Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

Oil of lime , natural

article number: **6721**
Version: **4.0 en**
Replaces version of: 2023-03-09
Version: (3)

date of compilation: 2019-10-29
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 lime** , natural
Article number	6721
EC number	290-010-3
CAS number	8008-26-2
Alternative name(s)	Oleum Limettae

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 products which come into contact with foodstuffs. Do not use for private purposes (household). Food, drink and animal feeding-stuffs.

1.3 Details of the supplier of the safety data sheet

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

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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
National Poisons Information Service City Hospital	Dudley Rd	B187QH Birmingham	844 892 0111	

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	3	Flam. Liq. 3	H226
3.2	Skin corrosion/irritation	2	Skin Irrit. 2	H315
3.4S	Skin sensitisation	1	Skin Sens. 1	H317
3.10	Aspiration hazard	1	Asp. Tox. 1	H304
4.1A	Hazardous to the aquatic environment - acute hazard	1	Aquatic Acute 1	H400
4.1C	Hazardous to the aquatic environment - chronic hazard	1	Aquatic Chronic 1	H410

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. Spillage and fire water can cause pollution of watercourses.

2.2 Label elements

Labelling

Signal word **Danger**

Pictograms

GHS02, GHS07, GHS08, GHS09

Hazard statements

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

Precautionary statements

Precautionary statements - prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P273	Avoid release to the environment
P280	Wear protective gloves/eye protection

Precautionary statements - response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
P331	Do NOT induce vomiting

2.3 Other hazards

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

"UVCB substance" (substance of unknown or variable composition).

Name of substance	Oil of lime
CAS No	8008-26-2
EC No	290-010-3

Impurities/additives/constituents:

Name of substance	Identifier	Wt%
D-(+)-Limonene	CAS No 5989-27-5 EC No 227-813-5 Index No 601-096-00-2	> 25
γ-Terpinene	CAS No 99-85-4 EC No 202-794-6	< 15
Terpinolene	CAS No 586-62-9 EC No 209-578-0	< 11
α-Terpineol	CAS No 98-55-5 EC No 202-680-6	< 8
ß-Pinene	CAS No 127-91-3 EC No 204-872-5	< 5
DL-α-Pinene	CAS No 80-56-8 EC No 201-291-9	< 5
α-Terpinene	CAS No 99-86-5 EC No 202-795-1 Index No 601-095-00-7	< 4

Name of substance	Identifier	Wt%
1,4-Cineole	CAS No 470-67-7 EC No 207-428-9	< 3
Eucalyptol	CAS No 470-82-6 EC No 207-431-5	< 3
p-Cymene	CAS No 99-87-6 EC No 202-796-7 Index No 601-094-00-1	< 3
Myrcene	CAS No 123-35-3 EC No 204-622-5	< 2

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. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Rinse skin with water/shower. After contact with skin, wash immediately with plenty of water. In case of skin reactions, consult a physician. In case of skin irritation, consult a physician.

Following eye contact

Rinse cautiously with water for several minutes. In all cases of doubt, or when symptoms persist, seek medical advice.

Following ingestion

Call a physician immediately. Observe aspiration hazard if vomiting occurs.

4.2 Most important symptoms and effects, both acute and delayed

Aspiration hazard, 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. Do not allow firefighting water to enter drains or water courses. 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

Avoid contact with skin, eyes and clothes. 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. If substance has entered a water course or sewer, inform the responsible authority.

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.

Measures to protect the environment

Avoid release to the environment.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs. When using do not smoke.

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:

Ground/bond container and receiving equipment.

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.

Human health values

Relevant DNELs and other threshold levels

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	18,7 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	5,34 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
DNEL	185,8 µg/cm²	human, dermal	worker (industry)	acute - local effects

Relevant DNELs of components

Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
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
γ-Terpinene	99-85-4	DNEL	2,939 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
γ-Terpinene	99-85-4	DNEL	0,833 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
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
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
α-Terpinene	99-86-5	DNEL	2,939 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
α-Terpinene	99-86-5	DNEL	0,833 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Eucalyptol	470-82-6	DNEL	7,05 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Eucalyptol	470-82-6	DNEL	2 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Environmental values

Relevant PNECs and other threshold levels

End-point	Threshold level	Organism	Environmental compartment	Exposure time
PNEC	5,4 µg/l	aquatic organisms	freshwater	short-term (single instance)
PNEC	0,54 µg/l	aquatic organisms	marine water	short-term (single instance)
PNEC	2,1 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
PNEC	1,3 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
PNEC	0,13 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
PNEC	0,29 mg/kg	terrestrial organisms	soil	short-term (single instance)

Relevant PNECs of components

Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
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)
γ-Terpinene	99-85-4	PNEC	0,003 mg/l	aquatic organisms	freshwater	short-term (single instance)
γ-Terpinene	99-85-4	PNEC	0 mg/l	aquatic organisms	marine water	short-term (single instance)
γ-Terpinene	99-85-4	PNEC	10 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
γ-Terpinene	99-85-4	PNEC	0,49 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
γ-Terpinene	99-85-4	PNEC	0,049 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
γ-Terpinene	99-85-4	PNEC	0,423 mg/kg	terrestrial organisms	soil	short-term (single instance)
α-Terpineol	98-55-5	PNEC	68 µg/l	aquatic organisms	freshwater	short-term (single instance)
α-Terpineol	98-55-5	PNEC	6,8 µg/l	aquatic organisms	marine water	short-term (single instance)
α-Terpineol	98-55-5	PNEC	2,6 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
α-Terpineol	98-55-5	PNEC	1,85 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
α-Terpineol	98-55-5	PNEC	0,185 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
α-Terpineol	98-55-5	PNEC	0,329 mg/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)
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)
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)
Eucalyptol	470-82-6	PNEC	57 µg/l	aquatic organisms	freshwater	short-term (single instance)
Eucalyptol	470-82-6	PNEC	5,7 µg/l	aquatic organisms	marine water	short-term (single instance)
Eucalyptol	470-82-6	PNEC	10 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Eucalyptol	470-82-6	PNEC	1,425 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Eucalyptol	470-82-6	PNEC	0,142 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Eucalyptol	470-82-6	PNEC	0,25 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

NBR (Nitrile rubber)

• material thickness

>0,3 mm

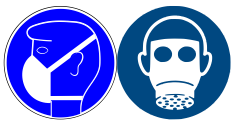
• breakthrough times of the glove material

>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
Colour	amber - green
Odour	characteristic
Melting point/freezing point	-25 °C (ECHA)
Boiling point or initial boiling point and boiling range	130 °C at 1.030 hPa (ECHA)
Flammability	flammable liquid in accordance with GHS criteria
Lower and upper explosion limit	not determined
Flash point	53,4 °C (ECHA)
Auto-ignition temperature	240 °C at 1.020 hPa (ECHA)
Decomposition temperature	not relevant
pH (value)	not determined
Kinematic viscosity	1,54 $^{mm^2}/_{s}$ at 20 °C
Dynamic viscosity	1,33 mPa s at 20 °C
Solubility(ies)	
Water solubility	(practically insoluble)
Partition coefficient	
Partition coefficient n-octanol/water (log value):	3,33 – 7,12 (ECHA)
Vapour pressure	1,709 hPa at 25 °C
Density and/or relative density	
Density	0,862 $^{g}/_{cm^3}$ 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:	
Refractive index	1,47 – 1,482 (20 °C)

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

Rubber articles, different plastics

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.

GHS of the United Nations, annex 4. May be harmful if swallowed or in contact with skin.

Acute toxicity

Exposure route	Endpoint	Value	Species	Method	Source
oral	LD50	>4.367 $^{mg}/_{kg}$	rat		ECHA
dermal	LD50	>4.367 $^{mg}/_{kg}$	rabbit		ECHA

Acute toxicity of components

Name of substance	CAS No	Exposure route	Endpoint	Value	Species
D-(+)-Limonene	5989-27-5	oral	LD50	>2.000 $^{mg}/_{kg}$	rat
γ-Terpinene	99-85-4	oral	LD50	>2.000 $^{mg}/_{kg}$	rat
γ-Terpinene	99-85-4	dermal	LD50	>2.000 $^{mg}/_{kg}$	rat
Terpinolene	586-62-9	oral	LD50	>2.000 $^{mg}/_{kg}$	rat
Terpinolene	586-62-9	dermal	LD50	>2.000 $^{mg}/_{kg}$	rat
α-Terpineol	98-55-5	oral	LD50	4.300 $^{mg}/_{kg}$	rat

Acute toxicity of components

Name of substance	CAS No	Exposure route	Endpoint	Value	Species
α-Terpineol	98-55-5	dermal	LD50	>2.000 $^{mg}/_{kg}$	rat
ß-Pinene	127-91-3	oral	LD50	4.700 $^{mg}/_{kg}$	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
α-Terpinene	99-86-5	oral	LD50	1.680 $^{mg}/_{kg}$	rat
α-Terpinene	99-86-5	dermal	LD50	>2.000 $^{mg}/_{kg}$	rat
1,4-Cineole	470-67-7	oral	LD50	3.100 $^{mg}/_{kg}$	rat
1,4-Cineole	470-67-7	dermal	LD50	>5.000 $^{mg}/_{kg}$	rabbit
Eucalyptol	470-82-6	oral	LD50	2.480 $^{mg}/_{kg}$	rat
p-Cymene	99-87-6	oral	LD50	4.750 $^{mg}/_{kg}$	rat
p-Cymene	99-87-6	dermal	LD50	>5.000 $^{mg}/_{kg}$	rabbit
Myrcene	123-35-3	oral	LD50	>3.380 $^{mg}/_{kg}$	mouse
Myrcene	123-35-3	dermal	LD50	>5.000 $^{mg}/_{kg}$	rabbit

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

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

May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

aspiration hazard

• If in eyes

Data are not available.

• 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%.

11.3 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Very toxic to aquatic life with long lasting effects.

Aquatic toxicity (acute)

Endpoint	Value	Species	Source	Exposure time
LL50	>18 mg/l	fish	ECHA	96 h
EL50	5 mg/l	aquatic invertebrates	ECHA	48 h

Aquatic toxicity (acute) of components

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
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
γ-Terpinene	99-85-4	EC50	2,792 mg/l	fish	96 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
α-Terpineol	98-55-5	LC50	70 mg/l	fish	96 h
α-Terpineol	98-55-5	EC50	73 mg/l	aquatic invertebrates	48 h
α-Terpineol	98-55-5	ErC50	68 mg/l	algae	72 h
ß-Pinene	127-91-3	LC50	0,68 mg/l	rainbow trout (Oncorhynchus mykiss)	96 h

Aquatic toxicity (acute) of components

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
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
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
α-Terpinene	99-86-5	LC50	3.150 µg/l	fish	96 h
α-Terpinene	99-86-5	EC50	1,7 mg/l	aquatic invertebrates	48 h
Eucalyptol	470-82-6	LC50	57 mg/l	fish	96 h
Eucalyptol	470-82-6	EC50	>100 mg/l	aquatic invertebrates	48 h
Eucalyptol	470-82-6	ErC50	>74 mg/l	algae	72 h
p-Cymene	99-87-6	LC50	48 mg/l	fish	96 h
p-Cymene	99-87-6	EC50	3,7 mg/l	aquatic invertebrates	48 h
p-Cymene	99-87-6	ErC50	4,03 mg/l	algae	72 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

Aquatic toxicity (chronic) of components

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
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
γ-Terpinene	99-85-4	EC50	>1.000 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
α-Terpinene	99-86-5	EC50	>10 mg/l	microorganisms	3 h
Eucalyptol	470-82-6	EC50	>100 mg/l	microorganisms	3 h

12.2 Persistence and degradability

Biodegradation

The substance is readily biodegradable.

Degradability of components

Name of substance	CAS No	Process	Degradation rate	Time	Method	Source
D-(+)-Limonene	5989-27-5	carbon dioxide generation	58,8 %	14 d		ECHA
D-(+)-Limonene	5989-27-5	oxygen depletion	80 %	28 d		ECHA
γ-Terpinene	99-85-4	oxygen depletion	27 %	28 d		ECHA
Terpinolene	586-62-9	oxygen depletion	81 %	28 d		ECHA
α-Terpineol	98-55-5	carbon dioxide generation	80 %	28 d	OECD Guideline 310	
ß-Pinene	127-91-3	oxygen depletion	76 %	28 d		ECHA
DL-α-Pinene	80-56-8	oxygen depletion	68 %	28 d		ECHA
α-Terpinene	99-86-5	oxygen depletion	30 %	14 d		ECHA
Eucalyptol	470-82-6	carbon dioxide generation	82 %	28 d		ECHA
p-Cymene	99-87-6	oxygen depletion	88 %	14 d		ECHA
Myrcene	123-35-3	oxygen depletion	76 %	28 d		ECHA

12.3 Bioaccumulative potential

The substance fulfils the very bioaccumulative criterion.

n-octanol/water (log KOW)	3,33 – 7,12 (ECHA)

Bioaccumulative potential of components

Name of substance	CAS No	BCF	Log KOW	BOD5/COD
D-(+)-Limonene	5989-27-5		4,38 (pH value: 7,2, 37 °C)	
γ-Terpinene	99-85-4		5,4 (25 °C)	
Terpinolene	586-62-9		4,47	
α-Terpineol	98-55-5		2,98	
DL-α-Pinene	80-56-8		4,83	
α-Terpinene	99-86-5		5,3 (35 °C)	
Eucalyptol	470-82-6		3,4	
p-Cymene	99-87-6		4,8 (pH value: ~7, 20 °C)	
Myrcene	123-35-3		4,82 (pH value: ~6,5, 30 °C)	

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

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. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Handle contaminated packages in the same way as the substance itself. Completely emptied packages can be recycled.

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

Properties of waste which render it hazardous

HP 3 flammable
HP 4 irritant - skin irritation and eye damage
HP 5 specific target organ toxicity (STOT)/aspiration toxicity
HP 13 sensitising
HP 14 ecotoxic

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 or ID number

ADRRID	UN 1197
IMDG-Code	UN 1197
ICAO-TI	UN 1197

14.2 UN proper shipping name

ADRRID	EXTRACTS, LIQUID
IMDG-Code	EXTRACTS, LIQUID
ICAO-TI	Extracts, liquid

14.3 Transport hazard class(es)

ADRRID	3
IMDG-Code	3
ICAO-TI	3

14.4 Packing group

ADRRID	III
IMDG-Code	III
ICAO-TI	III

14.5 Environmental hazards hazardous to the aquatic environment

14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Maritime 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

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)Additional information

Proper shipping name	EXTRACTS, LIQUID
Particulars in the transport document	UN1197, EXTRACTS, LIQUID, 3, III, (D/E), environmentally hazardous
Classification code	F1
Danger label(s)	3, "Fish and tree"

Environmental hazards	yes (hazardous to the aquatic environment)
Special provisions (SP)	601
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3
Tunnel restriction code (TRC)	D/E
Hazard identification No	30
Emergency Action Code	3Y

Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)Additional information

Classification code	F1
Danger label(s)	3, "Fish and tree"

Environmental hazards	Yes Hazardous to water
Special provisions (SP)	601
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3
Hazard identification No	30

International Maritime Dangerous Goods Code (IMDG) - Additional information

Proper shipping name	EXTRACTS, LIQUID
Particulars in the shipper's declaration	UN1197, EXTRACTS, LIQUID, (Oil of lime), 3, III, 53,4°C c.c., MARINE POLLUTANT
Marine pollutant	yes (hazardous to the aquatic environment)
Danger label(s)	3, "Fish and tree"

Special provisions (SP)	223, 955
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
EmS	F-E, S-D
Stowage category	A

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

Proper shipping name	Extracts, liquid
Particulars in the shipper's declaration	UN1197, Extracts, liquid, 3, III
Environmental hazards	yes (hazardous to the aquatic environment)
Danger label(s)	3

Special provisions (SP)	A3
Excepted quantities (EQ)	E1
Limited quantities (LQ)	10 L

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Seveso Directive

2012/18/EU (Seveso III)				
No	**Dangerous substance/hazard categories**	**Qualifying quantity (tonnes) for the application of lower and upper-tier requirements**		**Notes**
E1	environmental hazards (hazardous to the aquatic environment, cat. 1)	100	200	56)

Notation
56) Hazardous to the Aquatic Environment in category Acute 1 or Chronic 1

Deco-Paint Directive

VOC content	100 %
VOC content	862 $^{g}/_{l}$

Industrial Emissions Directive (IED)

VOC content	100 %
VOC content	862 $^{g}/_{l}$

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

not listed

Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

Water Framework Directive (WFD)

not listed

Regulation on the marketing and use of explosives precursors

not listed

Regulation on drug precursors

not listed

Regulation on substances that deplete the ozone layer (ODS)

not listed

Regulation concerning the export and import of hazardous chemicals (PIC)

not listed

Regulation on persistent organic pollutants (POP)

not listed

National regulations(GB)

List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list

not listed

Restrictions according to GB REACH, Annex 17

Dangerous substances with restrictions (GB REACH, Annex 17)			
Name of substance	**Name acc. to inventory**	**CAS No**	**No**
Oil of lime	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC		3
Oil of lime	flammable / pyrophoric		40

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	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
KR	KECI	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed (ACTIVE)
VN	NCI	substance is listed

Legend

AIIC	Australian Inventory of Industrial Chemicals
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
KECI	Korea Existing Chemicals Inventory
NCI	National Chemical Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
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-relev-ant
2.3	Endocrine disrupting properties: Does not contain an endocrine disruptor (EDC) in a concentration of ≥ 0,1%.	Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of ≥ 0,1%.	yes
15.1		National inventories: change in the listing (table)	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
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
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
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
EmS	Emergency Schedule
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
GB REACH	The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended)
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
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008

Abbr.	Descriptions of used abbreviations
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
LL50	Lethal Loading 50 %: the LL50 corresponds to the loading rate causing 50 % lethality
log KOW	n-Octanol/water
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). 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
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Disclaimer

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