Safety data sheet

acc. to Safe Work Australia - Code of Practice

Oil of clary-sage natural natural

article number: **3355**
Version: **GHS 2.0 en**
Replaces version of: 2021-04-15
Version: (GHS 1)

date of compilation: 2021-04-15
Revision: 2024-03-04

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

1.1 Product identifier

Identification of the substance	**Oil of clary-sage** natural natural
Article number	3355
CAS number	84775-83-7

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

Relevant identified uses:	Laboratory chemical Laboratory and analytical use
Uses advised against:	Do not use for private purposes (household). Food, drink and animal feedingstuffs.

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co. KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone:+49 (0) 721 - 56 06 0
Telefax: +49 (0) 721 - 56 06 149
e-mail: sicherheit@carlroth.de
Website: www.carlroth.de

Competent person responsible for the safety data sheet:	Department Health, Safety and Environment
e-mail (competent person):	**sicherheit@carlroth.de**

1.4 Emergency telephone number

Name	Street	Postal code/city	Telephone	Website
NSW Poisons Information Centre Childrens Hospital	Hawkesbury Road	2145 West-mead, NSW	131126	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

Section	Hazard class	Cat-egory	Hazard class and category	Hazard statement
2.6	Flammable liquid	4	Flam. Liq. 4	H227
3.2	Skin corrosion/irritation	2	Skin Irrit. 2	H315
3.3	Serious eye damage/eye irritation	2A	Eye Irrit. 2A	H319
3.4S	Skin sensitisation	1	Skin Sens. 1	H317

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

The product is combustible and can be ignited by potential ignition sources.

2.2 Label elements

Labelling

Signal word **Warning**

Pictograms

GHS07

Hazard statements

H227	Combustible liquid
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation

Precautionary statements

Precautionary statements - prevention

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P280	Wear protective gloves

Precautionary statements - response

P302+P352	IF ON SKIN: Wash with plenty of soap and 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
P333+P313	If skin irritation or rash occurs: Get medical advice/attention
P337+P313	If eye irritation persists: Get medical advice/attention
P370+P378	In case of fire: Use sand, carbon dioxide or powder extinguisher for extinction

Precautionary statements - disposal

P501	Dispose of contents/container to industrial combustion plant

Hazardous ingredients for labelling: Acetic acid linalyl ester, Linalool, DL-α-Pinene, Myrcene, Geranyl acetate, β-Caryophyllene, D-(+)-Limonene, Geraniol, Nerol, Terpinolene, ß-Pinene

2.3 Other hazards

This material is combustible, but will not ignite readily.

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance: Oil of clary-sage

CAS No: 84775-83-7

Impurities/additives/constituents:

Name of substance	Identifier	Wt%
Acetic acid linalyl ester	CAS No 115-95-7	50 – 70
Linalool	CAS No 78-70-6	10 – 19
Geranyl acetate	CAS No 105-87-3	< 1
Geraniol	CAS No 106-24-1	< 1
Nerol	CAS No 106-25-2	< 1
Myrcene	CAS No 123-35-3	< 1
ß-Pinene	CAS No 127-91-3	< 1
Terpinolene	CAS No 586-62-9	< 1
D-(+)-Limonene	CAS No 5989-27-5	< 1
DL-α-Pinene	CAS No 80-56-8	< 1
β-Caryophyllene	CAS No 87-44-5	< 1

Remarks

For full text of abbreviations: see SECTION 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air.

Following skin contact

In case of skin reactions, consult a physician. In case of skin irritation, consult a physician.

Following eye contact

Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. In case of eye irritation consult an ophthalmologist.

Following ingestion

Rinse mouth. Call a doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Vomiting, Irritation, Allergic reactions

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings!
water spray, dry extinguishing powder, BC-powder, carbon dioxide (CO_2)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible. In case of insufficient ventilation and/or in use, may form flammable/explosive vapour-air mixture. Solvent vapours are heavier than air and may spread along floors. Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures. Vapours may form explosive mixtures with air.

Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO_2), May produce toxic fumes of carbon monoxide if burning.

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. Do not breathe vapour/spray. Avoidance of ignition sources.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provision of sufficient ventilation.

Measures to prevent fire as well as aerosol and dust generation

Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharge.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice:

Ventilation requirements

Use local and general ventilation.

Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

This information is not available.

Relevant DNELs of components

Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Acetic acid linalyl ester	115-95-7	DNEL	2.75 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Acetic acid linalyl ester	115-95-7	DNEL	2.5 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Acetic acid linalyl ester	115-95-7	DNEL	236.2 µg/cm²	human, dermal	worker (industry)	chronic - local effects
Acetic acid linalyl ester	115-95-7	DNEL	236.2 µg/cm²	human, dermal	worker (industry)	acute - local effects
Linalool	78-70-6	DNEL	2.8 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Linalool	78-70-6	DNEL	16.5 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
Linalool	78-70-6	DNEL	2.5 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Linalool	78-70-6	DNEL	5 mg/kg bw/day	human, dermal	worker (industry)	acute - systemic effects
Geranyl acetate	105-87-3	DNEL	62.59 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Geranyl acetate	105-87-3	DNEL	35.5 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
D-(+)-Limonene	5989-27-5	DNEL	66.7 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
D-(+)-Limonene	5989-27-5	DNEL	9.5 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Geraniol	106-24-1	DNEL	161.6 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Geraniol	106-24-1	DNEL	12.5 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Geraniol	106-24-1	DNEL	11,800 µg/cm²	human, dermal	worker (industry)	chronic - local effects
Nerol	106-25-2	DNEL	4.4 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Nerol	106-25-2	DNEL	1.25 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
DL-α-Pinene	80-56-8	DNEL	3.8 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
DL-α-Pinene	80-56-8	DNEL	0.542 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Relevant DNELs of components

Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
ß-Pinene	127-91-3	DNEL	5.69 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
ß-Pinene	127-91-3	DNEL	0.8 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
ß-Pinene	127-91-3	DNEL	54 µg/cm²	human, dermal	worker (industry)	chronic - local effects

Relevant PNECs of components

Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
Acetic acid linalyl ester	115-95-7	PNEC	0.011 mg/l	aquatic organisms	freshwater	short-term (single instance)
Acetic acid linalyl ester	115-95-7	PNEC	0.001 mg/l	aquatic organisms	marine water	short-term (single instance)
Acetic acid linalyl ester	115-95-7	PNEC	1 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Acetic acid linalyl ester	115-95-7	PNEC	0.609 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Acetic acid linalyl ester	115-95-7	PNEC	0.061 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Acetic acid linalyl ester	115-95-7	PNEC	0.115 mg/kg	terrestrial organisms	soil	short-term (single instance)
Linalool	78-70-6	PNEC	0.2 mg/l	aquatic organisms	freshwater	short-term (single instance)
Linalool	78-70-6	PNEC	0.02 mg/l	aquatic organisms	marine water	short-term (single instance)
Linalool	78-70-6	PNEC	10 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Linalool	78-70-6	PNEC	2.22 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Linalool	78-70-6	PNEC	0.222 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Linalool	78-70-6	PNEC	0.327 mg/kg	terrestrial organisms	soil	short-term (single instance)
Geranyl acetate	105-87-3	PNEC	3.72 µg/l	aquatic organisms	freshwater	short-term (single instance)
Geranyl acetate	105-87-3	PNEC	0.372 µg/l	aquatic organisms	marine water	short-term (single instance)
Geranyl acetate	105-87-3	PNEC	8 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Geranyl acetate	105-87-3	PNEC	0.442 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Geranyl acetate	105-87-3	PNEC	0.044 mg/kg	aquatic organisms	marine sediment	short-term (single instance)

Relevant PNECs of components

Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
Geranyl acetate	105-87-3	PNEC	0.086 mg/kg	terrestrial organisms	soil	short-term (single instance)
D-(+)-Limonene	5989-27-5	PNEC	14 µg/l	aquatic organisms	freshwater	short-term (single instance)
D-(+)-Limonene	5989-27-5	PNEC	1.4 µg/l	aquatic organisms	marine water	short-term (single instance)
D-(+)-Limonene	5989-27-5	PNEC	1.8 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
D-(+)-Limonene	5989-27-5	PNEC	3.85 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
D-(+)-Limonene	5989-27-5	PNEC	0.385 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
D-(+)-Limonene	5989-27-5	PNEC	0.763 mg/kg	terrestrial organisms	soil	short-term (single instance)
Geraniol	106-24-1	PNEC	0.011 mg/l	aquatic organisms	freshwater	short-term (single instance)
Geraniol	106-24-1	PNEC	0.001 mg/l	aquatic organisms	marine water	short-term (single instance)
Geraniol	106-24-1	PNEC	0.7 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Geraniol	106-24-1	PNEC	0.115 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Geraniol	106-24-1	PNEC	0.011 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Geraniol	106-24-1	PNEC	0.017 mg/kg	terrestrial organisms	soil	short-term (single instance)
Nerol	106-25-2	PNEC	7.45 µg/l	aquatic organisms	freshwater	short-term (single instance)
Nerol	106-25-2	PNEC	0.745 µg/l	aquatic organisms	marine water	short-term (single instance)
Nerol	106-25-2	PNEC	12.9 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Nerol	106-25-2	PNEC	133 µg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Nerol	106-25-2	PNEC	13.3 µg/kg	aquatic organisms	marine sediment	short-term (single instance)
Nerol	106-25-2	PNEC	22.3 µg/kg	terrestrial organisms	soil	short-term (single instance)
DL-α-Pinene	80-56-8	PNEC	0.606 µg/l	aquatic organisms	freshwater	short-term (single instance)
DL-α-Pinene	80-56-8	PNEC	0.061 µg/l	aquatic organisms	marine water	short-term (single instance)
DL-α-Pinene	80-56-8	PNEC	0.2 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)

Relevant PNECs of components

Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
DL-α-Pinene	80-56-8	PNEC	157 µg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
DL-α-Pinene	80-56-8	PNEC	15.7 µg/kg	aquatic organisms	marine sediment	short-term (single instance)
DL-α-Pinene	80-56-8	PNEC	31.7 µg/kg	terrestrial organisms	soil	short-term (single instance)
ß-Pinene	127-91-3	PNEC	1.004 µg/l	aquatic organisms	freshwater	short-term (single instance)
ß-Pinene	127-91-3	PNEC	0.1 µg/l	aquatic organisms	marine water	short-term (single instance)
ß-Pinene	127-91-3	PNEC	3.26 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
ß-Pinene	127-91-3	PNEC	0.337 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
ß-Pinene	127-91-3	PNEC	0.034 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
ß-Pinene	127-91-3	PNEC	0.067 mg/kg	terrestrial organisms	soil	short-term (single instance)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggle with side protection.

Skin protection

• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

Butyl caoutchouc (butyl rubber)

• material thickness

0,7mm

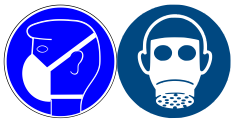
• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: A (against organic gases and vapours with a boiling point of > 65 °C , colour code: Brown).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquid
Form	-
Colour	light yellow
Odour	characteristic
Melting point/freezing point	<-20 °C (ECHA)
Boiling point or initial boiling point and boiling range	189.2 °C at 101.3 kPa (ECHA)
Flammability	flammable liquid in accordance with GHS criteria
Lower and upper explosion limit	0.9 vol% (LEL) - 5.2 vol% (UEL)
Flash point	84.5 °C at 101,325 Pa (ECHA)
Auto-ignition temperature	260 °C at 100,105 Pa (ECHA)
Decomposition temperature	not relevant
pH (value)	not determined
Kinematic viscosity	not determined
Solubility(ies)	
Water solubility	not determined
Partition coefficient	
Partition coefficient n-octanol/water (log value):	this information is not available
Vapour pressure	<1 hPa at 20 °C

Density and/or relative density	
Density	0.897 $^{g}/_{cm^3}$ at 20 °C (ECHA)
Relative vapour density	Information on this property is not available.
Particle characteristics	not relevant (liquid)
Other safety parameters	
Oxidising properties	none

9.2 Other information

Information with regard to physical hazard classes:	There is no additional information.
Other safety characteristics:	
Surface tension	54.15 $^{mN}/_{m}$ (19.9 °C) (ECHA)
Refractive index	1.455 – 1.465

SECTION 10: Stability and reactivity

10.1 Reactivity

It's a reactive substance. Risk of ignition.

If heated

Risk of ignition. Vapours may form explosive mixtures with air.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Violent reaction with: strong oxidiser

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5 Incompatible materials

There is no additional information.

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification acc. to GHS

Acute toxicity

Shall not be classified as acutely toxic.

Acute toxicity

Exposure route	Endpoint	Value	Species	Method	Source
oral	LD50	5,600 $^{mg}/_{kg}$	rat		ECHA

Acute toxicity estimate (ATE) of components

Name of substance	CAS No	Exposure route	ATE
DL-α-Pinene	80-56-8	oral	1,000 $^{mg}/_{kg}$

Acute toxicity of components

Name of substance	CAS No	Exposure route	Endpoint	Value	Species
Acetic acid linalyl ester	115-95-7	oral	LD50	>9,000 $^{mg}/_{kg}$	rat
Acetic acid linalyl ester	115-95-7	dermal	LD50	>5,000 $^{mg}/_{kg}$	rabbit
Linalool	78-70-6	oral	LD50	2,790 $^{mg}/_{kg}$	rat
Linalool	78-70-6	dermal	LD50	5,610 $^{mg}/_{kg}$	rabbit
Myrcene	123-35-3	oral	LD50	>3,380 $^{mg}/_{kg}$	mouse
Myrcene	123-35-3	dermal	LD50	>5,000 $^{mg}/_{kg}$	rabbit
Geranyl acetate	105-87-3	oral	LD50	6,330 $^{mg}/_{kg}$	rat
β-Caryophyllene	87-44-5	oral	LD50	>5,000 $^{mg}/_{kg}$	mouse
D-(+)-Limonene	5989-27-5	oral	LD50	>2,000 $^{mg}/_{kg}$	rat
Geraniol	106-24-1	oral	LD50	3,600 $^{mg}/_{kg}$	rat
Geraniol	106-24-1	dermal	LD50	>5,000 $^{mg}/_{kg}$	rabbit
Nerol	106-25-2	oral	LD50	4,500 $^{mg}/_{kg}$	rat
Nerol	106-25-2	dermal	LD50	>5,000 $^{mg}/_{kg}$	rabbit
Terpinolene	586-62-9	oral	LD50	>2,000 $^{mg}/_{kg}$	rat
Terpinolene	586-62-9	dermal	LD50	>2,000 $^{mg}/_{kg}$	rat
DL-α-Pinene	80-56-8	dermal	LD50	>2,000 $^{mg}/_{kg}$	rat
DL-α-Pinene	80-56-8	oral	LD50	3,700 $^{mg}/_{kg}$	rat
ß-Pinene	127-91-3	oral	LD50	4,700 $^{mg}/_{kg}$	rat

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

May cause an allergic skin reaction.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

Data are not available.

• If in eyes

Causes serious eye irritation

• If inhaled

Data are not available.

• If on skin

causes skin irritation, May produce an allergic reaction, pruritis, localised redness

• Other information

none

11.2 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.

SECTION 12: Ecological information

12.1 Toxicity

Harmful to aquatic life with long lasting effects.

Aquatic toxicity (acute)

Endpoint	Value	Species	Source	Exposure time
EL50	14 $^{mg}/_{l}$	aquatic invertebrates	ECHA	48 h

Aquatic toxicity (acute) of components

Name of sub-stance	CAS No	Endpoint	Value	Species	Exposure time
Acetic acid linalyl ester	115-95-7	ErC50	62 mg/l	algae	72 h
Acetic acid linalyl ester	115-95-7	LC50	11 mg/l	fish	96 h
Acetic acid linalyl ester	115-95-7	EC50	59 mg/l	aquatic invertebrates	48 h
Linalool	78-70-6	LC50	27.8 mg/l	fish	96 h
Linalool	78-70-6	EC50	59 mg/l	aquatic invertebrates	48 h
Linalool	78-70-6	ErC50	156.7 mg/l	algae	96 h
Myrcene	123-35-3	EC50	1.47 mg/l	aquatic invertebrates	48 h
Myrcene	123-35-3	EC50	0.31 mg/l	algae	72 h
Myrcene	123-35-3	ErC50	0.342 mg/l	algae	72 h
Geranyl acetate	105-87-3	LC50	68.12 mg/l	fish	96 h
Geranyl acetate	105-87-3	EC50	14.1 mg/l	aquatic invertebrates	48 h
Geranyl acetate	105-87-3	ErC50	3.72 mg/l	algae	72 h
β-Caryophyllene	87-44-5	EC50	>0.17 mg/l	daphnia magna	48 h
β-Caryophyllene	87-44-5	ErC50	>0.033 mg/l	algae	72 h
D-(+)-Limonene	5989-27-5	LC50	0.46 mg/l	fish	96 h
D-(+)-Limonene	5989-27-5	EC50	0.307 mg/l	aquatic invertebrates	48 h
D-(+)-Limonene	5989-27-5	ErC50	0.32 mg/l	algae	72 h
Geraniol	106-24-1	LC50	22 mg/l	fish	96 h
Geraniol	106-24-1	EC50	10.8 mg/l	aquatic invertebrates	48 h
Geraniol	106-24-1	ErC50	13.1 mg/l	algae	72 h
Nerol	106-25-2	LC50	20.3 mg/l	fish	96 h
Nerol	106-25-2	EC50	32.4 mg/l	aquatic invertebrates	48 h
Nerol	106-25-2	ErC50	9.54 mg/l	algae	72 h
Terpinolene	586-62-9	LC50	0.805 mg/l	fish	96 h
Terpinolene	586-62-9	EC50	0.634 mg/l	aquatic invertebrates	48 h
Terpinolene	586-62-9	ErC50	0.692 mg/l	algae	72 h
DL-α-Pinene	80-56-8	LC50	0.303 mg/l	fish	96 h
DL-α-Pinene	80-56-8	EC50	0.475 mg/l	aquatic invertebrates	48 h
ß-Pinene	127-91-3	LC50	0.68 mg/l	rainbow trout (Onco-rhynchus mykiss)	96 h
ß-Pinene	127-91-3	EC50	1.09 mg/l	daphnia magna	48 h
ß-Pinene	127-91-3	ErC50	0.7 mg/l	Pseudokirchneriella subcapitata	72 h

Aquatic toxicity (chronic) of components

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Acetic acid linalyl ester	115-95-7	LC50	11.14 mg/l	fish	20 h
Linalool	78-70-6	EC50	>100 mg/l	microorganisms	30 min
D-(+)-Limonene	5989-27-5	EC50	<0.67 mg/l	fish	8 d
D-(+)-Limonene	5989-27-5	EC50	188 µg/l	aquatic invertebrates	21 d
Geraniol	106-24-1	EC50	70 mg/l	microorganisms	30 min
Nerol	106-25-2	EC50	241 mg/l	microorganisms	3 h
Terpinolene	586-62-9	EC50	69 mg/l	microorganisms	3 h
ß-Pinene	127-91-3	EC50	326 mg/l	microorganisms	3 h

12.2 Persistence and degradability

2.718 mg/mg

Degradability of components

Name of substance	CAS No	Process	Degradation rate	Time	Method	Source
Acetic acid linalyl ester	115-95-7	oxygen depletion	≥0 – ≤10 %	1 d		ECHA
Linalool	78-70-6	oxygen depletion	40.9 %	5 d		ECHA
Myrcene	123-35-3	oxygen depletion	76 %	28 d		ECHA
Geranyl acetate	105-87-3	oxygen depletion	>70 %	28 d		ECHA
β-Caryophyllene	87-44-5	oxygen depletion	10 %	28 d		ECHA
D-(+)-Limonene	5989-27-5	carbon dioxide generation	58.8 %	14 d		ECHA
D-(+)-Limonene	5989-27-5	oxygen depletion	80 %	28 d		ECHA
Geraniol	106-24-1	DOC removal	90 – 100 %	3 d		ECHA
Nerol	106-25-2	oxygen depletion	90 %	28 d		ECHA
Terpinolene	586-62-9	oxygen depletion	81 %	28 d		ECHA
DL-α-Pinene	80-56-8	oxygen depletion	68 %	28 d		ECHA
ß-Pinene	127-91-3	oxygen depletion	76 %	28 d		ECHA

12.3 Bioaccumulative potential

Data are not available.

Bioaccumulative potential of components				
Name of substance	**CAS No**	**BCF**	**Log KOW**	**BOD5/COD**
Acetic acid linalyl ester	115-95-7	174	3.9 (25 °C)	
Linalool	78-70-6		2.9 (pH value: 7, 20 °C)	
Myrcene	123-35-3		4.82 (pH value: ~6.5, 30 °C)	
Geranyl acetate	105-87-3		4.04	
β-Caryophyllene	87-44-5		6.23 (pH value: 7, 25 °C)	
D-(+)-Limonene	5989-27-5		4.38 (pH value: 7.2, 37 °C)	
Geraniol	106-24-1		2.6 (25 °C)	
Nerol	106-25-2		2.76 (pH value: ~6.5, 30 °C)	
Terpinolene	586-62-9		4.47	
DL-α-Pinene	80-56-8		4.83	

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

Handle contaminated packages in the same way as the substance itself. Completely emptied packages can be recycled.

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions. Non-contaminated packages may be recycled.

SECTION 14: Transport information

14.1	**UN number**	not subject to transport regulations
14.2	**UN proper shipping name**	not assigned
14.3	**Transport hazard class(es)**	not assigned
14.4	**Packing group**	not assigned
14.5	**Environmental hazards**	non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user

There is no additional information.

14.7 Transport in bulk according to IMO instruments

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

Transport informationNational regulationsAdditional information(UN RTDG)

Not subject to transport regulations. UN RTDG

International Maritime Dangerous Goods Code (IMDG) - Additional information

Not subject to IMDG.

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Not subject to ICAO-IATA.

SECTION 15: Regulatory information

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

There is no additional information.

National regulations(Australia)

Australian Inventory of Chemical Substances(AICS)

Substance is listed.

Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

National inventories

Country	Inventory	Status
AU	AIIC	all ingredients are listed
CA	DSL	all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
JP	ISHA-ENCS	not all ingredients are listed

Country	Inventory	Status
KR	KECI	all ingredients are listed
MX	INSQ	not all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	all ingredients are listed (ACTIVE)
VN	NCI	all ingredients are listed

Legend

AIIC	Australian Inventory of Industrial Chemicals
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)
KECI	Korea Existing Chemicals Inventory
NCI	National Chemical Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
2.1		Classification acc. to GHS: change in the listing (table)	yes
2.1	The most important adverse physicochemical, human health and environmental effects: The product is combustible and can be ignited by potential ignition sources. This material is self-reactive.	The most important adverse physicochemical, human health and environmental effects: The product is combustible and can be ignited by potential ignition sources.	yes
2.2	Hazardous ingredients for labelling: Acetic acid linalyl ester, Linalool, DL-α-Pinene, β-Caryophyllene, Geranyl acetate, D-(+)-Limonene, Geraniol, Nerol, Terpinolene, ß-Pinene	Hazardous ingredients for labelling: Acetic acid linalyl ester, Linalool, DL-α-Pinene, Myrcene, Geranyl acetate, β-Caryophyllene, D-(+)-Limonene, Geraniol, Nerol, Terpinolene, ß-Pinene	yes
2.3		Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.	yes
14.8	Transport informationNational regulationsAdditional information(UN RTDG): not assigned	Transport informationNational regulationsAdditional information(UN RTDG): Not subject to transport regulations. UN RTDG	yes

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
15.1		Other information: Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.	yes
15.1		National inventories: change in the listing (table)	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BOD	Biochemical Oxygen Demand
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
COD	Chemical oxygen demand
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
ED	Endocrine disruptor
EINECS	European Inventory of Existing Commercial Chemical Substances
EL50	Effective Loading 50 %: the EL50 corresponds to the loading rate required to produce a response in 50% of the test organisms
ELINCS	European List of Notified Chemical Substances
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
LEL	Lower explosion limit (LEL)
log KOW	n-Octanol/water
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic

Abbr.	Descriptions of used abbreviations
PNEC	Predicted No-Effect Concentration
UEL	Upper explosion limit (UEL)
UN RTDG	UN Recommendations on the Transport of Dangerous Good
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

Safe Work Australia's Code of Practice for Labelling of Workplace Hazardous Chemicals (under WHS Regulations).

UN Recommendations on the Transport of Dangerous Good. International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H227	Combustible liquid.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.