



OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

Issue date: 10/24/2022 Revision date: 10/24/2022 Supersedes version of: 10/24/2022 Version: 1.3

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

1.1. Product identifier

Product form : Mixture
Product name : OIL, LEMON VERBENA*
CAS-No. : N/A
Product code : 91-1000-60
Product group : Trade product

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

1.2.1. Relevant identified uses

No additional information available

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

The Lebermuth Company
4004 Technology Drive
46628 South Bend, IN
United States
T 574-259-7000 - F 574-258-7450
info@lebermuth.com - www.lebermuth.com

1.4. Emergency telephone number

Emergency number : CHEMTREC - USA: 800-424-9300 International: +1 703-527-3887 / 1-800-424-9300
CCN 13010

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Skin sensitisation, Category 1	H317
Aspiration hazard, Category 1	H304
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

Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May be fatal if swallowed and enters airways. Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS07

GHS08

GHS09

Signal word (CLP) :

Danger

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

Contains	: ISO E SUPER, Benzyl salicylate, BOURGEONAL, Citral, beta-Pinene, p-Mentha-1,4-diene, GERANIOL 90, GERANYL ACETATE PRIME, HYDROXY CITRONELLAL PURE, Linalool, Linalyl acetate, LYRAL SG, Neryl Acetate, d-Limonene, alpha-Pinene, Terpinolene, l- β -Bisabolene
Hazard statements (CLP)	: 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. 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. 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. P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. P302+P352 - IF ON SKIN: Wash with plenty of water. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P321 - Specific treatment (see supplemental first aid instruction on this label). P331 - Do NOT induce vomiting. P332+P313 - If skin irritation occurs: Get medical advice/attention. P333+P313 - If skin irritation or rash occurs: Get medical advice/attention. P337+P313 - If eye irritation persists: Get medical advice/attention. P362+P364 - Take off contaminated clothing and wash it before reuse. P391 - Collect spillage. P405 - Store locked up. P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

No additional information available

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]
DIOCTYL ADIPATE	CAS-No.: 103-23-1 EC-No.: 203-090-1	25 – 50	Aquatic Acute 1, H400
D-LIMONENE substance with national workplace exposure limit(s) (DE, ES)	CAS-No.: 5989-27-5 EC-No.: 227-813-5 EC Index-No.: 601-029-00-7	10 – 25	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
LINALOOL	CAS-No.: 78-70-6 EC-No.: 201-134-4 EC Index-No.: 603-235-00-2	5 – 10	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1B, H317
1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthalenyl)ethanone	CAS-No.: 54464-57-2 EC-No.: 259-174-3	5 – 10	Skin Irrit. 2, H315 Skin Sens. 1B, H317 Aquatic Chronic 1, H410

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
LINALYL ACETATE	CAS-No.: 115-95-7 EC-No.: 204-116-4	1 – 5	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1B, H317
GAMMA-TERPINENE	CAS-No.: 99-85-4 EC-No.: 202-794-6	1 – 5	Repr. 2, H361 Flam. Liq. 3, H226 Asp. Tox. 1, H304
HYDROXYCITRONELLAL	CAS-No.: 107-75-5 EC-No.: 203-518-7	1 – 5	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1B, H317
LINALYL PROPIONATE	CAS-No.: 144-39-8 EC-No.: 205-627-5	1 – 5	Aquatic Chronic 2, H411
BETA-PINENE substance with national workplace exposure limit(s) (BE, ES)	CAS-No.: 127-91-3 EC-No.: 204-872-5	1 – 5	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
GERANIOL	CAS-No.: 106-24-1 EC Index-No.: 603-241-00-5	1 – 5	Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400
GERANYL ACETATE	CAS-No.: 105-87-3 EC-No.: 203-341-5	1 – 5	Skin Irrit. 2, H315 Skin Sens. 1B, H317 Aquatic Acute 1, H400 Aquatic Chronic 3, H412
p-tert-Butyldihydrocinnamaldehyde	CAS-No.: 18127-01-0 EC-No.: 242-016-2	0.1 – 1	Skin Irrit. 2, H315 Skin Sens. 1B, H317 Repr. 2, H361 STOT RE 2, H373 Aquatic Chronic 3, H412
CITRAL substance with national workplace exposure limit(s) (BE, ES)	CAS-No.: 5392-40-5 EC-No.: 226-394-6 EC Index-No.: 605-019-00-3	0.1 – 1	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317
DIETHYL PHTHALATE substance with national workplace exposure limit(s) (BE, ES, FR, GB)	CAS-No.: 84-66-2 EC-No.: 201-550-6	0.1 – 1	Acute Tox. 3 (Inhalation:vapour), H331 Aquatic Acute 1, H400
NERYL ACETATE	CAS-No.: 141-12-8 EC-No.: 205-459-2	0.1 – 1	Skin Sens. 1B, H317
TERPINOLENE	CAS-No.: 586-62-9 EC-No.: 209-578-0	0.1 – 1	Flam. Liq. 3, H226 Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
ALPHA-PINENE substance with national workplace exposure limit(s) (BE, ES)	CAS-No.: 80-56-8 EC-No.: 201-291-9	0.1 – 1	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
DIPROPYLENE GLYCOL substance with national workplace exposure limit(s) (DE)	CAS-No.: 25265-71-8 EC-No.: 246-770-3	0.1 – 1	Not classified
l-.β.-Bisabolene	CAS-No.: 495-61-4 EC-No.: n.a.	0.1 – 1	Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
p-Cymene	CAS-No.: 99-87-6 EC-No.: 202-796-7	0.1 – 1	Flam. Liq. 3, H226 Acute Tox. 3 (Inhalation:vapour), H331 Repr. 2, H361 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
BENZYL BENZOATE	CAS-No.: 120-51-4 EC-No.: 204-402-9 EC Index-No.: 607-085-00-9	0.1 – 1	Acute Tox. 4 (Oral), H302 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
BENZYL SALICYLATE	CAS-No.: 118-58-1 EC-No.: 204-262-9	0.1 – 1	Eye Irrit. 2, H319 Skin Sens. 1B, H317 Aquatic Chronic 3, H412
3 and 4-(4-Hydroxy-4-methylpentyl)-3-cyclohexene-1-carboxaldehyde	CAS-No.: 31906-04-4 EC-No.: 250-863-4 EC Index-No.: 605-040-00-8	0.1 – 1	Skin Sens. 1A, H317
Diethylene glycol monoethyl ether substance with national workplace exposure limit(s) (DE)	CAS-No.: 111-90-0 EC-No.: 203-919-7	< 0.1	Not classified
ALPHA PINENE substance with national workplace exposure limit(s) (BE, ES)	CAS-No.: 80-56-8 EC-No.: 201-291-9	0.003 – 0.006	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Butylated hydroxytoluene substance with national workplace exposure limit(s) (BE, DE, ES, FR, GB)	CAS-No.: 128-37-0 EC-No.: 204-881-4	< 0.1	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	: Call a physician immediately.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: 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 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. Call a physician immediately.

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

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

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

Symptoms/effects after ingestion : Risk of lung oedema.

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 : Water spray. Dry powder. Foam. Carbon dioxide.

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

Protection during firefighting : 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. 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. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

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

6.4. Reference to other sections

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. 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 : Store locked up. Store in a well-ventilated place. Keep cool.

7.3. Specific end use(s)

No additional information available

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

DIETHYL PHTHALATE (84-66-2)	
Belgium - Occupational Exposure Limits	
Local name	Phtalate de diéthyle # p-Di-ethylftalaat
OEL TWA	5 mg/m ³
France - Occupational Exposure Limits	
Local name	Phtalate de diéthyle
VME (OEL TWA)	5 mg/m ³
Remark	Valeurs recommandées/admises
Spain - Occupational Exposure Limits	
Local name	Ftalato de dietilo
VLA-ED (OEL TWA) [1]	5 mg/m ³
United Kingdom - Occupational Exposure Limits	
Local name	Diethyl phthalate
WEL TWA (OEL TWA) [1]	5 mg/m ³
WEL STEL (OEL STEL)	10 mg/m ³
USA - ACGIH - Occupational Exposure Limits	
Local name	Diethyl phthalate
ACGIH OEL TWA	5 mg/m ³
Remark (ACGIH)	URT irr
CITRAL (5392-40-5)	
Belgium - Occupational Exposure Limits	
Local name	Citral (vapeur et aérosol) # Citral (damp en aérosol)
OEL TWA	32 mg/m ³
OEL TWA [ppm]	5 ppm
Remark	D: la mention "D" signifie que la résorption de l'agent, via la peau, les muqueuses ou les yeux, constitue une partie importante de l'exposition totale. Cette résorption peut se faire tant par contact direct que par présence de l'agent dans l'air. # D: de vermelding "D" betekent dat de opname van het agens via de huid, de slijmvliezen of de ogen een belangrijk deel van de totale blootstelling vormt. Deze opname kan het gevolg zijn van zowel direct contact als zijn aanwezigheid in de lucht.
Regulatory reference	Koninklijk besluit/Arrêté royal 19/11/2020
Spain - Occupational Exposure Limits	
Local name	Citral
VLA-ED (OEL TWA) [2]	5 ppm

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

CITRAL (5392-40-5)	
Remark	Vía dérmica (Indica que, en las exposiciones a esta sustancia, la aportación por la vía cutánea puede resultar significativa para el contenido corporal total si no se adoptan medidas para prevenir la absorción. En estas situaciones, es aconsejable la utilización del control biológico para poder cuantificar la cantidad global absorbida del contaminante), Sen (Sensibilizante), FIV (Fracción inhalable y vapor. La notación FIV señala a aquellos agentes químicos que se pueden presentar en el ambiente de trabajo, tanto en forma de materia particulada como vapor, por lo que las dos fases pueden coexistir, contribuyendo ambas a la exposición. Esta situación se puede dar, principalmente, en los siguientes casos: • Cuando el agente en cuestión tiene un valor "intermedio" de presión de vapor (en estos casos se tiene en cuenta la relación entre su concentración en el aire saturado de vapor y el valor del VLA-ED® y la nota se asigna, generalmente, cuando el cociente entre ambas cantidades se encuentra entre 0.1 y 10). • Por razón de la forma de uso del agente químico (por ejemplo, pulverización). • En los procesos que conlleven cambios importantes de temperatura que puedan afectar al estado físico del agente químico. • En los procesos en los que una fracción significativa del vapor puede disolverse o adsorberse en las partículas de otra sustancia, a semejanza de lo que ocurre con los agentes solubles en agua en ambientes con humedad elevada).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2021. INSHT
USA - ACGIH - Occupational Exposure Limits	
Local name	Citral
ACGIH OEL TWA [ppm]	5 ppm (IFV - Inhalable fraction and vapor)
Remark (ACGIH)	TLV® Basis: Body weight eff; URT irr; eye dam. Notations: Skin; DSEN; A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2021
BETA-PINENE (127-91-3)	
Belgium - Occupational Exposure Limits	
Local name	Essence de térébenthine et monoterpènes sélectionés # Terpentijn en geselecteerde monoterenen
OEL TWA [ppm]	20 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
Spain - Occupational Exposure Limits	
Local name	β-pineno (monoterpeno)
VLA-ED (OEL TWA) [1]	113 mg/m ³
VLA-ED (OEL TWA) [2]	20 ppm
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
USA - ACGIH - Occupational Exposure Limits	
Local name	β-Pimene
ACGIH OEL TWA [ppm]	20 ppm
Remark (ACGIH)	TLV® Basis: Lung irr. Notations: DSEN; A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2022
Diethylene glycol monoethyl ether (111-90-0)	
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	2-(2-Ethoxyethoxy)ethanol
AGW (OEL TWA) [1]	35 mg/m ³
AGW (OEL TWA) [2]	6 ppm

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

Diethylene glycol monoethyl ether (111-90-0)	
Remark	AGS,Y,11
Butylated hydroxytoluene (128-37-0)	
Belgium - Occupational Exposure Limits	
Local name	2,6-Di-tert-butyl-p-crésol (vapeur et aérosol) # Di-tert-butyl-4-methylfenol (damp en aérosol)
OEL TWA	2 mg/m ³
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021
France - Occupational Exposure Limits	
Local name	2,6-Di-tert-butyl-p-crésol
VME (OEL TWA)	10 mg/m ³
Remark	Valeurs recommandées/admises
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 984, 2016)
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA) [1]	10 mg/m ³ E (mg/m ³)
Peak exposure limitation factor	4(II)
Remark	DFG,Y,11
Regulatory reference	TRGS900
Spain - Occupational Exposure Limits	
Local name	2,6-Di-tert-butyl-p-cresol
VLA-ED (OEL TWA) [1]	10 mg/m ³
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
United Kingdom - Occupational Exposure Limits	
Local name	2,6-Di-tert-butyl-p-cresol
WEL TWA (OEL TWA) [1]	10 mg/m ³
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
USA - ACGIH - Occupational Exposure Limits	
Local name	Butylated hydroxytoluene
ACGIH OEL TWA	2 mg/m ³
Remark (ACGIH)	URT irr
Regulatory reference	ACGIH 2022
ALPHA PINENE (80-56-8)	
Belgium - Occupational Exposure Limits	
Local name	Essence de térébenthine et monoterpènes sélectionnés # Terpentijn en geselecteerde monoterpene
OEL TWA [ppm]	20 ppm
Spain - Occupational Exposure Limits	
Local name	α-pineno
VLA-ED (OEL TWA) [1]	113 mg/m ³
VLA-ED (OEL TWA) [2]	20 ppm

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

ALPHA PINENE (80-56-8)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA [ppm]	20 ppm
DIPROPYLENE GLYCOL (25265-71-8)	
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA) [1]	100 mg/m ³ E (mg/m ³)
Peak exposure limitation factor	2(II)
Remark	DFG,H,Y,11
Regulatory reference	TRGS900
D-LIMONENE (5989-27-5)	
Germany - Occupational Exposure Limits (TRGS 900)	
AGW (OEL TWA) [1]	28 mg/m ³
AGW (OEL TWA) [2]	5 ppm
Peak exposure limitation factor	4(II)
Remark	DFG,H,Sh,Y
Regulatory reference	TRGS900
Spain - Occupational Exposure Limits	
Local name	d-Limoneno
VLA-ED (OEL TWA) [1]	168 mg/m ³ d-Limoneno
VLA-ED (OEL TWA) [2]	30 ppm d-Limoneno
Remark	Entrada en vigor en 2018. Sen (Sensibilizante. Véase Apartado 6), Vía dérmica (Indica que, en las exposiciones a esta sustancia, la aportación por la vía cutánea puede resultar significativa para el contenido corporal total si no se adoptan medidas para prevenir la absorción. En estas situaciones, es aconsejable la utilización del control biológico para poder cuantificar la cantidad global absorbida del contaminante. Para más información véase el Apartado 5 de este documento).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2022. INSHT
ALPHA-PINENE (80-56-8)	
Belgium - Occupational Exposure Limits	
Local name	Essence de térébenthine et monoterpènes sélectionnés # Terpentijn en geselecteerde monoteren
OEL TWA [ppm]	20 ppm
Regulatory reference	Koninklijk besluit/Arrêté royal 19/11/2020
Spain - Occupational Exposure Limits	
Local name	α-pineno (monoterpeno)
VLA-ED (OEL TWA) [1]	113 mg/m ³
VLA-ED (OEL TWA) [2]	20 ppm
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2021. INSHT
USA - ACGIH - Occupational Exposure Limits	
Local name	α-Pimene
ACGIH OEL TWA [ppm]	20 ppm

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

ALPHA-PINENE (80-56-8)	
Remark (ACGIH)	TLV® Basis: Lung irr. Notations: DSEN; A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2022

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 symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Safety glasses

8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Protective gloves

8.2.2.3. Respiratory protection

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: No data available
Odour	: No data available
Odour threshold	: No data available
pH	: No data available

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: 73 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: 0.92 (0.91 – 0.93)
Solubility	: Insoluble.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

Refractive index : 1.462 (1.452 – 1.472)

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

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

DIETHYL PHTHALATE (84-66-2)	
LD50 oral rat	> 5991 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rat	> 11181 mg/kg bodyweight (24 h, Rat, Male / female, Experimental value, Dermal, 14 day(s))
LC50 Inhalation - Rat	> 4.64 mg/l (6 h, Rat, Experimental value, Inhalation, 14 day(s))

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

BENZYL BENZOATE (120-51-4)	
LD50 oral rat	> 2000 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 oral	1500 mg/kg bodyweight
LD50 dermal rabbit	> 2000 mg/kg bw/day (Modification of Draize 1959 method, 4 h, Rabbit, Experimental value, Dermal)
LD50 dermal	4000 mg/kg bodyweight
BENZYL SALICYLATE (118-58-1)	
LD50 oral	2200 mg/kg bodyweight
p-tert-Butyldihydrocinnamaldehyde (18127-01-0)	
LD50 oral	2500 mg/kg bodyweight
CITRAL (5392-40-5)	
LD50 oral rat	≈ 6800 mg/kg bodyweight Animal: rat
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Remarks on results: other:
LD50 dermal	2250 mg/kg bodyweight
BETA-PINENE (127-91-3)	
LD50 oral rat	4700 mg/kg (Rat, Oral)
Diethylene glycol monoethyl ether (111-90-0)	
LD50 oral	6031 mg/kg bodyweight (Equivalent or similar to OECD 401, Mouse, Male, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	9143 mg/kg bodyweight (Equivalent or similar to OECD 402, 24 h, Rabbit, Male, Experimental value, Dermal, 14 day(s))
Butylated hydroxytoluene (128-37-0)	
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
ALPHA PINENE (80-56-8)	
LD50 oral rat	> 500 mg/kg bodyweight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral, 01 day(s))
LD50 oral	500 mg/kg bodyweight
LD50 dermal rat	> 2000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Skin, 14 day(s))
DIPROPYLENE GLYCOL (25265-71-8)	
LD50 oral rat	> 5000 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Male/female, Experimental value, Oral)
LD50 dermal rabbit	> 5010 mg/kg bodyweight (Equivalent or similar to OECD 402, Rabbit, Male/female, Experimental value, Dermal)
LC50 Inhalation - Rat	2.34 mg/l (Equivalent or similar to OECD 403, Rat, Male/female, Experimental value, Inhalation)
DIOCTYL ADIPATE (103-23-1)	
LD50 oral rat	> 20000 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	16300 mg/kg bodyweight (Rabbit, Male, Experimental value, Dermal)

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

DIOCTYL ADIPATE (103-23-1)	
LC50 Inhalation - Rat	> 5.7 mg/l air (OECD 403: Acute Inhalation Toxicity, 4 h, Rat, Male / female, Experimental value, Inhalation (aerosol), 14 day(s))
GAMMA-TERPINENE (99-85-4)	
LD50 oral	3850 mg/kg bodyweight
GERANIOL (106-24-1)	
LD50 oral rat	3600 mg/kg bodyweight (Rat; Experimental value)
LD50 oral	3600 mg/kg bodyweight
LD50 dermal rabbit	> 5000 mg/kg bodyweight (Rabbit; Experimental value)
GERANYL ACETATE (105-87-3)	
LD50 oral rat	6300 mg/kg (Rat, Oral)
HYDROXYCITRONELLAL (107-75-5)	
LD50 oral rat	> 5000 mg/kg (Rat)
LD50 dermal rabbit	> 2000 mg/kg (Rabbit)
LINALOOL (78-70-6)	
LD50 oral	2790 mg/kg bodyweight
D-LIMONENE (5989-27-5)	
LD50 oral rat	> 2000 mg/kg bodyweight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	> 5000 mg/kg bodyweight (Equivalent or similar to OECD 402, 24 h, Rabbit, Read-across, Dermal, 7 day(s))
ALPHA-PINENE (80-56-8)	
LD50 oral rat	> 500 mg/kg bodyweight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral, 01 day(s))
LD50 oral	500 mg/kg bodyweight
LD50 dermal rat	> 2000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Skin, 14 day(s))
TERPINOLENE (586-62-9)	
LD50 oral rat	4390 mg/kg (Rat)
LD50 oral	3775 mg/kg bodyweight
LD50 dermal rabbit	> 5000 mg/kg (Rabbit)
p-Cymene (99-87-6)	
LD50 oral rat	4750 mg/kg (Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 oral	4750 mg/kg bodyweight
LD50 dermal rabbit	> 5000 mg/kg (Rabbit, Experimental value, Dermal, 14 day(s))
LC50 Inhalation - Rat	> 9.7 mg/l (5 h, Rat, Experimental value, Inhalation)
l-β-Bisabolene (495-61-4)	
LC50 Inhalation - Rat (Dust/Mist)	1.5 mg/l/4h

Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: May cause an allergic skin reaction.

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Butylated hydroxytoluene (128-37-0)

IARC group : 3 - Not classifiable

DIOCTYL ADIPATE (103-23-1)

IARC group : 3 - Not classifiable

D-LIMONENE (5989-27-5)

IARC group : 3 - Not classifiable

CITRAL (5392-40-5)

NOAEL (chronic, oral, animal/male, 2 years) : 60 mg/kg bodyweight Animal: mouse, Animal sex: male, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies), Remarks on results: other:

Butylated hydroxytoluene (128-37-0)

NOAEL (chronic, oral, animal/male, 2 years) : 25 mg/kg bodyweight Animal: rat, Animal sex: male, Remarks on results: other:

GERANIOL (106-24-1)

NOAEL (chronic, oral, animal/male, 2 years) : 60 mg/kg bodyweight Animal: mouse, Animal sex: male, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies), Remarks on results: other:

Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified

p-tert-Butyldihydrocinnamaldehyde (18127-01-0)

STOT-repeated exposure : May cause damage to organs through prolonged or repeated exposure.

CITRAL (5392-40-5)

LOAEC (inhalation, rat, gas, 90 days) : 68 ppm Animal: rat, Animal sex: female

NOAEL (oral, rat, 90 days) : 100 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)

NOAEC (inhalation, rat, gas, 90 days) : 34 ppm Animal: rat, Animal sex: female

NOAEL (subchronic, oral, animal/male, 90 days) : 60 mg/kg bodyweight Animal: mouse, Animal sex: male, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)

DIOCTYL ADIPATE (103-23-1)

NOAEL (oral, rat, 90 days) : 200 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents)

GERANIOL (106-24-1)

NOAEL (dermal, rat/rabbit, 90 days) : 300 mg/kg bodyweight Animal: rat, Guideline: other:, Guideline: other:

GERANYL ACETATE (105-87-3)

NOAEL (oral, rat, 90 days) : 2000 mg/kg bodyweight Animal: rat, Guideline: other:

Aspiration hazard : May be fatal if swallowed and enters airways.

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.

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

Hazardous to the aquatic environment, long-term (chronic) : Toxic to aquatic life with long lasting effects.

DIETHYL PHTHALATE (84-66-2)	
LC50 - Fish [1]	12 mg/l (EPA 660/3 - 75/009, 96 h, Oncorhynchus mykiss, Flow-through system, Fresh water, Experimental value)
ErC50 algae	45 mg/l (Equivalent or similar to OECD 201, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, Nominal concentration)
BENZYL BENZOATE (120-51-4)	
LC50 - Fish [1]	2.32 mg/l (EU Method C.1, 96 h, Danio rerio, Semi-static system, Fresh water, Experimental value, GLP)
EC50 - Crustacea [1]	3.09 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)
CITRAL (5392-40-5)	
LC50 - Fish [1]	6.78 mg/l Test organisms (species): Leuciscus idus
EC50 - Crustacea [1]	6.8 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	103.8 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
BETA-PINENE (127-91-3)	
LC50 - Fish [1]	0.557 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Cyprinus carpio, Semi-static system, Fresh water, Weight of evidence, Other isomer)
ErC50 algae	0.826 mg/l (OECD 201: Alga, Growth Inhibition Test, 48 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Weight of evidence, Other isomer)
Diethylene glycol monoethyl ether (111-90-0)	
LC50 - Fish [1]	6010 mg/l (Equivalent or similar to OECD 203, 96 h, Ictalurus punctatus, Flow-through system, Fresh water, Experimental value, Lethal)
ErC50 algae	14861 mg/l (Equivalent or similar to OECD 201, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Nominal concentration)
Butylated hydroxytoluene (128-37-0)	
LC50 - Fish [1]	> 0.57 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	0.48 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 0.4 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
LOEC (chronic)	1 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC (chronic)	0.023 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
ALPHA PINENE (80-56-8)	
LC50 - Fish [1]	0.303 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Danio rerio, Semi-static system, Fresh water, Experimental value, GLP)
EC50 - Crustacea [1]	0.475 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Semi-static system, Fresh water, Experimental value, Locomotor effect)
DIPROPYLENE GLYCOL (25265-71-8)	
LC50 - Fish [1]	> 1000 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Oryzias latipes, Semi-static system, Fresh water, Experimental value)
LC50 - Fish [2]	> 1000 mg/l Test organisms (species): Oryzias latipes
LC50 - Other aquatic organisms [1]	3181 mg/l (Other, 48 h, Xenopus laevis, Fresh water, Experimental value)

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

DIPROPYLENE GLYCOL (25265-71-8)	
EC50 - Crustacea [1]	> 100 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value)
EC50 72h - Algae [1]	> 100 mg/l (OECD 201: Alga, Growth Inhibition Test, Desmodesmus subspicatus, Fresh water, Experimental value)
DIOCTYL ADIPATE (103-23-1)	
LC50 - Fish [1]	> 0.78 mg/l (EPA 660/3 - 75/009, 96 h, Oncorhynchus mykiss, Static system, Fresh water, Experimental value, Nominal concentration)
EC50 - Crustacea [1]	> 500 mg/l (EU Method C.2, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
LOEC (chronic)	> 0.77 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC (chronic)	≥ 0.77 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
GERANIOL (106-24-1)	
LC50 - Fish [1]	> 9.8 mg/l (LC50; 96 h)
EC50 - Crustacea [1]	10.8 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	13.1 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
GERANYL ACETATE (105-87-3)	
LC50 - Fish [1]	68.12 mg/l (DIN 38412: German standard methods for the examination of water, waste water and sludge, 96 h, Leuciscus idus, Static system, Fresh water, Read-across)
EC50 - Crustacea [1]	14.1 mg/l (EU Method C.2, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)
EC50 72h - Algae [1]	3.72 mg/l (OECD 201: Alga, Growth Inhibition Test, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, GLP)
D-LIMONENE (5989-27-5)	
LC50 - Fish [1]	720 µg/l (Equivalent or similar to OECD 203, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value)
LC50 - Fish [2]	702 µg/l Test organisms (species): Pimephales promelas
EC50 - Crustacea [1]	0.307 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Semi-static system, Fresh water, Experimental value, GLP)
EC50 - Crustacea [2]	0.51 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	0.32 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	0.214 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
ErC50 algae	0.32 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, GLP)
ALPHA-PINENE (80-56-8)	
LC50 - Fish [1]	0.303 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Danio rerio, Semi-static system, Fresh water, Experimental value, GLP)
EC50 - Crustacea [1]	0.475 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Semi-static system, Fresh water, Experimental value, Locomotor effect)
p-Cymene (99-87-6)	
LC50 - Fish [1]	48 mg/l (EPA OPPTS 850.1075, 96 h, Cyprinodon variegatus, Static system, Salt water, Experimental value)

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

p-Cymene (99-87-6)	
EC50 - Crustacea [1]	3.7 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Semi-static system, Fresh water, Experimental value, GLP)
ErC50 algae	4.03 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Selenastrum capricornutum, Static system, Fresh water, Experimental value, GLP)

12.2. Persistence and degradability

DIETHYL PHTHALATE (84-66-2)	
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.

BENZYL BENZOATE (120-51-4)	
Persistence and degradability	Readily biodegradable in water.

BETA-PINENE (127-91-3)	
Persistence and degradability	Readily biodegradable in water.

Diethylene glycol monoethyl ether (111-90-0)	
Persistence and degradability	Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.2 g O ₂ /g substance
Chemical oxygen demand (COD)	1.85 g O ₂ /g substance
ThOD	1.9078849 g O ₂ /g substance
BOD (% of ThOD)	0.11 (Calculated value)

ALPHA PINENE (80-56-8)	
Persistence and degradability	Readily biodegradable in water.

DIPROPYLENE GLYCOL (25265-71-8)	
Persistence and degradability	Readily biodegradable in water.

DIOCTYL ADIPATE (103-23-1)	
Persistence and degradability	Readily biodegradable in water.

GERANIOL (106-24-1)	
Persistence and degradability	Readily biodegradable in water.
ThOD	2.9 g O ₂ /g substance

GERANYL ACETATE (105-87-3)	
Persistence and degradability	Readily biodegradable in water.
ThOD	2.6 g O ₂ /g substance

HYDROXYCITRONELLAL (107-75-5)	
Persistence and degradability	Readily biodegradable in water.
Chemical oxygen demand (COD)	2.65 g O ₂ /g substance

D-LIMONENE (5989-27-5)	
Persistence and degradability	Readily biodegradable in water.
ThOD	3.29 g O ₂ /g substance

ALPHA-PINENE (80-56-8)	
Persistence and degradability	Readily biodegradable in water.

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

TERPINOLENE (586-62-9)	
Persistence and degradability	Forming sediments in water. Biodegradability in soil: no data available. Adsorbs into the soil.
ThOD	3.294 g O ₂ /g substance
p-Cymene (99-87-6)	
Persistence and degradability	Readily biodegradable in water.
12.3. Bioaccumulative potential	
DIETHYL PHTHALATE (84-66-2)	
Partition coefficient n-octanol/water (Log Pow)	2.2 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method, 40 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
BENZYL BENZOATE (120-51-4)	
BCF - Fish [1]	193.4 l/kg (BCFBAF v3.01, Pisces, Calculated value)
Partition coefficient n-octanol/water (Log Pow)	3.97 (Experimental value, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
BETA-PINENE (127-91-3)	
BCF - Fish [1]	1125 l/kg (BCFBAF v3.01, Pisces, Fresh water, QSAR, Other isomer)
Partition coefficient n-octanol/water (Log Pow)	4.425 (Similar product, Read-across, Equivalent or similar to OECD 107, 25 °C)
Bioaccumulative potential	Potential for bioaccumulation (4 ≤ Log Kow ≤ 5).
Diethylene glycol monoethyl ether (111-90-0)	
Partition coefficient n-octanol/water (Log Pow)	-0.54 (Literature, 20 °C)
Bioaccumulative potential	Not bioaccumulative.
ALPHA PINENE (80-56-8)	
BCF - Other aquatic organisms [1]	1233.1 – 1248 l/kg (BCFBAF v3.01, Read-across, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	4.487 (Experimental value, Equivalent or similar to OECD 107, 25 °C)
Bioaccumulative potential	Potential for bioaccumulation (500 ≤ BCF ≤ 5000).
DIPROPYLENE GLYCOL (25265-71-8)	
Partition coefficient n-octanol/water (Log Pow)	-0.462 (Test data, Equivalent or similar to OECD 107, 21.7 °C)
Bioaccumulative potential	Bioaccumulation: not applicable.
DIOCTYL ADIPATE (103-23-1)	
BCF - Fish [1]	27 (28 day(s), Lepomis macrochirus, Flow-through system, Fresh water, Experimental value, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	8.94 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
GERANIOL (106-24-1)	
Bioaccumulative potential	No bioaccumulation data available.
GERANYL ACETATE (105-87-3)	
BCF - Other aquatic organisms [1]	1500 (Estimated value)

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

GERANYL ACETATE (105-87-3)	
Partition coefficient n-octanol/water (Log Pow)	4.04 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method)
Bioaccumulative potential	Potential for bioaccumulation ($4 \leq \text{Log Kow} \leq 5$).
HYDROXYCITRONELLAL (107-75-5)	
Partition coefficient n-octanol/water (Log Pow)	2.11 (Estimated value)
Bioaccumulative potential	Low potential for bioaccumulation ($\text{Log Kow} < 4$).
D-LIMONENE (5989-27-5)	
BCF - Fish [1]	864.8 l/kg (BCFBAF v3.01, Pisces, QSAR, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	4.38 (Experimental value, Equivalent or similar to OECD 117, 37 °C)
Bioaccumulative potential	Potential for bioaccumulation ($4 \leq \text{Log Kow} \leq 5$).
ALPHA-PINENE (80-56-8)	
BCF - Other aquatic organisms [1]	1233.1 – 1248 l/kg (BCFBAF v3.01, Read-across, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	4.487 (Experimental value, Equivalent or similar to OECD 107, 25 °C)
Bioaccumulative potential	Potential for bioaccumulation ($500 \leq \text{BCF} \leq 5000$).
TERPINOLENE (586-62-9)	
Partition coefficient n-octanol/water (Log Pow)	4.23
p-Cymene (99-87-6)	
Partition coefficient n-octanol/water (Log Pow)	4.8 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method, 20 °C)
Bioaccumulative potential	Potential for bioaccumulation ($4 \leq \text{Log Kow} \leq 5$).
12.4. Mobility in soil	
DIETHYL PHTHALATE (84-66-2)	
Surface tension	37.5 mN/m (20 °C)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	2.34 (log Koc, OECD 121: Estimation of the Adsorption Coefficient (Koc) on Soil and on Sewage Sludge using High Performance Liquid Chromatography (HPLC), Experimental value, GLP)
Ecology - soil	Low potential for adsorption in soil.
BENZYL BENZOATE (120-51-4)	
Surface tension	27 mN/m (210 °C)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	3.8 (log Koc, OECD 121: Estimation of the Adsorption Coefficient (Koc) on Soil and on Sewage Sludge using High Performance Liquid Chromatography (HPLC), Experimental value, GLP)
Ecology - soil	Low potential for mobility in soil.
BETA-PINENE (127-91-3)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	3.009 – 3.836 (log Koc, Calculated value, Other isomer)
Ecology - soil	Low potential for mobility in soil.
Diethylene glycol monoethyl ether (111-90-0)	
Surface tension	52 mN/m (25 °C)

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

Diethylene glycol monoethyl ether (111-90-0)	
Ecology - soil	Highly mobile in soil.
ALPHA PINENE (80-56-8)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	3.009 – 3.853 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Low potential for mobility in soil. May be harmful to plant growth, blooming and fruit formation.
DIPROPYLENE GLYCOL (25265-71-8)	
Surface tension	71.4 mN/m (22 °C, 1.01 g/l)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	0.78 (log Koc, Calculated value)
Ecology - soil	Low potential for adsorption in soil.
DIOCTYL ADIPATE (103-23-1)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	4.56 (log Koc, SRC PCKOCWIN v2.0, QSAR)
Ecology - soil	Low potential for mobility in soil.
GERANYL ACETATE (105-87-3)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	3.06 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Low potential for mobility in soil.
D-LIMONENE (5989-27-5)	
Surface tension	No data available in the literature
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	3.049 – 3.801 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Low potential for mobility in soil.
ALPHA-PINENE (80-56-8)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	3.009 – 3.853 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Low potential for mobility in soil. May be harmful to plant growth, blooming and fruit formation.
p-Cymene (99-87-6)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	4.17 (log Koc, SRC PCKOCWIN v2.0, QSAR)
Ecology - soil	Low potential for mobility in soil.
12.5. Results of PBT and vPvB assessment	
Component	
DIOCTYL ADIPATE (103-23-1)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
D-LIMONENE (5989-27-5)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
BETA-PINENE (127-91-3)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

Component	
GERANYL ACETATE (105-87-3)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
DIETHYL PHTHALATE (84-66-2)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
ALPHA-PINENE (80-56-8)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
DIPROPYLENE GLYCOL (25265-71-8)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
p-Cymene (99-87-6)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
BENZYL BENZOATE (120-51-4)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
Diethylene glycol monoethyl ether (111-90-0)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
ALPHA PINENE (80-56-8)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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

SECTION 14: Transport information

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

14.1 UN number

UN-No. (ADR) : UN 3082
UN-No. (IMDG) : UN 3082
UN-No. (IATA) : UN 3082
UN-No. (ADN) : UN 3082
UN-No. (RID) : UN 3082

14.2. UN proper shipping name

Proper Shipping Name (ADR) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Diocetyl Adipate)
Proper Shipping Name (IMDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Diocetyl Adipate)
Proper Shipping Name (IATA) : Environmentally hazardous substance, liquid, n.o.s. (Diocetyl Adipate)
Proper Shipping Name (ADN) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Diocetyl Adipate)
Proper Shipping Name (RID) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Diocetyl Adipate)
Transport document description (ADR) : UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Diocetyl Adipate), 9, III, (-)
Transport document description (IMDG) : UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Diocetyl Adipate), 9, III, MARINE POLLUTANT
Transport document description (IATA) : UN 3082 Environmentally hazardous substance, liquid, n.o.s. (Diocetyl Adipate), 9, III
Transport document description (ADN) : UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Diocetyl Adipate), 9, III
Transport document description (RID) : UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Diocetyl Adipate), 9, III

OIL, LEMON VERBENA*

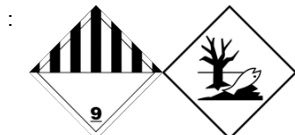
Safety Data Sheet

according to Regulation (EU) 2015/830

14.3. Transport hazard class(es)

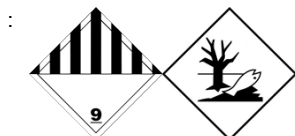
ADR

Transport hazard class(es) (ADR) : 9
Danger labels (ADR) : 9



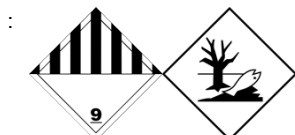
IMDG

Transport hazard class(es) (IMDG) : 9
Danger labels (IMDG) : 9



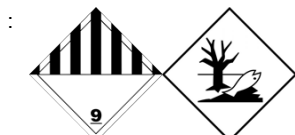
IATA

Transport hazard class(es) (IATA) : 9
Danger labels (IATA) : 9



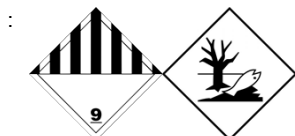
ADN

Transport hazard class(es) (ADN) : 9
Danger labels (ADN) : 9



RID

Transport hazard class(es) (RID) : 9
Danger labels (RID) : 9



14.4. Packing group

Packing group (ADR) : III
Packing group (IMDG) : III
Packing group (IATA) : III
Packing group (ADN) : III
Packing group (RID) : III

14.5. Environmental hazards

Dangerous for the environment : Yes
Marine pollutant : Yes
Other information : No supplementary information available

14.6. Special precautions for user


Overland transport

Classification code (ADR) : M6

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

Special provisions (ADR)	: 274, 335, 375, 601
Limited quantities (ADR)	: 5I
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

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

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. Transport in bulk according to Annex II of Marpol and the IBC Code

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

EU restriction list (REACH Annex XVII)

Reference code	Applicable on
3(b)	OIL, LEMON VERBENA* ; DIETHYL PHTHALATE ; 1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthalenyl)ethanone ; p-tert-Butyldihydrocinnamaldehyde ; GERANIOL ; GERANYL ACETATE ; HYDROXYCITRONELLAL ; 3 and 4-(4-Hydroxy-4-methylpentyl)-3-cyclohexene-1-carboxaldehyde
3(c)	OIL, LEMON VERBENA* ; DIETHYL PHTHALATE ; 1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthalenyl)ethanone ; p-tert-Butyldihydrocinnamaldehyde ; GERANYL ACETATE ; LINALYL PROPIONATE

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

Contains no substance subject to Regulation (EU) 2019/1148 of the European Parliament and of the Council of 20 June 2019 on the marketing and use of explosives precursors.

15.1.2. National regulations

Germany

Water hazard class (WGK) : Not classified according to Regulation Governing Systems for Handling Substances Hazardous to Waters (AwSV)

Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

SZW-lijst van kankerverwekkende stoffen : None of the components are listed

SZW-lijst van mutagene stoffen : None of the components are listed

SZW-lijst van reprotoxische stoffen – Borstvoeding : None of the components are listed

SZW-lijst van reprotoxische stoffen –

Vruchtbaarheid

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
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

Switzerland

Storage class (LK)

: LK 6.1 - Toxic materials

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified

OIL, LEMON VERBENA*

Safety Data Sheet

according to Regulation (EU) 2015/830

Abbreviations and acronyms:

vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Full text of H- and EUH-statements:

Acute Tox. 3 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 3
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
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
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 Dam. 1	Serious eye damage/eye irritation, 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.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
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
Skin Sens. 1A	Skin sensitisation, category 1A
Skin Sens. 1B	Skin sensitisation, category 1B
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2

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.