BITTER LEMON CC-16419

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 8/19/2024

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

1.1. Product identifier

Product form	:	Mixture
Trade name	:	BITTER LEMON CC-16419
UFI	:	Q45M-PCG2-A00K-D6W1
Product code	:	CC-16419
Type of product	:	Perfumes, fragrances
Product group	:	Trade product

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

1.2.1. Relevant identified uses

Main use category	:	Professional use,Industrial use
Industrial/Professional use spec	:	Industrial For professional use only
Use of the substance/mixture	:	Perfumes, fragrances
Function or use category	:	Odour agents

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Candle Craft
Weiherwiese 10
65510 Idstein - Germany
T 49-6126-9363 -0
info@candlecraft.de - www.candlecraft.de

1.4. Emergency telephone number

Emergency number	:	1-800-255-3924; +01-813-248-0585; China:+400-120-0751; Mexico:+01-800-099-0731; Brazil: +0-800-591-6042; India: +000-800-100-4086

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 4	H302
Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Skin sensitisation, Category 1	H317
Hazardous to the aquatic environment – Acute Hazard, Category 1	H400
Hazardous to the aquatic environment – Chronic Hazard, Category 2	H411

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. Very toxic to aquatic life. Toxic to aquatic life with long lasting effects. May cause an allergic skin reaction.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :

GHS07 GHS09

Signal word (CLP) : Warning

Contains : benzyl benzoate; citral; Triplal (Vertocitral); Citrus medica limonum (Lemon) peel oil ; Hexyl cinnamic aldehyde; Ethyl maltol; Eucalyptol; Lime Oxide; Litsea cubeba oil

Hazard statements (CLP) : H302 - Harmful if swallowed.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) : P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

Extra phrases : For professional users only.

2.3. Other hazards

Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
benzyl benzoate	CAS-No.: 120-51-4 EC-No.: 204-402-9 EC Index-No.: 607-085-00-9 REACH-no: 01-2119976371-33	30 – 60	Acute Tox. 4 (Oral), H302 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
Verdyl acetate	CAS-No.: 5413-60-5 EC-No.: 226-501-6	3.5 – 7	Aquatic Chronic 3, H412
Verdox	CAS-No.: 88-41-5 EC-No.: 201-828-7 REACH-no: 01-2119970713-33	2.7 – 5.3	Aquatic Chronic 2, H411
Lemonile	CAS-No.: 61792-11-8 EC-No.: 263-214-5	1.6 – 3.25	Aquatic Chronic 2, H411

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
citral substance with national workplace exposure limit(s) (BE, ES, IE, PL, PT)	CAS-No.: 5392-40-5 EC-No.: 226-394-6 EC Index-No.: 605-019-00-3 REACH-no: 01-2119462829-23	1.3 – 2.5	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317
Diphenyl oxide substance with national workplace exposure limit(s) (AT, BE, BG, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GI, GR, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK, NO, CH); substance with a Community workplace exposure limit	CAS-No.: 101-84-8 EC-No.: 202-981-2 REACH-no: 01-2119472545-33	1.3 – 2.5	Eye Irrit. 2, H319 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Triplal (Vertocitral)	CAS-No.: 68039-49-6 EC-No.: 268-264-1	1.3 – 2.5	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 3, H412
Citrus medica limonum (Lemon) peel oil	CAS-No.: 8008-56-8 EC-No.: 284-515-8	1.3 – 2.5	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1, H317 Repr. 2, H361 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
Hexyl cinnamic aldehyde	CAS-No.: 101-86-0 EC-No.: 202-983-3 REACH-no: 01-2119533092-50	1.3 – 2.5	Skin Sens. 1, H317 Aquatic Chronic 2, H411
Ethyl maltol	CAS-No.: 4940-11-8 EC-No.: 225-582-5	1.1 – 2.2	Acute Tox. 4 (Oral), H302
Eucalyptol	CAS-No.: 470-82-6 EC-No.: 207-431-5 REACH-no: 01-2119967772-24	1 – 1.9	Flam. Liq. 3, H226 Skin Sens. 1, H317
Lime Oxide	CAS-No.: 73018-51-6 EC-No.: 277-225-8	0.9 – 1.75	Flam. Liq. 3, H226 Skin Sens. 1, H317 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
Aldehyde C-8	CAS-No.: 124-13-0 EC-No.: 204-683-8	0.8 – 1.6	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Aquatic Chronic 3, H412
Methyl pamplemousse	CAS-No.: 67674-46-8 EC-No.: 266-885-2	0.8 – 1.5	Aquatic Chronic 3, H412 Skin Irrit. 2, H315
Litsea cubeba oil	CAS-No.: 68855-99-2 EC-No.: 290-018-7	0.8 – 1.5	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
Aldehyde C-10	CAS-No.: 112-31-2 EC-No.: 203-957-4	0.6 – 1.1	Eye Irrit. 2, H319 Aquatic Chronic 3, H412

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Aldehyde C-11	CAS-No.: 112-44-7 EC-No.: 203-972-6 REACH-no: 01-2119990746-20	0.2 – 0.3	Skin Irrit. 2, H315 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). Call a poison center or a doctor if you feel unwell.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. If skin irritation or rash occurs: Get medical advice/attention. Specific treatment (see Get medical advice/attention. on this label). If skin irritation occurs: Get medical advice/attention. Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Do NOT induce vomiting. Obtain emergency medical attention. Rinse mouth. Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

Symptoms/effects after skin contact : Irritation. May cause an allergic skin reaction.

Symptoms/effects after eye contact : Eye irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Sand. Water spray. Dry powder. Foam. Carbon dioxide.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Evacuate unnecessary personnel. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.

Methods for cleaning up : Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

See Section 8. Exposure controls and personal protection. For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Avoid contact with skin and eyes. Wear personal protective equipment. Avoid breathing dust/fume/gas/mist/vapours/spray.

Hygiene measures : Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container closed when not in use. Store in a well-ventilated place. Keep cool.

Incompatible products : Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

Storage temperature : 25 °C

Storage area : Store in a well-ventilated place. Store away from heat.

Special rules on packaging : Store in a closed container.

Packaging materials : Do not store in corrodable metal.

Germany

Storage class (LGK, TRGS 510) : LGK 10 - Combustible liquids

Joint storage table :

LGK 1	LGK 2A	LGK 2B	LGK 3	LGK 4.1A
LGK 4.1B	LGK 4.2	LGK 4.3	LGK 5.1A	LGK 5.1B
LGK 5.1C	LGK 5.2	LGK 6.1A	LGK 6.1B	LGK 6.1C
LGK 6.1D	LGK 6.2	LGK 7	LGK 8A	LGK 8B
LGK 10	LGK 11	LGK 12	LGK 13	LGK 10-13

Joint storage not permitted for : LGK 1, LGK 2A, LGK 5.1A, LGK 6.2, LGK 7

Joint storage with restrictions permitted for : LGK 4.1A, LGK 4.2, LGK 4.3, LGK 5.1B, LGK 5.1C, LGK 5.2

Joint storage permitted for : LGK 2B, LGK 3, LGK 4.1B, LGK 6.1A, LGK 6.1B, LGK 6.1C, LGK 6.1D, LGK 8A, LGK 8B, LGK 10, LGK 11, LGK 12, LGK 13, LGK 10-13

Switzerland

Storage class (LK) : LK 10/12 - Liquids

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

citral (5392-40-5)	
Belgium - Occupational Exposure Limits	
OEL TWA	32 mg/m³ (vapor and aerosol)
	5 ppm (vapor and aerosol)
OEL chemical category	Skin
Ireland - Occupational Exposure Limits	
OEL TWA	5 ppm
OEL STEL	15 ppm (calculated)
Poland - Occupational Exposure Limits	
NDS (OEL TWA)	27 mg/m³
NDSCh (OEL STEL)	54 mg/m³
Portugal - Occupational Exposure Limits	
OEL TWA	5 ppm (inhalable fraction; vapor)
OEL chemical category	Sensitizer dermal, A4 - Not Classifiable as a Human Carcinogen, skin - potential for cutaneous exposure
Spain - Occupational Exposure Limits	
VLA-ED (OEL TWA)	5 ppm (inhalable fraction and vapor)
OEL chemical category	Sensitizer, skin - potential for cutaneous absorption
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	5 ppm (inhalable fraction and vapor)
ACGIH chemical category	Not Classifiable as a Human Carcinogen, Skin - potential significant contribution to overall exposure by the cutaneous route, dermal sensitizer

Diphenyl oxide (101-84-8)	
EU - Indicative Occupational Exposure Limit (IOEL)	
IOEL TWA	7 mg/m³
	1 ppm
IOEL STEL	14 mg/m³
	2 ppm
Austria - Occupational Exposure Limits	
MAK (OEL TWA)	7 mg/m³
	1 ppm

Diphenyl oxide (101-84-8)	
MAK (OEL STEL)	14 mg/m³
	2 ppm
Belgium - Occupational Exposure Limits	
OEL TWA	7 mg/m³ (vapor)
	1 ppm (vapor)
OEL STEL	14 mg/m³ (vapor)
	2 ppm (vapor)
Bulgaria - Occupational Exposure Limits	
OEL TWA	7 mg/m³
	1 ppm
OEL STEL	14 mg/m³
	2 ppm
Croatia - Occupational Exposure Limits	
GVI (OEL TWA)	7 mg/m³
	1 ppm
KGVI (OEL STEL)	14 mg/m³
	2 ppm
Cyprus - Occupational Exposure Limits	
OEL TWA	7 mg/m³
	1 ppm
OEL STEL	14 mg/m³
	2 ppm
Czech Republic - Occupational Exposure Limits	
PEL (OEL TWA)	5 mg/m³
Denmark - Occupational Exposure Limits	
OEL TWA	7 mg/m³
	1 ppm
OEL STEL	14 mg/m³
	2 ppm
Estonia - Occupational Exposure Limits	
OEL TWA	7 mg/m³
	1 ppm
OEL STEL	14 mg/m³
	2 ppm
Finland - Occupational Exposure Limits	
HTP (OEL TWA)	7 mg/m³
	1 ppm
HTP (OEL STEL)	14 mg/m³
	2 ppm

Diphenyl oxide (101-84-8)	
France - Occupational Exposure Limits	
VME (OEL TWA)	7 mg/m³ (indicative limit)
	1 ppm (indicative limit)
VLE (OEL C/STEL)	14 mg/m³ (indicative limit)
	2 ppm (indicative limit)
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA)	7.1 mg/m³ (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed-vapor)
	1 ppm (the risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed-vapor)
Gibraltar - Occupational Exposure Limits	
OEL TWA	7 mg/m³
	1 ppm
OEL STEL	14 mg/m³
	200 ppm
Greece - Occupational Exposure Limits	
OEL TWA	7 mg/m³
	1 ppm
OEL STEL	14 mg/m³
	2 ppm
Hungary - Occupational Exposure Limits	
AK (OEL TWA)	7 mg/m³
CK (OEL STEL)	14 mg/m³
Ireland - Occupational Exposure Limits	
OEL TWA	7 mg/m³ (vapour)
	1 ppm (vapour)
OEL STEL	14 mg/m³ (vapour)
	2 ppm (vapour)
Italy - Occupational Exposure Limits	
OEL TWA	7 mg/m³
	1 ppm
Latvia - Occupational Exposure Limits	
OEL TWA	7 mg/m³
	1 ppm
Lithuania - Occupational Exposure Limits	
IPRV (OEL TWA)	7 mg/m³
	1 ppm
TPRV (OEL STEL)	14 mg/m³
	2 ppm

Diphenyl oxide (101-84-8)	
Luxembourg - Occupational Exposure Limits	
OEL TWA	7 mg/m³
	1 ppm
OEL STEL	14 mg/m³
	2 ppm
Malta - Occupational Exposure Limits	
OEL TWA	7 mg/m³
	1 ppm
OEL STEL	14 mg/m³
	2 ppm
Netherlands - Occupational Exposure Limits	
TGG-8u (OEL TWA)	7 mg/m³
	1 ppm
TGG-15min (OEL STEL)	14 mg/m³
	2 ppm
Poland - Occupational Exposure Limits	
NDS (OEL TWA)	7 mg/m³
NDSCh (OEL STEL)	14 mg/m³
Portugal - Occupational Exposure Limits	
OEL TWA	7 mg/m³
	1 ppm (vapor)
OEL STEL	14 mg/m³ (indicative limit value)
	2 ppm (indicative limit value-vapor)
Romania - Occupational Exposure Limits	
OEL TWA	7 mg/m³
	1 ppm
OEL STEL	14 mg/m³
	2 ppm
Slovakia - Occupational Exposure Limits	
NPHV (OEL TWA)	7 mg/m³
	1 ppm
NPHV (OEL C)	7.1 mg/m³
Slovenia - Occupational Exposure Limits	
OEL TWA	7 mg/m³
	1 ppm
OEL STEL	14 mg/m³
	2 ppm
Spain - Occupational Exposure Limits	
VLA-ED (OEL TWA)	7.1 mg/m³ (vapor)

Diphenyl oxide (101-84-8)	
	1 ppm (vapor)
VLA-EC (OEL STEL)	14.2 mg/m³ (vapor)
	2 ppm (vapor)
Sweden - Occupational Exposure Limits	
NGV (OEL TWA)	7 mg/m³
	1 ppm
KGV (OEL STEL)	14 mg/m³
	2 ppm
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	7 mg/m³
	1 ppm
WEL STEL (OEL STEL)	14 mg/m³
	2 ppm
Norway - Occupational Exposure Limits	
Grenseverdi (OEL TWA)	7 mg/m³
	1 ppm
Korttidsverdi (OEL STEL)	14 mg/m³ (value from the regulation)
	2 ppm (value from the regulation)
Switzerland - Occupational Exposure Limits	
MAK (OEL TWA)	7 mg/m³ (aerosol, vapour)
	1 ppm (aerosol, vapour)
KZGW (OEL STEL)	14 mg/m³ (aerosol, vapour)
	2 ppm (aerosol, vapour)
OEL chemical category	Category 2 reproductive toxin
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	1 ppm (vapor)
ACGIH OEL STEL	2 ppm (vapor fraction)

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:
Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Personal protective equipment:
Avoid all unnecessary exposure.

Personal protective equipment symbol(s):

8.2.2.1. Eye and face protection

Eye protection:
Chemical goggles or safety glasses. Safety glasses

8.2.2.2. Skin protection

Skin and body protection:
Wear suitable protective clothing

Hand protection:
Wear protective gloves.

8.2.2.3. Respiratory protection

Respiratory protection:
Wear appropriate mask

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:
Avoid release to the environment.

Other information:
Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: light yellow. amber. Conforms to standard.
Odour	: characteristic.
Odour threshold	: Not available
Melting point	: Not applicable
Freezing point	: Not available
Boiling point	: Not available
Flammability	: Not applicable
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: 87 °C
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: Not available
Viscosity, kinematic	: Not available
Solubility	: Not available
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available
Vapour pressure at 50°C	: Not available
Density	: Not available
Relative density	: Not available
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Not established.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

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

Acute toxicity (oral) : Harmful if swallowed.
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

BITTER LEMON CC-16419	
ATE CLP (oral)	820.257 mg/kg bodyweight
benzyl benzoate (120-51-4)	
LD50 oral rat	500 mg/kg (Source: NLM_CIP)
LD50 oral	1160 mg/kg bodyweight
LD50 dermal rabbit	4000 mg/kg (Source: NLM_CIP)
Verdyl acetate (5413-60-5)	
LD50 oral	3050 mg/kg bodyweight
LD50 dermal rabbit	> 5000 mg/kg (Source: ECHA_API)
Verdox (88-41-5)	
LD50 oral rat	4600 mg/kg (Source: NLM_CIP)
LD50 oral	4600 mg/kg
Lemonile (61792-11-8)	
LD50 oral rat	2600 mg/kg (Source: NLM_CIP)

Lemonile (61792-11-8)	
LD50 oral	2600 mg/kg bodyweight
citral (5392-40-5)	
LD50 oral rat	4960 mg/kg (Source: NLM_CIP)
LD50 dermal rabbit	2250 mg/kg (Source: NLM_CIP)
Diphenyl oxide (101-84-8)	
LD50 oral rat	2450 mg/kg (Source: NLM_CIP)
LD50 oral	2830 mg/kg bodyweight
LD50 dermal rabbit	> 7940 mg/kg (Source: NLM_CIP)
LC50 Inhalation - Rat (Dust/Mist)	1.5 mg/l/4h
Triplal (Vertocitral) (68039-49-6)	
LD50 oral	2330 mg/kg
Citrus medica limonum (Lemon) peel oil (8008-56-8)	
LD50 oral rat	2840 mg/kg (Source: NLM_CIP)
Hexyl cinnamic aldehyde (101-86-0)	
LD50 oral rat	3100 mg/kg (Source: NLM_CIP)
LD50 oral	3100 mg/kg bodyweight
LD50 dermal rabbit	> 3000 mg/kg (Source: EPA_HPV)
LC50 Inhalation - Rat	> 5 mg/l/4h
Ethyl maltol (4940-11-8)	
LD50 oral rat	1150 mg/kg (Source: NLM_CIP)
LD50 oral	1200 mg/kg bodyweight
LD50 dermal rabbit	> 5000 mg/kg (Source: ECHA_API)
Eucalyptol (470-82-6)	
LD50 oral rat	2480 mg/kg (Source: NLM_CIP)
LD50 oral	2480 mg/kg bodyweight
Aldehyde C-8 (124-13-0)	
LD50 oral rat	4616 mg/kg (Source: CHEMVIEW)
LD50 dermal rabbit	5207 mg/kg (Source: CHEMVIEW)
LC50 Inhalation - Rat	> 4.7 mg/l/4h
Litsea cubeba oil (68855-99-2)	
LD50 oral rat	> 5 g/kg (Source: NLM_CIP)
LD50 dermal	4800 mg/kg bodyweight
Aldehyde C-10 (112-31-2)	
LD50 oral rat	3730 mg/kg (Source: NLM_HSDB)
LD50 dermal rabbit	5040 mg/kg (Source: NLM_HSDB)
Aldehyde C-11 (112-44-7)	
LD50 dermal rabbit	> 5000 mg/kg (Source: ECHA_API)

Skin corrosion/irritation	:	Causes skin irritation.
Serious eye damage/irritation	:	Causes serious eye irritation.
Respiratory or skin sensitisation	:	May cause an allergic skin reaction.
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified

benzyl benzoate (120-51-4)	
Viscosity, kinematic	7.456 mm²/s

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

No additional information available

11.2.2. Other information

Potential adverse human health effects and symptoms : Based on available data, the classification criteria are not met

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	:	Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short–term (acute)	:	Very toxic to aquatic life.
Hazardous to the aquatic environment, long–term (chronic)	:	Toxic to aquatic life with long lasting effects.

benzyl benzoate (120-51-4)	
LC50 - Fish [1]	2.32 mg/l (Exposure time: 96 h - Species: Danio rerio [semi-static] Source: ECHA)
NOEC (chronic)	0.168 mg/l
citral (5392-40-5)	
EC50 - Crustacea [1]	7 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 72h - Algae [1]	16 mg/l (Species: Desmodesmus subspicatus)
EC50 96h - Algae [1]	19 mg/l (Species: Desmodesmus subspicatus)
Ethyl maltol (4940-11-8)	
LC50 - Fish [1]	> 85 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss Source: ECHA)
Eucalyptol (470-82-6)	
LC50 - Fish [1]	95.4 (95.4 – 109) mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
Aldehyde C-10 (112-31-2)	
LC50 - Fish [1]	1.45 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [semi-static] Source: ECHA)

12.2. Persistence and degradability

BITTER LEMON CC-16419	
Persistence and degradability	Not established.

benzyl benzoate (120-51-4)	
Persistence and degradability	May cause long-term adverse effects in the environment.
Verdyl acetate (5413-60-5)	
Persistence and degradability	Rapidly degradable
Verdox (88-41-5)	
Persistence and degradability	Rapidly degradable
Lemonile (61792-11-8)	
Persistence and degradability	Rapidly degradable
citral (5392-40-5)	
Persistence and degradability	Rapidly degradable
Diphenyl oxide (101-84-8)	
Persistence and degradability	Rapidly degradable
Triplal (Vertocitral) (68039-49-6)	
Persistence and degradability	Rapidly degradable
Citrus medica limonum (Lemon) peel oil (8008-56-8)	
Persistence and degradability	Rapidly degradable
Hexyl cinnamic aldehyde (101-86-0)	
Persistence and degradability	Rapidly degradable
Ethyl maltol (4940-11-8)	
Persistence and degradability	Rapidly degradable
Eucalyptol (470-82-6)	
Persistence and degradability	Rapidly degradable
Lime Oxide (73018-51-6)	
Persistence and degradability	Rapidly degradable
Aldehyde C-8 (124-13-0)	
Persistence and degradability	Rapidly degradable
Methyl pamplemousse (67674-46-8)	
Persistence and degradability	Rapidly degradable
Litsea cubeba oil (68855-99-2)	
Persistence and degradability	Rapidly degradable
Aldehyde C-10 (112-31-2)	
Persistence and degradability	Rapidly degradable
Aldehyde C-11 (112-44-7)	
Persistence and degradability	Rapidly degradable

12.3. Bioaccumulative potential

BITTER LEMON CC-16419	
Bioaccumulative potential	Not established.
benzyl benzoate (120-51-4)	
Partition coefficient n-octanol/water (Log Pow)	3.97 (at 25 °C)
Bioaccumulative potential	Not established.
Verdyl acetate (5413-60-5)	
Partition coefficient n-octanol/water (Log Pow)	4.2 (at 30 °C (at pH 5.92)
Lemonile (61792-11-8)	
Partition coefficient n-octanol/water (Log Pow)	3.2 (at 35 °C)
citral (5392-40-5)	
Partition coefficient n-octanol/water (Log Pow)	2.76 (at 25 °C)
Diphenyl oxide (101-84-8)	
BCF - Fish [1]	(470 dimensionless)
Partition coefficient n-octanol/water (Log Pow)	4.21 (at 25 °C)
Ethyl maltol (4940-11-8)	
Partition coefficient n-octanol/water (Log Pow)	2.9 (at 25 °C)
Eucalyptol (470-82-6)	
Partition coefficient n-octanol/water (Log Pow)	3.4
Lime Oxide (73018-51-6)	
Partition coefficient n-octanol/water (Log Pow)	3.3 – 4.9 (at 35 °C (at pH 7)
Aldehyde C-8 (124-13-0)	
Partition coefficient n-octanol/water (Log Pow)	3.5 (at 25 °C)
Methyl pamplemousse (67674-46-8)	
Partition coefficient n-octanol/water (Log Pow)	3.8 (at 35 °C (at pH 7)
Aldehyde C-10 (112-31-2)	
Partition coefficient n-octanol/water (Log Pow)	3.8 (at 35 °C)
Aldehyde C-11 (112-44-7)	
Partition coefficient n-octanol/water (Log Pow)	4.47 (at 25 °C)

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

Additional information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Ecological information : Avoid release to the environment.

HP Code : HP6 - "Acute Toxicity:" waste which can cause acute toxic effects following oral or dermal administration, or inhalation exposure.
HP4 - "Irritant – skin irritation and eye damage:" waste which on application can cause skin irritation or damage to the eye.
HP14 - "Ecotoxic:" waste which presents or may present immediate or delayed risks for one or more sectors of the environment

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 3082	UN 3082	UN 3082	UN 3082	UN 3082
14.2. UN proper shipping name				
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Benzyl Benzoate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Benzyl Benzoate)	Environmentally hazardous substance, liquid, n.o.s. (Benzyl Benzoate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Benzyl Benzoate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Benzyl Benzoate)
Transport document description				
UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Benzyl Benzoate), 9, III, (-)	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Benzyl Benzoate), 9, III, MARINE POLLUTANT	UN 3082 Environmentally hazardous substance, liquid, n.o.s. (Benzyl Benzoate), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Benzyl Benzoate), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Benzyl Benzoate), 9, III
14.3. Transport hazard class(es)				
9	9	9	9	9
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR) : M6

Special provisions (ADR) : 274, 335, 375, 601

Limited quantities (ADR) : 5l

Excepted quantities (ADR)	: E1
Packing instructions (ADR)	: P001, IBC03, LP01, R001
Special packing provisions (ADR)	: PP1
Mixed packing provisions (ADR)	: MP19
Portable tank and bulk container instructions (ADR)	: T4
Portable tank and bulk container special provisions (ADR)	: TP1, TP29
Tank code (ADR)	: LGBV
Vehicle for tank carriage	: AT
Transport category (ADR)	: 3
Special provisions for carriage - Packages (ADR)	: V12
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV13
Hazard identification number (Kemler No.)	: 90
Orange plates	: 
Tunnel restriction code (ADR)	: -
EAC code	: •3Z

Transport by sea

Special provisions (IMDG)	: 274, 335, 969
Limited quantities (IMDG)	: 5 L
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: LP01, P001
Special packing provisions (IMDG)	: PP1
IBC packing instructions (IMDG)	: IBC03
Tank instructions (IMDG)	: T4
Tank special provisions (IMDG)	: TP1, TP29
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-F
Stowage category (IMDG)	: A

Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y964
PCA limited quantity max net quantity (IATA)	: 30kgG
PCA packing instructions (IATA)	: 964
PCA max net quantity (IATA)	: 450L
CAO packing instructions (IATA)	: 964
CAO max net quantity (IATA)	: 450L
Special provisions (IATA)	: A97, A158, A197, A215
ERG code (IATA)	: 9L

Inland waterway transport

Classification code (ADN)	: M6
Special provisions (ADN)	: 274, 335, 375, 601
Limited quantities (ADN)	: 5 L
Excepted quantities (ADN)	: E1
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP
Number of blue cones/lights (ADN)	: 0

Rail transport

Classification code (RID)	: M6
Special provisions (RID)	: 274, 335, 375, 601
Limited quantities (RID)	: 5L
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P001, IBC03, LP01, R001
Special packing provisions (RID)	: PP1
Mixed packing provisions (RID)	: MP19

Portable tank and bulk container instructions (RID)	:	T4
Portable tank and bulk container special provisions (RID)	:	TP1, TP29
Tank codes for RID tanks (RID)	:	LGBV
Transport category (RID)	:	3
Special provisions for carriage – Packages (RID)	:	W12
Special provisions for carriage - Loading, unloading and handling (RID)	:	CW13, CW31
Colis express (express parcels) (RID)	:	CE8
Hazard identification number (RID)	:	90

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)

Reference code	Applicable on	Entry title or description
3(a)	Citrus medica limonum (Lemon) peel oil ; Eucalyptol ; Lime Oxide ; Aldehyde C-8	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F
3(b)	BITTER LEMON CC-16419 ; benzyl benzoate ; citral ; Triplal (Vertocitral) ; Citrus medica limonum (Lemon) peel oil ; Hexyl cinnamic aldehyde ; Eucalyptol ; Lime Oxide ; Aldehyde C-8 ; Methyl pamplemousse ; Litsea cubeba oil ; Aldehyde C-10 ; Aldehyde C-11	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10
3(c)	BITTER LEMON CC-16419 ; benzyl benzoate ; Verdyl acetate ; Verdox ; Lemonile ; Triplal (Vertocitral) ; Citrus medica limonum (Lemon) peel oil ; Hexyl cinnamic aldehyde ; Lime Oxide ; Aldehyde C-8 ; Methyl pamplemousse ; Litsea cubeba oil ; Aldehyde C-10 ; Aldehyde C-11	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 4.1
40.	Citrus medica limonum (Lemon) peel oil ; Eucalyptol ; Lime Oxide ; Aldehyde C-8	Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (1005/2009)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

Dual-Use Regulation (428/2009)

Contains no substance subject to the COUNCIL REGULATION (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items.

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

Germany

Water hazard class (WGK)	: WGK 3, Highly hazardous to water (Classification according to AwSV, Annex 1).
Hazardous Incident Ordinance (12. BImSchV)	: Is not subject to the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

ABM category	: A(1) - highly toxic for aquatic organisms, may have longterm hazardous effects in aquatic environment
SZW-lijst van kankerverwekkende stoffen	: Lemonile,Triplal (Vertocitral),Lemon oil ,Lime Oxide,Methyl pamplemousse are listed
SZW-lijst van mutagene stoffen	: Triplal (Vertocitral),Lemon oil ,Lime Oxide,Methyl pamplemousse are listed
SZW-lijst van reprotoxische stoffen – Borstvoeding	: None of the components are listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid	: None of the components are listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling	: None of the components are listed

Denmark

Class for fire hazard	: Class III-1
Store unit	: 50 liter
Classification remarks	: Flammable according to the Danish Ministry of Justice; Emergency management guidelines for the storage of flammable liquids must be followed
Danish National Regulations	: Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Other information : None.

Full text of H- and EUH-statements:	
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1

Full text of H- and EUH-statements:	
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
Asp. Tox. 1	Aspiration hazard, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H361	Suspected of damaging fertility or the unborn child.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
Repr. 2	Reproductive toxicity, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1

The classification complies with : ATP 12

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.