection equipment.

Thermal hazards:
Not applicable

Additional information on hand protection - No tests have been performed.
In the case of mixtures, the selection has been made according to the knowledge available and the information about the contents.
Selection of materials derived from glove manufacturer's indications.
Final selection of glove material must be made taking the breakthrough times, permeation rates and degradation into account.
Selection of a suitable glove depends not only on the material but also on other quality characteristics and varies from manufacturer to manufacturer.
In the case of mixtures, the resistance of glove materials cannot be predicted and must therefore be tested before use.
The exact breakthrough time of the glove material can be requested from the protective glove manufacturer and must be observed.

8.2.3 Environmental exposure controls
No information available at present.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	Colourless
Odour:	Characteristic
Melting point/freezing point:	There is no information available on this parameter.
Boiling point or initial boiling point and boiling range:	There is no information available on this parameter.
Flammability:	There is no information available on this parameter.
Lower explosion limit:	There is no information available on this parameter.
Upper explosion limit:	There is no information available on this parameter.
Flash point:	45 °C (The flash-point of the mixture was not tested, but complies with the ingredient with the lowest value.)
Auto-ignition temperature:	There is no information available on this parameter.
Decomposition temperature:	There is no information available on this parameter.
pH:	Mixture is non-polar/aprotic.
Kinematic viscosity:	There is no information available on this parameter.
Solubility:	There is no information available on this parameter.
Partition coefficient n-octanol/water (log value):	Does not apply to mixtures.
Vapour pressure:	There is no information available on this parameter.
Density and/or relative density:	0,88 g/cm3
Relative vapour density:	There is no information available on this parameter.
Particle characteristics:	Does not apply to liquids.

9.2 Other information
No information available at present.

SECTION 10: Stability and reactivity

10.1 Reactivity
The product has not been tested.
10.2 Chemical stability
Stable with proper storage and handling.
10.3 Possibility of hazardous reactions
No dangerous reactions are known.
10.4 Conditions to avoid
See also section 7.
Heating, open flame, ignition sources
10.5 Incompatible materials
See also section 7.
Avoid contact with strong oxidizing agents.
10.6 Hazardous decomposition products
See also section 5.2

No decomposition when used as directed.

SECTION 11: Toxicological information

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

Possibly more information on health effects, see Section 2.1 (classification).

Duftstoff Citrone
Art.: 167999

Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	ATE	>2000	mg/kg			calculated value
Acute toxicity, by dermal route:						n.d.a.
Acute toxicity, by inhalation:	ATE	10,3	mg/l/4h			calculated value, Vapours
Acute toxicity, by inhalation:	ATE	1,7	mg/l/4h			calculated value, Aerosol
Skin corrosion/irritation:						n.d.a.
Serious eye damage/irritation:						n.d.a.
Respiratory or skin sensitisation:						n.d.a.
Germ cell mutagenicity:						n.d.a.
Carcinogenicity:						n.d.a.
Reproductive toxicity:						n.d.a.
Specific target organ toxicity - single exposure (STOT-SE):						n.d.a.
Specific target organ toxicity - repeated exposure (STOT-RE):						n.d.a.
Aspiration hazard:						n.d.a.
Symptoms:						n.d.a.

(R)-p-mentha-1,8-diene

Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	> 2000	mg/kg	Rat	OECD 423 (Acute Oral Toxicity - Acute Toxic Class Method)	Female
Acute toxicity, by oral route:	LD50	>5000	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	
Acute toxicity, by dermal route:	LD50	>5000	mg/kg	Rabbit	OECD 402 (Acute Dermal Toxicity)	
Skin corrosion/irritation:				Rabbit		Skin Irrit. 2
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Not irritant
Respiratory or skin sensitisation:				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	Skin Sens. 1B
Respiratory or skin sensitisation:				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	Skin Sens. 1
Germ cell mutagenicity:				Mouse	OECD 476 (In Vitro Mammalian Cell Gene Mutation Test)	Negative
Germ cell mutagenicity:					OECD 479 (Genetic Toxicology - In Vitro Sister Chromatid Exchange assay in Mammalian Cells)	Negative Chinese hamster

Germ cell mutagenicity:					OECD 473 (In Vitro Mammalian Chromosome Aberration Test)	Negative Chinese hamster
Germ cell mutagenicity:				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Symptoms:						diarrhoea, rash, itching, gastrointestinal disturbances, mucous membrane irritation, nausea and vomiting.
Symptoms:						diarrhoea, rash, itching, gastrointestinal disturbances, mucous membrane irritation, nausea and vomiting.

2-Butoxyethanol

Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	ATE	1200	mg/kg			
Acute toxicity, by dermal route:	LD50	2275	mg/kg	Rabbit	OECD 402 (Acute Dermal Toxicity)	
Acute toxicity, by inhalation:	ATE	3	mg/l			Vapours
Acute toxicity, by inhalation:	ATE	0,5	mg/l/4h			Aerosol
Skin corrosion/irritation:				Rabbit	Regulation (EC) 440/2008 B.4 (DERMAL IRRITATION/CORROSION)	Skin Irrit. 2, Product removes fat.
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Eye Irrit. 2
Respiratory or skin sensitisation:				Guinea pig	OECD 406 (Skin Sensitisation)	No (skin contact)
Germ cell mutagenicity:				Mouse	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative
Germ cell mutagenicity:				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Germ cell mutagenicity:					OECD 473 (In Vitro Mammalian Chromosome Aberration Test)	Negative
Germ cell mutagenicity:					OECD 476 (In Vitro Mammalian Cell Gene Mutation Test)	Negative
Carcinogenicity:				Rat	OECD 451 (Carcinogenicity Studies)	Negative

Carcinogenicity:	NOAEC	125	ppm	Mouse	OECD 451 (Carcinogenicity Studies)	Negative
Reproductive toxicity:	NOAEL	720	mg/kg bw/d			
Specific target organ toxicity - repeated exposure (STOT-RE), oral:	NOAEL	<69	mg/kg bw/d	Rat	OECD 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)	
Specific target organ toxicity - repeated exposure (STOT-RE), dermal:	NOAEL	>150	mg/kg bw/d	Rabbit	OECD 411 (Subchronic Dermal Toxicity - 90-day Study)	
Aspiration hazard:						No
Symptoms:						acidosis, ataxia, breathing difficulties, respiratory distress, drowsiness, unconsciousness, annoyance, coughing, headaches, gastrointestinal disturbances, insomnia, mucous membrane irritation, dizziness, nausea

2-(2-butoxyethoxy)ethanol						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route:	LD50	>5000	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	
Acute toxicity, by oral route:	LD50	2410	mg/kg	Mouse	OECD 401 (Acute Oral Toxicity)	fasted animals
Acute toxicity, by dermal route:	LD50	2764	mg/kg	Rabbit	OECD 402 (Acute Dermal Toxicity)	
Acute toxicity, by inhalation:	LC50	>29	ppm	Rat	OECD 403 (Acute Inhalation Toxicity)	Dusts or mist
Skin corrosion/irritation:				Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Not irritant
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Eye Irrit. 2
Respiratory or skin sensitisation:				Guinea pig	OECD 406 (Skin Sensitisation)	No (skin contact)
Germ cell mutagenicity:				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Germ cell mutagenicity:					OECD 473 (In Vitro Mammalian Chromosome Aberration Test)	Negative Chinese hamster

Germ cell mutagenicity:				Mouse	OECD 475 (Mammalian Bone Marrow Chromosome Aberration Test)	Negative
Germ cell mutagenicity:					OECD 476 (In Vitro Mammalian Cell Gene Mutation Test)	Negative Chinese hamster
Reproductive toxicity:		1000	mg/kg	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Negative, Analogous conclusion
Specific target organ toxicity - repeated exposure (STOT-RE), oral:	NOAEL	250	mg/kg	Rat		
Specific target organ toxicity - repeated exposure (STOT-RE), dermal:	NOAEL	< 200	mg/kg bw/d	Rat	OECD 411 (Subchronic Dermal Toxicity - 90-day Study)	Male
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.:	NOAEL	14	ppm	Rat		Vapours
Aspiration hazard:						No
Symptoms:						breathing difficulties, respiratory distress, diarrhoea, coughing, mucous membrane irritation, dizziness, watering eyes, nausea

Citral						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route:	LD50	~ 6800	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	>2000	mg/kg	Rat		
Skin corrosion/irritation:				Rabbit		Irritant
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Eye Irrit. 2
Respiratory or skin sensitisation:				Guinea pig	OECD 406 (Skin Sensitisation)	Yes (skin contact)
Germ cell mutagenicity:				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Germ cell mutagenicity:				Mammalian	OECD 476 (In Vitro Mammalian Cell Gene Mutation Test)	Negative, Chinese hamster
Germ cell mutagenicity:				Mammalian	OECD 473 (In Vitro Mammalian Chromosome Aberration Test)	Negative, Chinese hamster
Germ cell mutagenicity:				Mouse	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative

Symptoms:						respiratory distress, drowsiness, coughing, headaches, gastrointestinal disturbances, mucous membrane irritation, nausea

7-methyl-3-methyleneocta-1,6-diene						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route:	LD50	>3380	mg/kg	Mouse		
Acute toxicity, by dermal route:	LD50	>5000	mg/kg	Rabbit	OECD 402 (Acute Dermal Toxicity)	
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Eye Irrit. 2
Respiratory or skin sensitisation:				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	Not sensitizising
Germ cell mutagenicity:				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Germ cell mutagenicity:				Human being	OECD 473 (In Vitro Mammalian Chromosome Aberration Test)	Negative
Aspiration hazard:						Yes
Symptoms:						mucous membrane irritation

cineole						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route:	LD50	2480	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	>5000	mg/kg	Rabbit		
Skin corrosion/irritation:					OECD 439 (In Vitro Skin Irritation - Reconstructed Human Epidermis Test Method)	Not irritant
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Analogous conclusion, Slightly irritant
Respiratory or skin sensitisation:				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	Yes (skin contact)
Germ cell mutagenicity:				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Germ cell mutagenicity:				Rat	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative

11.2. Information on other hazards

Duftstoff Citrone Art.: 167999						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Endocrine disrupting properties:						Does not apply to mixtures.
Other information:						No other relevant information available on adverse effects on health.

SECTION 12: Ecological information

Possibly more information on environmental effects, see Section 2.1 (classification).

Duftstoff Citrone Art.: 167999							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
12.1. Toxicity to fish:							n.d.a.
12.1. Toxicity to daphnia:							n.d.a.
12.1. Toxicity to algae:							n.d.a.
12.2. Persistence and degradability:							n.d.a.
12.3. Bioaccumulative potential:							n.d.a.
12.4. Mobility in soil:							n.d.a.
12.5. Results of PBT and vPvB assessment							n.d.a.
12.6. Endocrine disrupting properties:							Does not apply to mixtures.
12.7. Other adverse effects:							No information available on other adverse effects on the environment.
Other information:							DOC-elimination degree(complexing organic substance)>= 80%/28d: n.a.
Other information:	AOX			%			According to the recipe, contains no AOX.

(R)-p-mentha-1,8-diene							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
12.1. Toxicity to fish:	LC50	96h	0,70	mg/l	Pimephales promelas	OECD 203 (Fish, Acute Toxicity Test)	
12.1. Toxicity to daphnia:	EC50	48h	0,307-0,42	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	

12.1. Toxicity to algae:	ErC50	72h	0,214-0,32	mg/l	Pseudokirchneriella subcapitata	OECD 201 (Alga, Growth Inhibition Test)	
12.1. Toxicity to algae:	NOEC/NOEL	96h	4	mg/l			
12.2. Persistence and degradability:		28d	80-92	%		OECD 301 D (Ready Biodegradability - Closed Bottle Test)	Readily biodegradable
12.2. Persistence and degradability:		28d	71	%		OECD 301 B (Ready Biodegradability - Co2 Evolution Test)	Readily biodegradable
12.3. Bioaccumulative potential:	Log Kow		4,38			OECD 117 (Partition Coefficient (n-octanol/water) - HPLC method)	37 °C, pH = 7.2
12.4. Mobility in soil:							Adsorption in ground.
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Toxicity to bacteria:	EC50	3h	209	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	
Other information:							Does not contain any organically bound halogens which can contribute to the AOX value in waste water.

2-Butoxyethanol							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
12.1. Toxicity to fish:	LC50	96h	1474	mg/l	Oncorhynchus mykiss	OECD 203 (Fish, Acute Toxicity Test)	
12.1. Toxicity to fish:	NOEC/NOEL	21d	>100	mg/l	Brachydanio rerio	OECD 204 (Fish, Prolonged Toxicity Test - 14-Day Study)	
12.1. Toxicity to daphnia:	EC50	48h	1550	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to daphnia:	NOEC/NOEL	21d	100	mg/l	Daphnia magna	OECD 211 (Daphnia magna Reproduction Test)	

12.1. Toxicity to algae:	EC50	72h	1840	mg/l	Pseudokirchneriella subcapitata	OECD 201 (Alga, Growth Inhibition Test)	
12.1. Toxicity to algae:	NOEC/NOEL	72h	286	mg/l	Pseudokirchneriella subcapitata	OECD 201 (Alga, Growth Inhibition Test)	
12.2. Persistence and degradability:		28d	95	%		OECD 301 E (Ready Biodegradability - Modified OECD Screening Test)	Readily biodegradable
12.2. Persistence and degradability:		28d	>99	%		OECD 302 B (Inherent Biodegradability - Zahn-Wellens/EMPA Test)	Readily biodegradable
12.3. Bioaccumulative potential:	BCF		3,2				Slight
12.3. Bioaccumulative potential:	Log Pow		0,81			OECD 107 (Partition Coefficient (n-octanol/water) - Shake Flask Method)	Not to be expected
12.4. Mobility in soil:	H (Henry)		0,0000016	atm*m3/mol			
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Toxicity to bacteria:	EC10	16h	>700	mg/l	Pseudomonas putida	DIN 38412 T.8	

2-(2-butoxyethoxy)ethanol

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	1300	mg/l	Lepomis macrochirus	OECD 203 (Fish, Acute Toxicity Test)	
12.1. Toxicity to daphnia:	EC50	48h	>100	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to daphnia:	NOEC/NOEL	48h	>=100	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	NOEC/NOEL	96h	>100	mg/l	Desmodesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	
12.2. Persistence and degradability:		28d	76	%		OECD 301 D (Ready Biodegradability - Closed Bottle Test)	

12.2. Persistence and degradability:		28d	100	%	activated sludge	OECD 302 B (Inherent Biodegradability - Zahn-Wellens/EMPA Test)	Readily biodegradable
12.3. Bioaccumulative potential:	Log Pow		0,9-1			OECD 117 (Partition Coefficient (n-octanol/water) - HPLC method)	Slight
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Toxicity to bacteria:	EC10	30min	>1995	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	
Other information:							Does not contain any organically bound halogens which can contribute to the AOX value in waste water.

Citral							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
12.1. Toxicity to fish:	LC50	96h	6,78	mg/l	Leuciscus idus	OECD 203 (Fish, Acute Toxicity Test)	
12.1. Toxicity to daphnia:	EC50	48h	6,8	mg/l	Daphnia magna	Regulation (EC) 440/2008 C.2 (DAPHNIA SP. ACUTE IMMOBILISATION TEST)	
12.1. Toxicity to algae:	EC50	72h	103,8	mg/l	Desmodesmus subspicatus	DIN 38412 T.9	
12.1. Toxicity to algae:	EC10	72h	3	mg/l	Desmodesmus subspicatus	DIN 38412 T.9	
12.2. Persistence and degradability:		28d	> 90	%		OECD 301 F (Ready Biodegradability - Manometric Respirometry Test)	Readily biodegradable
12.2. Persistence and degradability:		28d	92	%	activated sludge	OECD 301 C (Ready Biodegradability - Modified MITI Test (I))	Readily biodegradable
12.3. Bioaccumulative potential:	BCF		89,72				Low

12.3. Bioaccumulative potential:	Log Pow		2,76			OECD 107 (Partition Coefficient (n-octanol/water) - Shake Flask Method)	A notable biological accumulation potential is not to be expected (LogPow 1-3).25 °C
12.4. Mobility in soil:	Log Koc		2,33			OECD 121 (Estimation of the Adsorption Coefficient (Koc) on Soil and on Sewage Sludge using HPLC)	
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Toxicity to bacteria:	EC50	30min	~160	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	

7-methyl-3-methyleneocta-1,6-diene

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.2. Persistence and degradability:		28d	76	%	activated sludge	OECD 301 D (Ready Biodegradability - Closed Bottle Test)	

cineole

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	57	mg/l	Oncorhynchus mykiss	OECD 203 (Fish, Acute Toxicity Test)	
12.1. Toxicity to daphnia:	EC50	48h	>100	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	EC50	72h	>74	mg/l	Pseudokirchneriella subcapitata	OECD 201 (Alga, Growth Inhibition Test)	
12.2. Persistence and degradability:		28d	82	%	activated sludge	OECD 301 F (Ready Biodegradability - Manometric Respirometry Test)	Readily biodegradable
12.3. Bioaccumulative potential:	Log Pow		3,4			OECD 117 (Partition Coefficient (n-octanol/water) - HPLC method)	

12.4. Mobility in soil:	Log Koc		2,33			OECD 121 (Estimation of the Adsorption Coefficient (Koc) on Soil and on Sewage Sludge using HPLC)	
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Toxicity to bacteria:	EC50	3h	>100	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	

SECTION 13: Disposal considerations

13.1 Waste treatment methods
For the substance / mixture / residual amounts
EC disposal code no.:
The waste codes are recommendations based on the scheduled use of this product.
Owing to the user's specific conditions for use and disposal, other waste codes may be allocated under certain circumstances. (2014/955/EU)
07 07 04 other organic solvents, washing liquids and mother liquors
Recommendation:
Sewage disposal shall be discouraged.
Pay attention to local and national official regulations.
E.g. suitable incineration plant.
E.g. dispose at suitable refuse site.
For contaminated packing material
Pay attention to local and national official regulations.
Empty container completely.
Uncontaminated packaging can be recycled.
Dispose of packaging that cannot be cleaned in the same manner as the substance.

SECTION 14: Transport information

General statements
Transport by road/by rail (ADR/RID),

14.1. UN number or ID number: 1266
14.2. UN proper shipping name:
UN 1266 PERFUMERY PRODUCTS
14.3. Transport hazard class(es): 3
14.4. Packing group: III
14.5. Environmental hazards: environmentally hazardous
Tunnel restriction code: D/E
Classification code: F1
LQ: 5 L
Transport category: 3

Transport by sea (IMDG-code)

14.1. UN number or ID number: 1266
14.2. UN proper shipping name:
UN 1266 PERFUMERY PRODUCTS

14.3. Transport hazard class(es):	3
14.4. Packing group:	III
14.5. Environmental hazards:	environmentally hazardous
Marine Pollutant:	Yes
EmS:	F-E, S-D

Transport by air (IATA)

14.1. UN number or ID number:	1266
14.2. UN proper shipping name:	
UN 1266 Perfumery products	
14.3. Transport hazard class(es):	3
14.4. Packing group:	III
14.5. Environmental hazards:	Not applicable

14.6. Special precautions for user

Persons employed in transporting dangerous goods must be trained.
All persons involved in transporting must observe safety regulations.
Precautions must be taken to prevent damage.

14.7. Maritime transport in bulk according to IMO instruments

Freighted as packaged goods rather than in bulk, therefore not applicable.
Minimum amount regulations have not been taken into account.
Danger code and packing code on request.
Comply with special provisions.

SECTION 15: Regulatory information

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

Observe restrictions:
Comply with national regulations/laws governing the protection of young people at work (national implementation of the Directive 94/33/EC)!
Regulation (EC) No 1907/2006, Annex XVII
2-(2-butoxyethoxy)ethanol
Comply with national regulations/laws governing maternity protection (national implementation of the Directive 92/85/EEC)!
Comply with trade association/occupational health regulations.

Directive 2012/18/EU ("Seveso III"), Annex I, Part 1 - The following categories apply to this product (others may also need to be considered according to storage, handling etc.):

Hazard categories	Notes to Annex I	Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of - Lower-tier requirements	Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of - Upper-tier requirements
P5c		5000	50000
E1		100	200

The Notes to Annex 1 of Directive 2012/18/EU, in particular those named in the tables here and notes 1-6, must be taken into account when assigning categories and qualifying quantities.

Directive 2010/75/EU (VOC): ~ 72 %

National requirements/regulations on safety and health protection must be applied when using work equipment.

15.2 Chemical safety assessment

A chemical safety assessment is not provided for mixtures.

SECTION 16: Other information

Revised sections: 14
Employee training in handling dangerous goods is required.
These details refer to the product as it is delivered.

Employee instruction/training in handling hazardous materials is required.

Classification and processes used to derive the classification of the mixture in accordance with the ordinance (EG) 1272/2008 (CLP):

Classification in accordance with regulation (EC) No. 1272/2008 (CLP)	Evaluation method used
Flam. Liq. 3, H226	Classification based on test data.
Acute Tox. 4, H332	Classification according to calculation procedure.
Eye Irrit. 2, H319	Classification according to calculation procedure.
Skin Irrit. 2, H315	Classification according to calculation procedure.
Skin Sens. 1, H317	Classification according to calculation procedure.
Asp. Tox. 1, H304	Classification according to calculation procedure.
Aquatic Acute 1, H400	Classification according to calculation procedure.
Aquatic Chronic 3, H412	Classification according to calculation procedure.

The following phrases represent the posted Hazard Class and Risk Category Code (GHS/CLP) of the product and the constituents.
H226 Flammable liquid and vapour.
H317 May cause an allergic skin reaction.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H400 Very toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.

Flam. Liq. — Flammable liquid
Acute Tox. — Acute toxicity - inhalation
Eye Irrit. — Eye irritation
Skin Irrit. — Skin irritation
Skin Sens. — Skin sensitization
Asp. Tox. — Aspiration hazard
Aquatic Acute — Hazardous to the aquatic environment - acute
Aquatic Chronic — Hazardous to the aquatic environment - chronic
Acute Tox. — Acute toxicity - oral

Key literature references and sources for data:

Regulation (EC) No 1907/2006 (REACH) and Regulation (EC) No 1272/2008 (CLP) as amended.
Guidelines for the preparation of safety data sheets as amended (ECHA).
Guidelines on labelling and packaging according to the Regulation (EG) Nr. 1272/2008 (CLP) as amended (ECHA).
Safety data sheets for the constituent substances.
ECHA Homepage - Information about chemicals.
GESTIS Substance Database (Germany).
German Environment Agency "Rigoletto" information site on substances that are hazardous to water (Germany).
EU Occupation Exposure Limits Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164, (EU) 2019/1831, each as amended.
National Lists of Occupational Exposure Limits for each country as amended.
Regulations on the transport of hazardous goods by road, rail, sea and air (ADR, RID, IMDG, IATA) as amended.

Any abbreviations and acronyms used in this document:

acc., acc. to according, according to

ADR Accord européen relatif au transport international des marchandises Dangereuses par Route (= European Agreement concerning the International Carriage of Dangerous Goods by Road)
AOX Adsorbable organic halogen compounds
approx. approximately
Art., Art. no. Article number
ASTM ASTM International (American Society for Testing and Materials)
ATE Acute Toxicity Estimate
BAM Bundesanstalt für Materialforschung und -prüfung (= Federal Institute for Materials Research and Testing, Germany)
BAuA Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (= Federal Institute for Occupational Health and Safety, Germany)
BCF Bioconcentration factor
BSEF The International Bromine Council
CAS Chemical Abstracts Service
CLP Classification, Labelling and Packaging (REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures)
CMR carcinogenic, mutagenic, reproductive toxic
DMEL Derived Minimum Effect Level
DNEL Derived No Effect Level
DOC Dissolved organic carbon
e.g. for example (abbreviation of Latin 'exempli gratia'), for instance
EbCx, EyCx, EbLx (x = 10, 50) Effect Concentration/Level of x % on reduction of the biomass (algae, plants)
EC European Community
ECHA European Chemicals Agency
ECx, ELx (x = 0, 3, 5, 10, 20, 50, 80, 100) Effect Concentration/Level for x % effect
EEC European Economic Community
EINECS European Inventory of Existing Commercial Chemical Substances
ELINCS European List of Notified Chemical Substances
EN European Norms
EPA United States Environmental Protection Agency (United States of America)
ErCx, EμCx, ErLx (x = 10, 50) Effect Concentration/Level of x % on inhibition of the growth rate (algae, plants)
etc. et cetera
EU European Union
EVAL Ethylene-vinyl alcohol copolymer
Fax. Fax number
gen. general
GHS Globally Harmonized System of Classification and Labelling of Chemicals
GWP Global warming potential
Koc Adsorption coefficient of organic carbon in the soil
Kow octanol-water partition coefficient
IARC International Agency for Research on Cancer
IATA International Air Transport Association
IBC (Code) International Bulk Chemical (Code)
IMDG-code International Maritime Code for Dangerous Goods
incl. including, inclusive
IUCLID International Uniform Chemical Information Database
IUPAC International Union for Pure Applied Chemistry
LC50 Lethal Concentration to 50 % of a test population
LD50 Lethal Dose to 50% of a test population (Median Lethal Dose)
Log Koc Logarithm of adsorption coefficient of organic carbon in the soil
Log Kow, Log Pow Logarithm of octanol-water partition coefficient
LQ Limited Quantities
MARPOL International Convention for the Prevention of Marine Pollution from Ships
mg/kg bw mg/kg body weight
mg/kg bw/d, mg/kg bw/day mg/kg body weight/day
mg/kg dw mg/kg dry weight
mg/kg wwt mg/kg wet weight
n.a. not applicable
n.av. not available
n.c. not checked
n.d.a. no data available
NIOSH National Institute for Occupational Safety and Health (USA)
NLP No-longer-Polymer

NOEC, NOEL No Observed Effect Concentration/Level
OECD Organisation for Economic Co-operation and Development
org. organic
OSHA Occupational Safety and Health Administration (USA)
PBT persistent, bioaccumulative and toxic
PE Polyethylene
PNEC Predicted No Effect Concentration
ppm parts per million
PVC Polyvinylchloride
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals (REGULATION (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals)
REACH-IT List-No. 6/7/8/9xx-xxx-x No. is automatically assigned, e.g. to pre-registrations without a CAS No. or other numerical identifier. List Numbers do not have any legal significance, rather they are purely technical identifiers for processing a submission via REACH-IT.
RID Règlement concernant le transport International ferroviaire de marchandises Dangereuses (= Regulation concerning the International Carriage of Dangerous Goods by Rail)
SVHC Substances of Very High Concern
Tel. Telephone
TOC Total organic carbon
UN RTDG United Nations Recommendations on the Transport of Dangerous Goods
VOC Volatile organic compounds
vPvB very persistent and very bioaccumulative

The statements made here should describe the product with regard to the necessary safety precautions - they are not meant to guarantee definite characteristics - but they are based on our present up-to-date knowledge.
No responsibility.
These statements were made by:

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