

# Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU



## Geranium oil , natural

article number: **7054**  
Version: **2.0 en**  
Replaces version of: 2022-10-17  
Version: (1)

date of compilation: 2022-10-17  
Revision: 2024-03-04

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

### 1.1 Product identifier

Identification of the substance	<b>Geranium oil , natural</b>
Article number	7054
Registration number (REACH)	It is not required to list the identified uses because the substance is not subject to registration according to REACH (< 1 t/a).
EC number	290-140-0
CAS number	90082-51-2

### 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](mailto:sicherheit@carlroth.de)

**Website:** [www.carlroth.de](http://www.carlroth.de)

Competent person responsible for the safety data sheet: Department Health, Safety and Environment

**e-mail (competent person):** [sicherheit@carlroth.de](mailto:sicherheit@carlroth.de)

### 1.4 Emergency telephone number

Name	Street	Postal code/city	Telephone	Website
National Poisons Information Centre Beaumont Hospital	Beaumont Road	Dublin 9	+353 1 809 2166	<a href="https://www.poisons.ie/">https://www.poisons.ie/</a>

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

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### Classification according to Regulation (EC) No 1272/2008 (CLP)

Section	Hazard class	Cat-egory	Hazard class and category	Hazard statement
3.2	Skin corrosion/irritation	2	Skin Irrit. 2	H315
3.3	Serious eye damage/eye irritation	1	Eye Dam. 1	H318
3.4S	Skin sensitisation	1	Skin Sens. 1	H317
4.1C	Hazardous to the aquatic environment - chronic hazard	2	Aquatic Chronic 2	H411

For full text of abbreviations: see SECTION 16

### The most important adverse physicochemical, human health and environmental effects

Spillage and fire water can cause pollution of watercourses.

## 2.2 Label elements

### Labelling according to Regulation (EC) No 1272/2008 (CLP)

#### Signal word

**Danger**

#### Pictograms

GHS05, GHS07,  
GHS09



#### Hazard statements

H315 Causes skin irritation  
H317 May cause an allergic skin reaction  
H318 Causes serious eye damage  
H411 Toxic to aquatic life with long lasting effects

#### Precautionary statements

##### Precautionary statements - prevention

P280 Wear protective gloves/eye protection

##### Precautionary statements - response

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

#### Hazardous ingredients for labelling:

Linalool, Geraniol, DL- $\alpha$ -Pinene, ( $\pm$ )-S-Citronellol, Acetic acid linalyl ester, Citronellyl formate, Terpinolene, Isomenthone,  $\beta$ -Caryophyllene, Geranyl acetate, Geranyl formate, Menthone, Geranial, Nerol, Myrcene, DL-Limonene, Neral, L(-)-Limonene

#### Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)



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H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
P280	Wear protective gloves/eye protection.
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.
contains:	Linalool, Geraniol, DL- $\alpha$ -Pinene, ( $\pm$ )-S-Citronellol, Acetic acid linalyl ester, Citronellyl formate, Terpinolene, Isomenthone, $\beta$ -Caryophyllene, Geranyl acetate, Geranyl formate, Menthone, Geranial, Nerol, Myrcene, DL-Limonene, Neral, L(-)-Limonene

### 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  $\geq 0,1\%$ .

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Name of substance	Geranium oil
CAS No	90082-51-2
EC No	290-140-0

#### Impurities/additives/constituents:

Name of substance	Identifier	Wt%
Linalool	CAS No 78-70-6  EC No 201-134-4  Index No 603-235-00-2	25 – 50
Geraniol	CAS No 106-24-1  EC No 203-377-1  Index No 603-241-00-5	10 – 25
$\alpha$ -Terpineol	CAS No 98-55-5  EC No 202-680-6	10 – 25
( $\pm$ )- $\beta$ -Citronellol	CAS No 106-22-9  EC No 203-375-0	5 – 10
Acetic acid linalyl ester	CAS No 115-95-7  EC No 204-116-4	5 – 10

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Name of substance	Identifier	Wt%
Citronellyl formate	CAS No 105-85-1  EC No 203-338-9	1 – 5
Isomenthone	CAS No 491-07-6  EC No 207-727-4	1 – 5
Terpinolene	CAS No 586-62-9  EC No 209-578-0	1 – 5
$\beta$ -Caryophyllene	CAS No 87-44-5  EC No 201-746-1	1 – 5
Geranial	CAS No 141-27-5  EC No 205-476-5	0,99 – < 1
Neral	CAS No 106-26-3  EC No 203-379-2	0,99 – < 1
Geranyl formate	CAS No 105-86-2  EC No 203-339-4	0,99 – < 1
Geranyl acetate	CAS No 105-87-3  EC No 203-341-5	0,99 – < 1
Menthone	CAS No 10458-14-7  EC No 233-944-9	0,99 – < 1
Nerol	CAS No 106-25-2  EC No 203-378-7	0,99 – < 1
Myrcene	CAS No 123-35-3  EC No 204-622-5	0,99 – < 1

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Name of substance	Identifier	Wt%
DL-Limonene	CAS No 138-86-3  EC No 205-341-0  Index No 601-029-00-7	0,99 - < 1
L(-)-Limonene	CAS No 5989-54-8  EC No 227-815-6  Index No 601-029-00-7	0,99 - < 1
DL- $\alpha$ -Pinene	CAS No 80-56-8  EC No 201-291-9	0,99 - < 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

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

#### Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and 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, Risk of blindness, Risk of serious damage to eyes, Irritation, Allergic reactions

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

none

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## 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<sub>2</sub>)

#### Unsuitable extinguishing media

water jet

### 5.2 Special hazards arising from the substance or mixture

Combustible.

#### Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), 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.

### 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.

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### 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.

#### 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.

#### 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:

#### 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
Linalool	78-70-6	DNEL	2,8 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
Linalool	78-70-6	DNEL	16,5 mg/m <sup>3</sup>	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
Geraniol	106-24-1	DNEL	161,6 mg/m <sup>3</sup>	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

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Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Geraniol	106-24-1	DNEL	11.800 µg/cm <sup>2</sup>	human, dermal	worker (industry)	chronic - local effects
(±)-β-Citronellol	106-22-9	DNEL	161,6 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
(±)-β-Citronellol	106-22-9	DNEL	10 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - local effects
(±)-β-Citronellol	106-22-9	DNEL	10 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - local effects
(±)-β-Citronellol	106-22-9	DNEL	327,4 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
(±)-β-Citronellol	106-22-9	DNEL	2.950 µg/cm <sup>2</sup>	human, dermal	worker (industry)	acute - local effects
Acetic acid linalyl ester	115-95-7	DNEL	2,75 mg/m <sup>3</sup>	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/cm <sup>2</sup>	human, dermal	worker (industry)	chronic - local effects
Acetic acid linalyl ester	115-95-7	DNEL	236,2 µg/cm <sup>2</sup>	human, dermal	worker (industry)	acute - local effects
Citronellyl formate	105-85-1	DNEL	4,94 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
Citronellyl formate	105-85-1	DNEL	1,4 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Geranyl acetate	105-87-3	DNEL	62,59 mg/m <sup>3</sup>	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
Nerol	106-25-2	DNEL	4,4 mg/m <sup>3</sup>	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
Neral	106-26-3	DNEL	9 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
Neral	106-26-3	DNEL	1,7 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Neral	106-26-3	DNEL	140 µg/cm <sup>2</sup>	human, dermal	worker (industry)	chronic - local effects
DL-α-Pinene	80-56-8	DNEL	3,8 mg/m <sup>3</sup>	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
L-(-)-Limonene	5989-54-8	DNEL	33,3 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects



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Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
L(-)-Limonene	5989-54-8	DNEL	222 µg/cm <sup>2</sup>	human, dermal	worker (industry)	acute - local effects

Relevant PNECs of components						
Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
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)
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)
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)
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)
(±)-β-Citronellol	106-22-9	PNEC	0,002 mg/l	aquatic organisms	freshwater	short-term (single instance)

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Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
(±)-β-Citronellol	106-22-9	PNEC	0 mg/l	aquatic organisms	marine water	short-term (single instance)
(±)-β-Citronellol	106-22-9	PNEC	580 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
(±)-β-Citronellol	106-22-9	PNEC	0,026 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
(±)-β-Citronellol	106-22-9	PNEC	0,003 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
(±)-β-Citronellol	106-22-9	PNEC	0,004 mg/kg	terrestrial organisms	soil	short-term (single instance)
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)
Citronellyl formate	105-85-1	PNEC	1,3 µg/l	aquatic organisms	freshwater	short-term (single instance)
Citronellyl formate	105-85-1	PNEC	0,13 µg/l	aquatic organisms	marine water	short-term (single instance)
Citronellyl formate	105-85-1	PNEC	2,24 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Citronellyl formate	105-85-1	PNEC	93,55 µg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Citronellyl formate	105-85-1	PNEC	9,35 µg/kg	aquatic organisms	marine sediment	short-term (single instance)
Citronellyl formate	105-85-1	PNEC	17,89 µg/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)

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Geranyl acetate	105-87-3	PNEC	0,086 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)
Neral	106-26-3	PNEC	0,007 mg/l	aquatic organisms	freshwater	short-term (single instance)
Neral	106-26-3	PNEC	0,001 mg/l	aquatic organisms	marine water	short-term (single instance)
Neral	106-26-3	PNEC	1,6 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Neral	106-26-3	PNEC	0,125 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Neral	106-26-3	PNEC	0,013 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Neral	106-26-3	PNEC	0,021 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)
L-(-)-Limonene	5989-54-8	PNEC	5,4 µg/l	aquatic organisms	freshwater	short-term (single instance)
L-(-)-Limonene	5989-54-8	PNEC	0,54 µg/l	aquatic organisms	marine water	short-term (single instance)
L-(-)-Limonene	5989-54-8	PNEC	0,2 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)

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L-(-)-Limonene	5989-54-8	PNEC	1,322 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
L-(-)-Limonene	5989-54-8	PNEC	0,132 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
L-(-)-Limonene	5989-54-8	PNEC	0,262 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

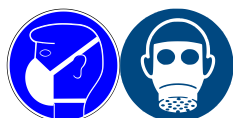
#### • breakthrough times of the glove material

>480 minutes (permeation: level 6)

#### • other protection measures

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

#### Respiratory protection



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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	light brown
Odour	characteristic
Melting point/freezing point	<-20 °C at 101.325 Pa (ECHA)
Boiling point or initial boiling point and boiling range	224,1 °C at 101.325 Pa (ECHA)
Flammability	this material is combustible, but will not ignite readily
Lower and upper explosion limit	0,9 vol% (LEL) - 5,2 vol% (UEL)
Flash point	91 °C at 101.300 Pa (ECHA)
Auto-ignition temperature	240 °C at 1.015 hPa (ECHA) (auto-ignition temperature (liquids and gases))
Decomposition temperature	not relevant
pH (value)	not determined
Kinematic viscosity	not determined
<u>Solubility(ies)</u>	
Water solubility	(poorly soluble)
<u>Partition coefficient</u>	
Partition coefficient n-octanol/water (log value):	3,5 (25 °C) (ECHA)
Vapour pressure	39,3 Pa at 24 °C
<u>Density and/or relative density</u>	
Density	~ 0,9 g/cm <sup>3</sup> at 20 °C
Relative vapour density	Information on this property is not available.
Particle characteristics	not relevant (liquid)
<u>Other safety parameters</u>	
Oxidising properties	none

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### 9.2 Other information

Information with regard to physical hazard classes:

hazard classes acc. to GHS (physical hazards): not relevant

Other safety characteristics:

Refractive index

1,465

Temperature class (EU, acc. to ATEX)

T3  
Maximum permissible surface temperature on the equipment: 200°C

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

This material is not reactive under normal ambient conditions.

#### If heated

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

There are no specific conditions known which have to be avoided.

### 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 hazard classes as defined in Regulation (EC) No 1272/2008

**Classification according to GHS (1272/2008/EC, CLP)**

#### Acute toxicity

Shall not be classified as acutely toxic.

Acute toxicity					
Exposure route	Endpoint	Value	Species	Method	Source
oral	LD50	>5.000 mg/kg	rat		ECHA

Acute toxicity estimate (ATE) of components			
Name of substance	CAS No	Exposure route	ATE
Menthone	10458-14-7	oral	500 mg/kg
DL- $\alpha$ -Pinene	80-56-8	oral	1.000 mg/kg

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Acute toxicity of components					
Name of substance	CAS No	Exposure route	Endpoint	Value	Species
Linalool	78-70-6	oral	LD50	2.790 mg/kg	rat
Linalool	78-70-6	dermal	LD50	5.610 mg/kg	rabbit
$\alpha$ -Terpineol	98-55-5	oral	LD50	4.300 mg/kg	rat
$\alpha$ -Terpineol	98-55-5	dermal	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
( $\pm$ )- $\beta$ -Citronellol	106-22-9	oral	LD50	3.450 mg/kg	rat
( $\pm$ )- $\beta$ -Citronellol	106-22-9	dermal	LD50	2.650 mg/kg	rabbit
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
Citronellyl formate	105-85-1	oral	LD50	>6.800 mg/kg	rat
Citronellyl formate	105-85-1	dermal	LD50	>2.000 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
$\beta$ -Caryophyllene	87-44-5	oral	LD50	>5.000 mg/kg	mouse
Geranyl acetate	105-87-3	oral	LD50	6.330 mg/kg	rat
Geranial	141-27-5	oral	LD50	6.800 mg/kg	rat
Geranial	141-27-5	dermal	LD50	>2.000 mg/kg	rat
Nerol	106-25-2	oral	LD50	4.500 mg/kg	rat
Nerol	106-25-2	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
DL-Limonene	138-86-3	oral	LD50	5.300 mg/kg	rat
Neral	106-26-3	oral	LD50	6.800 mg/kg	rat
Neral	106-26-3	dermal	LD50	>2.000 mg/kg	rat
DL- $\alpha$ -Pinene	80-56-8	dermal	LD50	>2.000 mg/kg	rat
DL- $\alpha$ -Pinene	80-56-8	oral	LD50	3.700 mg/kg	rat

### Skin corrosion/irritation

Causes skin irritation.

### Serious eye damage/eye irritation

Causes serious eye damage.

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### 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 damage, risk of blindness

#### • 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  $\geq 0,1\%$ .

### 11.3 Information on other hazards

There is no additional information.

## SECTION 12: Ecological information

### 12.1 Toxicity

Toxic to aquatic life with long lasting effects.

Aquatic toxicity (acute) of components					
Name of sub-stance	CAS No	Endpoint	Value	Species	Exposure time
Linalool	78-70-6	LC50	27,8 mg/l	fish	96 h
Linalool	78-70-6	EC50	59 mg/l	aquatic invertebrates	48 h



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Aquatic toxicity (acute) of components					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Linalool	78-70-6	ErC50	156,7 mg/l	algae	96 h
$\alpha$ -Terpineol	98-55-5	LC50	70 mg/l	fish	96 h
$\alpha$ -Terpineol	98-55-5	EC50	73 mg/l	aquatic invertebrates	48 h
$\alpha$ -Terpineol	98-55-5	ErC50	68 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
( $\pm$ )- $\beta$ -Citronellol	106-22-9	LC50	14,66 mg/l	fish	96 h
( $\pm$ )- $\beta$ -Citronellol	106-22-9	EC50	17,48 mg/l	aquatic invertebrates	48 h
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
Citronellyl formate	105-85-1	LC50	1,3 mg/l	fish	96 h
Citronellyl formate	105-85-1	EC50	7,6 mg/l	aquatic invertebrates	48 h
Citronellyl formate	105-85-1	ErC50	3,1 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
$\beta$ -Caryophyllene	87-44-5	EC50	>0,17 mg/l	daphnia magna	48 h
$\beta$ -Caryophyllene	87-44-5	ErC50	>0,033 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
Geranyl formate	105-86-2	EC50	2,3 mg/l	aquatic invertebrates	48 h
Geranyl formate	105-86-2	ErC50	0,23 mg/l	algae	72 h
Geranial	141-27-5	LC50	6,78 mg/l	fish	96 h
Geranial	141-27-5	EC50	6,8 mg/l	aquatic invertebrates	48 h
Geranial	141-27-5	ErC50	103,8 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
Myrcene	123-35-3	EC50	1,47 mg/l	aquatic invertebrates	48 h

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Aquatic toxicity (acute) of components					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Myrcene	123-35-3	EC50	0,31 mg/l	algae	72 h
Myrcene	123-35-3	ErC50	0,342 mg/l	algae	72 h
DL-Limonene	138-86-3	EC50	17 mg/l	daphnia magna	48 h
DL-Limonene	138-86-3	LC50	80 mg/l	rainbow trout (Oncorhynchus mykiss)	96 h
Neral	106-26-3	LC50	6,78 mg/l	fish	96 h
Neral	106-26-3	EC50	6,8 mg/l	aquatic invertebrates	48 h
Neral	106-26-3	ErC50	103,8 mg/l	algae	72 h
DL- $\alpha$ -Pinene	80-56-8	LC50	0,303 mg/l	fish	96 h
DL- $\alpha$ -Pinene	80-56-8	EC50	0,475 mg/l	aquatic invertebrates	48 h

Aquatic toxicity (chronic) of components					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Linalool	78-70-6	EC50	>100 mg/l	microorganisms	30 min
Geraniol	106-24-1	EC50	70 mg/l	microorganisms	30 min
( $\pm$ )- $\beta$ -Citronellol	106-22-9	EC50	>10.000 mg/l	microorganisms	30 min
Acetic acid linalyl ester	115-95-7	LC50	11,14 mg/l	fish	20 h
Terpinolene	586-62-9	EC50	69 mg/l	microorganisms	3 h
Geranial	141-27-5	EC50	160 mg/l	microorganisms	30 min
Nerol	106-25-2	EC50	241 mg/l	microorganisms	3 h
Neral	106-26-3	EC50	160 mg/l	microorganisms	30 min

## 12.2 Persistence and degradability

2,91 mg/mg

### Biodegradation

The substance is readily biodegradable.

Process of degradability		
Process	Degradation rate	Time
oxygen depletion	67 %	28 d

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Degradability of components						
Name of substance	CAS No	Process	Degradation rate	Time	Method	Source
Linalool	78-70-6	oxygen depletion	40,9 %	5 d		ECHA
$\alpha$ -Terpineol	98-55-5	carbon dioxide generation	80 %	28 d	OECD Guideline 310	
Geraniol	106-24-1	DOC removal	90 – 100 %	3 d		ECHA
( $\pm$ )- $\beta$ -Citronellol	106-22-9	biotic/abiotic	>60 %	d	modifizierter OECD Screening Test	
( $\pm$ )- $\beta$ -Citronellol	106-22-9	oxygen depletion	80 – 90 %	28 d		ECHA
Acetic acid linalyl ester	115-95-7	oxygen depletion	$\geq 0 - \leq 10$ %	1 d		ECHA
Citronellyl formate	105-85-1	carbon dioxide generation	88 %	28 d		ECHA
Terpinolene	586-62-9	oxygen depletion	81 %	28 d		ECHA
$\beta$ -Caryophyllene	87-44-5	oxygen depletion	10 %	28 d		ECHA
Geranyl acetate	105-87-3	oxygen depletion	>70 %	28 d		ECHA
Geranyl formate	105-86-2	oxygen depletion	79 %	28 d		ECHA
Geranial	141-27-5	oxygen depletion	>90 %	28 d		ECHA
Nerol	106-25-2	oxygen depletion	90 %	28 d		ECHA
Myrcene	123-35-3	oxygen depletion	76 %	28 d		ECHA
Neral	106-26-3	oxygen depletion	>90 %	28 d		ECHA
DL- $\alpha$ -Pinene	80-56-8	oxygen depletion	68 %	28 d		ECHA
L-(-)-Limonene	5989-54-8	oxygen depletion	85 %	28 d		ECHA

### 12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

n-octanol/water (log KOW)	3,5 (25 °C) (ECHA)
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Bioaccumulative potential of components				
Name of substance	CAS No	BCF	Log KOW	BOD5/COD
Linalool	78-70-6		2,9 (pH value: 7, 20 °C)	
α-Terpineol	98-55-5		2,98	
Geraniol	106-24-1		2,6 (25 °C)	
(±)-β-Citronellol	106-22-9	82,59	3,41 (25 °C)	
Acetic acid linalyl ester	115-95-7	174	3,9 (25 °C)	
Citronellyl formate	105-85-1		3,9 (pH value: 7, 20 °C)	
Terpinolene	586-62-9		4,47	
β-Caryophyllene	87-44-5		6,23 (pH value: 7, 25 °C)	
Geranyl acetate	105-87-3		4,04	
Geranyl formate	105-86-2		4,1 (pH value: 7,42, 20 °C)	
Menthone	10458-14-7		3,05	
Nerol	106-25-2		2,76 (pH value: ~6,5, 30 °C)	
Myrcene	123-35-3		4,82 (pH value: ~6,5, 30 °C)	
DL-Limonene	138-86-3		4,57	
Neral	106-26-3	89,72		
DL-α-Pinene	80-56-8		4,83	
L-(-)-Limonene	5989-54-8	864,8	4,38 (pH value: 7,2, 37 °C)	

### 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  $\geq 0,1\%$ .

### 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.

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### 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 4** irritant - skin irritation and eye damage

**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 3082
IMDG-Code	UN 3082
ICAO-TI	UN 3082

### 14.2 UN proper shipping name

ADRRID	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
IMDG-Code	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
ICAO-TI	Environmentally hazardous substance, liquid, n.o.s.
Technical name	Geranyl formate, Terpinolene

### 14.3 Transport hazard class(es)

ADRRID	9
IMDG-Code	9
ICAO-TI	9

### 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.

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### 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	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Particulars in the transport document	UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (Geranyl formate, Terpinolene, solution), 9, III, (-)
Classification code	M6
Danger label(s)	9, "Fish and tree"
 	
Environmental hazards	yes (hazardous to the aquatic environment)
Special provisions (SP)	274, 335, 375, 601
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3
Tunnel restriction code (TRC)	-
Hazard identification No	90

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

Classification code	M6
Danger label(s)	9, "Fish and tree"
 	
Environmental hazards	Yes Hazardous to water
Special provisions (SP)	274, 335, 375, 601
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3
Hazard identification No	90

#### International Maritime Dangerous Goods Code (IMDG) - Additional information

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Particulars in the shipper's declaration	UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (Geranyl formate, Terpinolene, solution), 9, III
Marine pollutant	yes (hazardous to the aquatic environment), (Terpinolene)
Danger label(s)	9, "Fish and tree"

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Special provisions (SP)	274, 335, 969
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
EmS	F-A, S-F
Stowage category	A

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

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.
Particulars in the shipper's declaration	UN3082, Environmentally hazardous substance, liquid, n.o.s., (Geranyl formate, Terpinolene, solution), 9, III
Environmental hazards	yes (hazardous to the aquatic environment)
Danger label(s)	9, "Fish and tree"



Special provisions (SP)	A97, A158, A197, A215
Excepted quantities (EQ)	E1
Limited quantities (LQ)	30 kg

## 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)

#### Restrictions according to REACH, Annex XVII

Dangerous substances with restrictions (REACH, Annex XVII)				
Name of substance	Name acc. to inventory	CAS No	Restriction	No
Geranium oil	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC		R3	3
Geranial	substances in tattoo inks and permanent make-up		R75	75
Neral	substances in tattoo inks and permanent make-up		R75	75
Geranyl formate	substances in tattoo inks and permanent make-up		R75	75
Geranyl acetate	substances in tattoo inks and permanent make-up		R75	75
Citronellyl formate	substances in tattoo inks and permanent make-up		R75	75
Menthone	substances in tattoo inks and permanent make-up		R75	75

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Dangerous substances with restrictions (REACH, Annex XVII)				
Name of substance	Name acc. to inventory	CAS No	Restriction	No
(±)-β-Citronellol	substances in tattoo inks and permanent make-up		R75	75
Geraniol	substances in tattoo inks and permanent make-up		R75	75
Nerol	substances in tattoo inks and permanent make-up		R75	75
Acetic acid linalyl ester	substances in tattoo inks and permanent make-up		R75	75
Myrcene	flammable / pyrophoric		R40	40
Myrcene	substances in tattoo inks and permanent make-up		R75	75
DL-Limonene	flammable / pyrophoric		R40	40
DL-Limonene	substances in tattoo inks and permanent make-up		R75	75
Isomenthone	substances in tattoo inks and permanent make-up		R75	75
Terpinolene	substances in tattoo inks and permanent make-up		R75	75
L(-)-Limonene	flammable / pyrophoric		R40	40
L(-)-Limonene	substances in tattoo inks and permanent make-up		R75	75
Linalool	substances in tattoo inks and permanent make-up		R75	75
DL-α-Pinene	flammable / pyrophoric		R40	40
DL-α-Pinene	substances in tattoo inks and permanent make-up		R75	75
β-Caryophyllene	substances in tattoo inks and permanent make-up		R75	75
α-Terpineol	substances in tattoo inks and permanent make-up		R75	75

### Legend

R3

1. Shall not be used in:
  - ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
  - tricks and jokes,
  - games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
2. Articles not complying with paragraph 1 shall not be placed on the market.
3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:
  - can be used as fuel in decorative oil lamps for supply to the general public, and
  - present an aspiration hazard and are labelled with H304.
4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).
5. Without prejudice to the implementation of other Union provisions relating to the classification, labelling and packaging of substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
  - (a) lamp oils, labelled with H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: "Keep lamps filled with this liquid out of the reach of children"; and, by 1 December 2010, "Just a sip of lamp oil – or even sucking the wick of lamps – may lead to life-threatening lung damage";
  - (b) grill lighter fluids, labelled with H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: "Just a sip of grill lighter fluid may lead to life threatening lung damage";
  - (c) lamps oils and grill lighters, labelled with H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.;



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### Legend

- R40
1. Shall not be used, as substance or as mixtures in aerosol dispensers where these aerosol dispensers are intended for supply to the general public for entertainment and decorative purposes such as the following:
    - metallic glitter intended mainly for decoration,
    - artificial snow and frost,
    - 'whoopee' cushions,
    - silly string aerosols,
    - imitation excrement,
    - horns for parties,
    - decorative flakes and foams,
    - artificial cobwebs,
    - stink bombs.
  2. Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with:  
'For professional users only'.
  3. By way of derogation, paragraphs 1 and 2 shall not apply to the aerosol dispensers referred to Article 8 (1a) of Council Directive 75/324/EEC (2).
  4. The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirements indicated.

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### Legend

- R75 1. Shall not be placed on the market in mixtures for use for tattooing purposes, and mixtures containing any such substances shall not be used for tattooing purposes, after 4 January 2022 if the substance or substances in question is or are present in the following circumstances:
- (a) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as carcinogen category 1A, 1B or 2, or germ cell mutagen category 1A, 1B or 2, the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight;
  - (b) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as reproductive toxicant category 1A, 1B or 2, the substance is present in the mixture in a concentration equal to or greater than 0,001 % by weight;
  - (c) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as skin sensitiser category 1, 1A or 1B, the substance is present in the mixture in a concentration equal to or greater than 0,001 % by weight;
  - (d) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as skin corrosive category 1, 1A, 1B or 1C or skin irritant category 2, or as serious eye damage category 1 or eye irritant category 2, the substance is present in the mixture in a concentration equal to or greater than:
    - (i) 0,1 % by weight, if the substance is used solely as a pH regulator;
    - (ii) 0,01 % by weight, in all other cases;
  - (e) in the case of a substance listed in Annex II to Regulation (EC) No 1223/2009 (\*1), the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight;
  - (f) in the case of a substance for which a condition of one or more of the following kinds is specified in column g (Product type, Body parts) of the table in Annex IV to Regulation (EC) No 1223/2009, the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight:
    - (i) "Rinse-off products";
    - (ii) "Not to be used in products applied on mucous membranes";
    - (iii) "Not to be used in eye products";
  - (g) in the case of a substance for which a condition is specified in column h (Maximum concentration in ready for use preparation) or column i (Other) of the table in Annex IV to Regulation (EC) No 1223/2009, the substance is present in the mixture in a concentration, or in some other way, that does not accord with the condition specified in that column;
  - (h) in the case of a substance listed in Appendix 13 to this Annex, the substance is present in the mixture in a concentration equal to or greater than the concentration limit specified for that substance in that Appendix.
2. For the purposes of this entry use of a mixture "for tattooing purposes" means injection or introduction of the mixture into a person's skin, mucous membrane or eyeball, by any process or procedure (including procedures commonly referred to as permanent make-up, cosmetic tattooing, micro-blading and micro-pigmentation), with the aim of making a mark or design on his or her body.
3. If a substance not listed in Appendix 13 falls within more than one of points (a) to (g) of paragraph 1, the strictest concentration limit laid down in the points in question shall apply to that substance. If a substance listed in Appendix 13 also falls within one or more of points (a) to (g) of paragraph 1, the concentration limit laid down in point (h) of paragraph 1 shall apply to that substance.
4. By way of derogation, paragraph 1 shall not apply to the following substances until 4 January 2023:  
(a) Pigment Blue 15:3 (CI 74160, EC No 205-685-1, CAS No 147-14-8);  
(b) Pigment Green 7 (CI 74260, EC No 215-524-7, CAS No 1328-53-6).
5. If Part 3 of Annex VI to Regulation (EC) No 1272/2008 is amended after 4 January 2021 to classify or re-classify a substance such that the substance then becomes caught by point (a), (b), (c) or (d) of paragraph 1 of this entry, or such that it then falls within a different one of those points from the one within which it fell previously, and the date of application of that new or revised classification is after the date referred to in paragraph 1 or, as the case may be, paragraph 4 of this entry, that amendment shall, for the purposes of applying this entry to that substance, be treated as taking effect on the date of application of that new or revised classification.
6. If Annex II or Annex IV to Regulation (EC) No 1223/2009 is amended after 4 January 2021 to list or change the listing of a substance such that the substance then becomes caught by point (e), (f) or (g) of paragraph 1 of this entry, or such that it then falls within a different one of those points from the one within which it fell previously, and the amendment takes effect after the date referred to in paragraph 1 or, as the case may be, paragraph 4 of this entry, that amendment shall, for the purposes of applying this entry to that substance, be treated as taking effect from the date falling 18 months after entry into force of the act by which that amendment was made.
7. Suppliers placing a mixture on the market for use for tattooing purposes shall ensure that, after 4 January 2022, the mixture is marked with the following information:  
(a) the statement "Mixture for use in tattoos or permanent make-up";  
(b) a reference number to uniquely identify the batch;  
(c) the list of ingredients in accordance with the nomenclature established in the glossary of common ingredient names pursuant to Article 33 of Regulation (EC) No 1223/2009, or in the absence of a common ingredient name, the IUPAC name. In the absence of a common ingredient name or IUPAC name, the CAS and EC number. Ingredients shall be listed in descending order by weight or volume of the ingredients at the time of formulation. "Ingredient" means any substance added during the process of formulation and present in the mixture for use for tattooing purposes. Impurities shall not be regarded as ingredients. If the name of a substance, used as ingredient within the meaning of this entry, is already required to be stated on the label in accordance with Regulation (EC) No 1272/2008, that ingredient does not need to be marked in accordance with this Regulation;  
(d) the additional statement "pH regulator" for substances falling under point (d)(i) of paragraph 1;  
(e) the statement "Contains nickel. Can cause allergic reactions." if the mixture contains nickel below the concentration limit specified in Appendix 13;  
(f) the statement "Contains chromium (VI). Can cause allergic reactions." if the mixture contains chromium (VI) below the concentration limit specified in Appendix 13;  
(g) safety instructions for use insofar as they are not already required to be stated on the label by Regulation (EC) No 1272/2008.
- The information shall be clearly visible, easily legible and marked in a way that is indelible.  
The information shall be written in the official language(s) of the Member State(s) where the mixture is placed on the market, unless the Member State(s) concerned provide(s) otherwise.  
Where necessary because of the size of the package, the information listed in the first subparagraph, except for point (a), shall be included instead in the instructions for use.  
Before using a mixture for tattooing purposes, the person using the mixture shall provide the person undergoing the procedure with the information marked on the package or included in the instructions for use pursuant to this paragraph.
8. Mixtures that do not contain the statement "Mixture for use in tattoos or permanent make-up" shall not be used for tattooing purposes.

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### Legend

9. This entry does not apply to substances that are gases at temperature of 20 °C and pressure of 101,3 kPa, or generate a vapour pressure of more than 300 kPa at temperature of 50 °C, with the exception of formaldehyde (CAS No 50-00-0, EC No 200-001-8).

10. This entry does not apply to the placing on the market of a mixture for use for tattooing purposes, or to the use of a mixture for tattooing purposes, when placed on the market exclusively as a medical device or an accessory to a medical device, within the meaning of Regulation (EU) 2017/745, or when used exclusively as a medical device or an accessory to a medical device, within the same meaning. Where the placing on the market or use may not be exclusively as a medical device or an accessory to a medical device, the requirements of Regulation (EU) 2017/745 and of this Regulation shall apply cumulatively.

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

Not listed.

### 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
E2	environmental hazards (hazardous to the aquatic environment, cat. 2)	200	500	57)

### Notation

57) Hazardous to the Aquatic Environment in category Chronic 2

### Deco-Paint Directive

VOC content	98 %
VOC content	882 g/l

### Industrial Emissions Directive (IED)

VOC content	80,03 %
VOC content	720,3 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)

List of pollutants (WFD)				
Name of substance	Name acc. to inventory	CAS No	Listed in	Remarks
Myrcene	Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment		a)	

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List of pollutants (WFD)				
Name of substance	Name acc. to inventory	CAS No	Listed in	Remarks
Linalool	Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment		a)	

### Legend

a) Indicative list of the main pollutants

### 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

### 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	not all ingredients are listed
CA	DSL	not all ingredients are listed
CN	IECSC	not all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	not all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
JP	ISHA-ENCS	not all ingredients are listed
KR	KECI	not all ingredients are listed
MX	INSQ	not all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	not all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	not all ingredients are listed

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Country	Inventory	Status
US	TSCA	not all ingredients are listed
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. According to REACH, Article 14 (1) a chemical safety assessment has been carried out for this substance or components of this mixture when the substance has been registered in quantities of 10 tonnes or more per year per registrant.

## SECTION 16: Other information

### Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
2.2	Hazardous ingredients for labelling: Linalool, Geraniol, DL- $\alpha$ -Pinene, ( $\pm$ )-S-Citronellol, Acetic acid linalyl ester, Citronellyl formate, Terpinolene, Isomenthone, $\beta$ -Caryophyllene, Geranyl acetate, Geranyl formate, Geranial, Nerol, Myrcene, DL-Limonene, Neral, L(-)-Limonene	Hazardous ingredients for labelling: Linalool, Geraniol, DL- $\alpha$ -Pinene, ( $\pm$ )-S-Citronellol, Acetic acid linalyl ester, Citronellyl formate, Terpinolene, Isomenthone, $\beta$ -Caryophyllene, Geranyl acetate, Geranyl formate, Menthone, Geranial, Nerol, Myrcene, DL-Limonene, Neral, L(-)-Limonene	yes
2.2	contains: Linalool, Geraniol, DL- $\alpha$ -Pinene, ( $\pm$ )-S-Citronellol, Acetic acid linalyl ester, Citronellyl formate, Terpinolene, Isomenthone, $\beta$ -Caryophyllene, Geranyl acetate, Geranyl formate, Geranial, Nerol, Myrcene, DL-Limonene, Neral, L(-)-Limonene	contains: Linalool, Geraniol, DL- $\alpha$ -Pinene, ( $\pm$ )-S-Citronellol, Acetic acid linalyl ester, Citronellyl formate, Terpinolene, Isomenthone, $\beta$ -Caryophyllene, Geranyl acetate, Geranyl formate, Menthone, Geranial, Nerol, Myrcene, DL-Limonene, Neral, L(-)-Limonene	yes
2.3		Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$ .	yes
15.1		Dangerous substances with restrictions (REACH, Annex XVII): change in the listing (table)	yes
15.1	VOC content: 98 % 882 g/l	VOC content: 98 %	yes
15.1		VOC content: 882 g/l	yes
15.1		National inventories: change in the listing (table)	yes

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
15.2	Chemical Safety Assessment: No Chemical Safety Assessment has been carried out for this substance.	Chemical safety assessment: No Chemical Safety Assessment has been carried out for this substance. According to REACH, Article 14 (1) a chemical safety assessment has been carried out for this substance or components of this mixture when the substance has been registered in quantities of 10 tonnes or more per year per registrant.	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)
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)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
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
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
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

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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
LEL	Lower explosion limit (LEL)
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)
SVHC	Substance of Very High Concern
UEL	Upper explosion limit (UEL)
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative

### Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.  
Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU.

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
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H411	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.