PINE EO SIBERIA

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 7/2/2021 Revision date: 6/20/2024 Supersedes version of: 9/13/2022 Version: 8.1

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

1.1. Product identifier

Product form	:	Substance (UVCB)
Trade name	:	PINE EO SIBERIA
IUPAC name	:	Essential oil of Abies sibirica Ledeb. (Pinaceae) obtained from needles and branches by distillation.
EC No (EC/EINECS/ELINCS)	:	294-351-9
CAS	:	8021-29-2
REACH registration No.	:	01-2120738835-44
Product code	:	021460
Other means of identification	:	CAS UE : 91697-89-1

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

1.2.1. Relevant identified uses

Main use category	:	Industrial use
Use of the substance/mixture	:	Flavor ingredient Fragrance ingredient

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Aromology Trading LLC
G05 Al Ghazal Building
Nadd Al Hamar
Dubai, United Arab Emirates

Website: www.aromology.com
Email: info@aromology.com
Telephone: +971 505197601

1.4. Emergency telephone number

Country/Area	Organisation/Company	Address	Emergency number	Comment
France	ORFILA		+33 1 45 42 59 59	
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 (Healthcare professionals-24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)	
Malta	Medicines & Poisons Info Office	Mater Dei Hospital Msida MSD 2090 Msida	+356 2545 6508	
United Kingdom	National Poisons Information Service (Belfast Centre) Royal Victoria Hospital	Grosvenor Road BT12 6BA Belfast	0344 892 0111	Only for healthcare professionals

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Flammable liquids, Category 3	H226
Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Skin sensitisation, Category 1	H317

Aspiration hazard, Category 1	H304
Hazardous to the aquatic environment – Chronic Hazard, Category 2	H411

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

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS02 GHS07 GHS08 GHS09

Signal word (CLP) : Danger

Hazard statements (CLP) : 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.
H319 - Causes serious eye irritation.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed.
P240 - Ground and bond container and receiving equipment.
P241 - Use explosion-proof electrical/ventilating/lighting equipment.
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 - Wash hands, forearms and face thoroughly after handling.

2.3. Other hazards

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

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : UVCB
Name : Fir, Abies sibirica, ext.
CAS : 8021-29-2
EC No (EC/EINECS/ELINCS) : 294-351-9

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Camphene	CAS: 79-92-5 EC No (EC/EINECS/ELINCS): 201-234-8	25 - 30	Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Eye Irrit. 2, H319 Flam. Sol. 2, H228
alpha-Pinene	CAS: 80-56-8 EC No (EC/EINECS/ELINCS): 201-291-9	20 – 25	Acute Tox. 4 (Oral), H302 (ATE=500 mg/kg bodyweight) Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Asp. Tox. 1, H304 Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1B, H317

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
delta-3-Carene	CAS: 13466-78-9 EC No (EC/EINECS/ELINCS): 236-719-3	10 – 20	Skin Sens. 1, H317 Skin Irrit. 2, H315 Flam. Liq. 3, H226 Asp. Tox. 1, H304 Acute Tox. 4 (Inhalation), H332 (ATE=1.5 mg/l/4h) Aquatic Chronic 2, H411
Limonene	CAS: 5989-27-5/138-86-3/5989-54-8 EC No (EC/EINECS/ELINCS): 227-813-5 EC index number: 601-096-00-2	5 - 10	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 3, H412
beta-Phellandrene	CAS: 555-10-2 EC No (EC/EINECS/ELINCS): 209-081-9	1 – 5	Asp. Tox. 1, H304 Flam. Liq. 3, H226 Skin Sens. 1, H317
beta-Pinene	CAS: 127-91-3 EC No (EC/EINECS/ELINCS): 204-872-5	1 – 5	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
santene	CAS: 529-16-8	1 – 5	Flam. Liq. 3, H226
Terpinolene	CAS: 586-62-9 EC No (EC/EINECS/ELINCS): 209-578-0	1 – 5	Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Chronic 1, H410 Aquatic Acute 1, H400
Myrcene	CAS: 123-35-3 EC No (EC/EINECS/ELINCS): 204-622-5	1 – 5	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
Borneol	CAS: 507-70-0 EC No (EC/EINECS/ELINCS): 208-080-0	1 – 5	Skin Irrit. 2, H315 Flam. Sol. 1, H228 Aquatic Chronic 2, H411 Eye Dam. 1, H318
beta-Caryophyllene	CAS: 87-44-5 EC No (EC/EINECS/ELINCS): 201-746-1	1 – 5	Asp. Tox. 1, H304 Skin Sens. 1B, H317
alpha-fenchene	CAS: 471-84-1	1 – 5	Asp. Tox. 1, H304 Aquatic Chronic 2, H411
p-Mentha-1,3-diene	CAS: 99-86-5 EC No (EC/EINECS/ELINCS): 202-795-1	0.1 - 1	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302 (ATE=1680 mg/kg bodyweight) Asp. Tox. 1, H304 Aquatic Chronic 2, H411 Skin Sens. 1, H317 Eye Irrit. 2, H319
alpha-Terpineol	CAS: 98-55-5 EC No (EC/EINECS/ELINCS): 202-680-6	0.1 - 1	Skin Irrit. 2, H315 Eye Irrit. 2, H319

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
alpha-Cedrene	CAS: 469-61-4 EC No (EC/EINECS/ELINCS): 207-418-4	0.1 - 1	Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=10) Skin Irrit. 2, H315
p-Mentha-1,4-diene	CAS: 99-85-4 EC No (EC/EINECS/ELINCS): 202-794-6	0.1 – 1	Repr. 2, H361 Flam. Liq. 3, H226 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
Linalool	CAS: 78-70-6 EC No (EC/EINECS/ELINCS): 201-134-4 EC index number: 603-235-00-2	0.1 – 1	Eye Irrit. 2, H319 Skin Irrit. 2, H315 Skin Sens. 1B, H317
Geranyl acetate	CAS: 105-87-3 EC No (EC/EINECS/ELINCS): 203-341-5	0.1 – 1	Skin Sens. 1B, H317 Skin Irrit. 2, H315 Aquatic Chronic 3, H412
p-Cymene	CAS: 99-87-6 EC No (EC/EINECS/ELINCS): 202-796-7 EC index number: 601-094-00-1	0.1 – 1	Repr. 2, H361 Flam. Liq. 3, H226 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 Acute Tox. 3 (Inhalation), H331 (ATE=0.5 mg/l/4h)
alpha-Phellandrene	CAS: 99-83-2 EC No (EC/EINECS/ELINCS): 202-792-5	0.1 – 1	Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Asp. Tox. 1, H304 Flam. Liq. 3, H226 Skin Sens. 1, H317
1,7,7-Trimethylbicyclo[2.2.1]heptan-2-one	CAS: 76-22-2 EC No (EC/EINECS/ELINCS): 200-945-0	0.1 – 1	Acute Tox. 4 (Inhalation), H332 Acute Tox. 4 (Oral), H302 (ATE=1310 mg/kg bodyweight) Aquatic Chronic 2, H411 Eye Dam. 1, H318 Flam. Sol. 2, H228 Skin Irrit. 2, H315 STOT SE 2, H371
4-Carvomenthenol	CAS: 562-74-3 EC No (EC/EINECS/ELINCS): 209-235-5	0.1 – 1	Acute Tox. 4 (Inhalation), H332 (ATE=1.5 mg/l/4h) Acute Tox. 4 (Oral), H302 (ATE=1300 mg/kg bodyweight) Eye Irrit. 2, H319 Skin Irrit. 2, H315 Skin Sens. 1, H317 STOT SE 3, H336
dl-Citronellol	CAS: 106-22-9 EC No (EC/EINECS/ELINCS): 203-375-0	0.1 – 1	Skin Sens. 1B, H317 Skin Irrit. 2, H315 Eye Irrit. 2, H319
Geraniol	CAS: 106-24-1 EC No (EC/EINECS/ELINCS): 203-377-1 EC index number: 603-241-00-5	< 0.1	Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Carvone	CAS: 99-49-0 EC No (EC/EINECS/ELINCS): 202-759-5 EC index number: 606-148-00-8	< 0.1	Skin Sens. 1, H317

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

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

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

First-aid measures after inhalation : Allow affected person to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash with plenty of water/…. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention. Specific treatment (see supplemental first aid instruction on this label). If skin irritation or rash occurs:

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

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor.

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

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

Symptoms/effects after skin contact : Causes skin irritation.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : May be fatal if swallowed and enters airways.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Fire extinguishing agents: no data available. Foam. Dry powder. Carbon dioxide. Water spray. Sand.

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

5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable liquid and vapour.

Explosion hazard : May form flammable/explosive vapour-air mixture.

5.3. Advice for firefighters

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

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking.

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Stop release. Ventilate area.

6.2. Environmental precautions

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

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Collect spills and put it into appropriated container. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Section 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapours are flammable.
Precautions for safe handling : Obtain special instructions before use. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. No open flames. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Avoid breathing dust/fume/gas/mist/vapours/spray.
Hygiene measures : Wash hands, forearms and face thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations. Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment.
Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Keep container tightly closed.
Incompatible products : Strong bases. Strong acids.
Incompatible materials : Sources of ignition. Direct sunlight. Heat sources.
Maximum storage period : 24 months
Storage temperature : ≤ 25 °C
Storage area : Store in a well-ventilated place.
Special rules on packaging : Keep in the dark. Store tightly closed in a dry, cool and well-ventilated place. Product must only be kept in the original packaging.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

delta-3-Carene (13466-78-9)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Δ-3-Carene
ACGIH OEL TWA	20 ppm
Remark (ACGIH)	TLV® Basis: Lung irr. Notations: DSEN; A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2024

1,7,7-Trimethylbicyclo[2.2.1]heptan-2-one (76-22-2)	
France - Occupational Exposure Limits	
Local name	Camphre
VME (OEL TWA)	12 mg/m³
	2 ppm
Remark	Valeurs recommandées/admises
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 6443, 2022; Outil65)
USA - ACGIH - Occupational Exposure Limits	
Local name	Camphor, synthetic
ACGIH OEL TWA	2 ppm
ACGIH OEL STEL	3 ppm
Remark (ACGIH)	TLV® Basis: Eye & URT irr; anosmia. Notations: A4 (Not classifiable as a Human Carcinogen)
Regulatory reference	ACGIH 2024

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

No additional information available

8.2.2. Personal protection equipment

Personal protective equipment:
Avoid all unnecessary exposure.

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:
Chemical goggles or safety glasses

8.2.2.2. Skin protection

Skin and body protection:
Wear suitable protective clothing

Hand protection:
Wear protective gloves.

8.2.2.3. Respiratory protection

Respiratory protection:
[In case of inadequate ventilation] wear respiratory protection.

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Colour	:	Colourless to pale yellow.
Appearance	:	Liquid.
Odour	:	Wood freshly cut, coniferous.
Odour threshold	:	Not available
Melting point	:	Not applicable
Freezing point	:	Not available
Boiling point	:	Not available
Flammability	:	Flammable liquid and vapour.
Lower explosion limit	:	Not available
Upper explosion limit	:	Not available
Flash point (closed cup)	:	42 °C
Auto-ignition temperature	:	Not available
Decomposition temperature	:	Not available
pH	:	Not available
Viscosity, kinematic	:	< 20.5 mm²/s
Solubility	:	Not available
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Vapour pressure	:	Not available
Vapour pressure at 50°C	:	Not available
Density	:	Not available
Specific gravity (20°C)	:	0.8950 – 0.9120
Relative vapour density at 20°C	:	Not available
Particle characteristics	:	Not applicable

Camphene (79-92-5)	
Boiling point	156 – 160 °C Atm. press.: 1013 mBar
Auto-ignition temperature	265 °C Source: ICSC
Vapour pressure	25 mm Hg at 25 °C Source: HSDB

alpha-Pinene (80-56-8)	
Boiling point	155.95 °C Atm. press.: 1013,25 mBar
Flash point (closed cup)	31 °C
Auto-ignition temperature	255 °C
Vapour pressure	4.75 mm Hg

delta-3-Carene (13466-78-9)	
Boiling point	167 – 170 °C Source: AKRON
Flash point (closed cup)	47 °C
Vapour pressure	3.72 mm Hg at 25 °C Source: NLM;ChemIDplus

Limonene (5989-27-5/138-86-3/5989-54-8)	
Boiling point	175.5 – 176 °C at 763 mmHg Source: HSDB
Flash point (closed cup)	51 °C
Auto-ignition temperature	245 °C Source: ECHA Registered substances
Vapour pressure	200 Pa at 298 Source: ECHA Registered substances

beta-Phellandrene (555-10-2)	
Boiling point	171 – 174 °C
Flash point (closed cup)	44 °C

beta-Pinene (127-91-3)	
Boiling point	158 – 166 °C
Flash point (closed cup)	39 °C
Auto-ignition temperature	255 °C
Vapour pressure	2.93 mm Hg

santene (529-16-8)	
Boiling point	≥ 140 °C
Flash point (closed cup)	≥ 27 °C

Terpinolene (586-62-9)	
Boiling point	193.85 °C Atm. press.: 985 hPa Decomposition: 'no'
Flash point (closed cup)	59 °C
Vapour pressure	0.74 mm Hg at 25°C Source: National Library of Medicine/Hazardous Substances Data Bank

Myrcene (123-35-3)	
Boiling point	167 °C
Flash point (closed cup)	45 °C
Vapour pressure	2.01 mm Hg

Borneol (507-70-0)	
Boiling point	212 °C Source: The Merck Index 13th Ed.
Vapour pressure	0.0353 mm Hg 25℃ Source: National Institute of Technology and Evaluation

beta-Caryophyllene (87-44-5)	
Boiling point	262 (253 – 262) °C Atm. press.: 1013 hPa
Flash point (closed cup)	105.5 °C
Vapour pressure	6 Pa

alpha-fenchene (471-84-1)	
Flash point (closed cup)	35 °C

p-Mentha-1,3-diene (99-86-5)	
Boiling point	175 °C Source: ChemIDplus
Flash point (closed cup)	47 °C
Vapour pressure	0.8 mm Hg at 25°C Source: The Chemical Database, The Department of Chemistry at the University of Akron

alpha-Terpineol (98-55-5)	
Boiling point	218.9 °C Atm. press.: 1 atm
Flash point (closed cup)	91 °C
Auto-ignition temperature	275 °C Source: ECHA
Vapour pressure	6.48 Pa Temp.: 23 °C

alpha-Cedrene (469-61-4)	
Flash point (closed cup)	> 93 °C

p-Mentha-1,4-diene (99-85-4)	
Boiling point	181.8 °C Atm. press.: 100,7 kPa
Flash point (closed cup)	51.8 °C
Auto-ignition temperature	359 °C Source: ECHA
Vapour pressure	1.09 mm Hg at 25 °C Source: National Library of Medicine

Linalool (78-70-6)	
Boiling point	196.3 °C Atm. press.: 99,2 kPa Decomposition: 'no' Decomp. temp.: 196,3 °C
Flash point (closed cup)	77 °C
Auto-ignition temperature	235 °C Source: International Chemical Safety Cards
Vapour pressure	27 Pa Temp.: 298 K

Geranyl acetate (105-87-3)	
Boiling point	243.97 °C Atm. press.: 1013,25 hPa
Flash point (closed cup)	110 °C

Geranyl acetate (105-87-3)	
Vapour pressure	0.013 hPa Temp.: 20 °C

p-Cymene (99-87-6)	
Boiling point	172 °C Source: International Uniform ChemicaL Information Database
Flash point (closed cup)	47 °C
Auto-ignition temperature	435 °C
Vapour pressure	1.47 mm Hg Source: National Institute of Technology and Evaluation

alpha-Phellandrene (99-83-2)	
Boiling point	175 – 176 °C
Flash point (closed cup)	45.4 °C

1,7,7-Trimethylbicyclo[2.2.1]heptan-2-one (76-22-2)	
Boiling point	204 °C
Auto-ignition temperature	466 °C Source: IPCS
Vapour pressure	0.65 mm Hg Temp.: 25 °C

4-Carvomenthenol (562-74-3)	
Flash point (closed cup)	79 °C

dl-Citronellol (106-22-9)	
Boiling point	224.5 °C Source: ChemIDplus
Flash point (closed cup)	107 °C
Auto-ignition temperature	240 °C Source: ECHA
Vapour pressure	0.02 mm Hg 25 ℃ Source: HSDB

Geraniol (106-24-1)	
Boiling point	230 °C
Flash point (closed cup)	108 °C
Vapour pressure	1 mm Hg

Carvone (99-49-0)	
Boiling point	230 °C
Flash point (closed cup)	89 °C

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

Refractive index (20°C) : 1.4680 – 1.4730

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Flammable liquid and vapour. May form flammable/explosive vapour-air mixture.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame. Overheating. Heat. Sparks.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide. May release flammable gases.

SECTION 11: Toxicological information

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

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

PINE EO SIBERIA (8021-29-2)	
LD50 oral rat	> 5000 mg/kg

Camphene (79-92-5)	
LD50 oral rat	> 2000 mg/kg bodyweight Animal: other:rat and mouse
LD50 oral	> 5000 mg/kg bodyweight Animal: mouse
LD50 dermal rabbit	> 2000 mg/kg bodyweight Animal: rabbit

alpha-Pinene (80-56-8)	
LD50 oral rat	2100 mg/kg Source: International Uniform ChemicaL Information Database
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal))
ATE CLP (oral)	500 mg/kg bodyweight

delta-3-Carene (13466-78-9)	
LD50 oral rat	4800 mg/kg
LD50 oral	4800 mg/kg bodyweight
LC50 Inhalation - Rat (Dust/Mist)	1.5 mg/l/4h
ATE CLP (gases)	4500 ppmv/4h
ATE CLP (vapours)	11 mg/l/4h
ATE CLP (dust,mist)	1.5 mg/l/4h

Limonene (5989-27-5/138-86-3/5989-54-8)	
LD50 oral rat	5000 mg/kg Source: National Library of Medicine/Hazardous Substances Data Bank

Limonene (5989-27-5/138-86-3/5989-54-8)	
LD50 dermal rabbit	> 5000 mg/kg Source: National Library of Medicine
ATE CLP (oral)	5000 mg/kg bodyweight
beta-Pinene (127-91-3)	
LD50 oral rat	4700 mg/kg Source: NLM,THOMSON
Terpinolene (586-62-9)	
LD50 oral rat	4.39 ml/kg Source: ECHA
LD50 oral	3775 mg/kg bodyweight
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
LD50 dermal rabbit	> 4300 mg/kg bodyweight Animal: rabbit, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
Myrcene (123-35-3)	
LD50 oral rat	> 11390 mg/kg bodyweight Animal: rat
LD50 oral	> 3380 mg/kg bodyweight Animal: mouse
LD50 dermal rabbit	> 5000 mg/kg bodyweight Animal: rabbit, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
Borneol (507-70-0)	
LD50 oral rat	500 mg/kg Source: National Library of Medicine/Hazardous Substances Data Bank
ATE CLP (oral)	500 mg/kg bodyweight
beta-Caryophyllene (87-44-5)	
LD50 oral	> 5000 mg/kg bodyweight Animal: mouse, Animal sex: male
p-Mentha-1,3-diene (99-86-5)	
LD50 oral rat	1680 mg/kg Source: Corporate Solution From Thomson Micromedex
LD50 oral	1680 mg/kg bodyweight
ATE CLP (oral)	1680 mg/kg bodyweight
alpha-Terpineol (98-55-5)	
LD50 oral rat	4300 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 401 (Acute Oral Toxicity), 95% CL: 2900 - 5700
LD50 oral	4300 mg/kg bodyweight
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
ATE CLP (oral)	4300 mg/kg bodyweight
p-Mentha-1,4-diene (99-85-4)	
LD50 oral rat	3650 mg/kg Source: National Library of Medicine
LD50 oral	3650 mg/kg bodyweight
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
Linalool (78-70-6)	
LD50 oral rat	2790 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity), 95% CL: 2440 - 3180

Linalool (78-70-6)	
LD50 oral	2790 mg/kg
LD50 dermal rabbit	5610 mg/kg bodyweight Animal: rabbit, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), 95% CL: 3578 - 8374
ATE CLP (oral)	2790 mg/kg bodyweight
ATE CLP (dermal)	5610 mg/kg bodyweight

Geranyl acetate (105-87-3)	
LD50 oral rat	6330 mg/kg bodyweight Animal: rat, 95% CL: 5450 - 7340
ATE CLP (oral)	6330 mg/kg bodyweight

p-Cymene (99-87-6)	
LD50 oral rat	3669 mg/kg Source: Corporate Solution From Thomson Micromedex
LD50 oral	4750 mg/kg bodyweight
LD50 dermal rabbit	> 5000 mg/kg bodyweight Animal: rabbit, Guideline: other:
LC50 Inhalation - Rat (Vapours)	9.7 mg/l/4h
ATE CLP (gases)	700 ppmv/4h
ATE CLP (vapours)	3 mg/l
ATE CLP (dust,mist)	0.5 mg/l/4h

alpha-Phellandrene (99-83-2)	
LD50 oral rat	5700 mg/kg Source: Registry of Toxic Effects of Chemical Substances|
ATE CLP (oral)	5700 mg/kg bodyweight

1,7,7-Trimethylbicyclo[2.2.1]heptan-2-one (76-22-2)	
LD50 oral rat	1310 mg/kg Source: ECHA
LD50 oral	1500 mg/kg
LD50 dermal rat	> 2000 mg/kg Source: ECHA
LC50 Inhalation - Rat	0.5 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)
LC50 Inhalation - Rat (Vapours)	1.5 mg/l/4h
ATE CLP (oral)	1310 mg/kg bodyweight
ATE CLP (gases)	4500 ppmv/4h
ATE CLP (vapours)	1.5 mg/l/4h
ATE CLP (dust,mist)	1.5 mg/l/4h

4-Carvomenthenol (562-74-3)	
LD50 oral rat	1300 mg/kg
LD50 oral	1300 mg/kg
LD50 dermal rabbit	> 2500 mg/kg
LC50 Inhalation - Rat	> 1.11 mg/l air Animal: rat, Guideline: OECD Guideline 436 (Acute Inhalation Toxicity: Acute Toxic Class Method)
ATE CLP (oral)	1300 mg/kg bodyweight
ATE CLP (dermal)	2500 mg/kg bodyweight
ATE CLP (gases)	4500 ppmv/4h
ATE CLP (vapours)	11 mg/l/4h

4-Carvomenthenol (562-74-3)	
ATE CLP (dust,mist)	1.5 mg/l/4h

dl-Citronellol (106-22-9)	
LD50 oral rat	3450 mg/kg Source: National Library of Medicine
LD50 oral	3450 mg/kg bodyweight
LD50 dermal rabbit	2650 mg/kg Source: National Library of Medicine
LD50 dermal	2650 mg/kg bodyweight
ATE CLP (oral)	3450 mg/kg bodyweight
ATE CLP (dermal)	2650 mg/kg bodyweight

Geraniol (106-24-1)	
LD50 oral rat	3600 mg/kg bodyweight Animal: rat, 95% CL: 2840 - 4570
LD50 oral	3600 mg/kg bodyweight
LD50 dermal rabbit	> 5000 mg/kg bodyweight Animal: rabbit
ATE CLP (oral)	3600 mg/kg bodyweight

Carvone (99-49-0)	
LD50 oral rat	1640 mg/kg Source: NLM;ChemIDPlus
LD50 oral	2500 mg/kg bodyweight
LD50 dermal	3800 mg/kg bodyweight

Skin corrosion/irritation : Causes skin irritation.

4-Carvomenthenol (562-74-3)	
pH	6.8 – 7.1 Temp.: 20 °C

Serious eye damage/irritation : Causes serious eye irritation.

4-Carvomenthenol (562-74-3)	
pH	6.8 – 7.1 Temp.: 20 °C

Respiratory or skin sensitisation : May cause an allergic skin reaction.
Germ cell mutagenicity : Not classified
Additional information : Based on available data, the classification criteria are not met
Carcinogenicity : Not classified
Additional information : Based on available data, the classification criteria are not met

Limonene (5989-27-5/138-86-3/5989-54-8)	
IARC group	3 - Not classifiable

Myrcene (123-35-3)	
IARC group	2B - Possibly carcinogenic to humans

Geraniol (106-24-1)	
NOAEL (chronic, oral, animal/male, 2 years)	60 mg/kg bodyweight Animal: mouse, Animal sex: male, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies), Remarks on results: other:Effect type: toxicity (migrated information)

Reproductive toxicity : Not classified
Additional information : Based on available data, the classification criteria are not met

Limonene (5989-27-5/138-86-3/5989-54-8)	
NOAEL (animal/female, F0/P)	600 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: other:

Terpinolene (586-62-9)	
NOAEL (animal/male, F0/P)	294.6 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
NOAEL (animal/female, F0/P)	161.5 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

p-Mentha-1,4-diene (99-85-4)	
NOAEL (animal/male, F1)	250 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
NOAEL (animal/female, F1)	100 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

STOT-single exposure : Not classified
Additional information : Based on available data, the classification criteria are not met

1,7,7-Trimethylbicyclo[2.2.1]heptan-2-one (76-22-2)	
STOT-single exposure	May cause damage to organs.

4-Carvomenthenol (562-74-3)	
STOT-single exposure	May cause drowsiness or dizziness.

STOT-repeated exposure : Not classified
Additional information : Based on available data, the classification criteria are not met

Myrcene (123-35-3)	
LOAEL (oral, rat, 90 days)	250 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
NOAEL (subchronic, oral, animal/male, 90 days)	500 mg/kg bodyweight Animal: mouse, Animal sex: male, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
NOAEL (subchronic, oral, animal/female, 90 days)	250 mg/kg bodyweight Animal: mouse, Animal sex: female, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)

alpha-Terpineol (98-55-5)	
NOAEL (oral, rat, 90 days)	≥ 314 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)

Linalool (78-70-6)	
NOAEL (dermal, rat/rabbit, 90 days)	250 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 411 (Subchronic Dermal Toxicity: 90-Day Study)

Geranyl acetate (105-87-3)	
NOAEL (oral, rat, 90 days)	2000 mg/kg bodyweight Animal: rat, Guideline: other:Specifications for the Conduct of Studies to Evaluate the Toxic and Carcinogenic Potential of Chemical, Biological, and Physical Agents in Laboratory Animals for the National Toxicology Program (NTP)

1,7,7-Trimethylbicyclo[2.2.1]heptan-2-one (76-22-2)	
NOAEL (oral, rat, 90 days)	3.2 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)
NOAEL (dermal, rat/rabbit, 90 days)	250 mg/kg bodyweight Animal: rat, Guideline: other:Food and Drug Administration (FDA) Good Laboratory Practice Regulations for Nonclinical Studies (GLP Guidelines)

dl-Citronellol (106-22-9)	
NOAEL (oral, rat, 90 days)	2000 mg/kg bodyweight Animal: rat, Guideline: other:

dl-Citronellol (106-22-9)	
NOAEC (inhalation, rat, dust/mist/fume, 90 days)	0.063 mg/l air Animal: rat, Guideline: OECD Guideline 412 (Subacute Inhalation Toxicity: 28-Day Study)

Geraniol (106-24-1)	
NOAEL (dermal, rat/rabbit, 90 days)	300 mg/kg bodyweight Animal: rat, Guideline: other:OECD Guideline 421 (Reproduction/Developmental Toxicity Screening test), Guideline: other:EPA OPPTS 870.3550 (Reproduction/Developmental Toxicity Screening Test)

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

PINE EO SIBERIA (8021-29-2)	
Viscosity, kinematic	< 20.5 mm²/s

Linalool (78-70-6)	
Viscosity, kinematic	5.192 mm²/s

dl-Citronellol (106-22-9)	
Viscosity, kinematic	12.984 mm²/s

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

No additional information available

11.2.2. Other information

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

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Toxic to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short–term (acute) : Not classified
Hazardous to the aquatic environment, long–term (chronic) : Toxic to aquatic life with long lasting effects.

PINE EO SIBERIA (8021-29-2)	
LC50 - Fish [1]	5.6 mg/l
EC50 - Crustacea [1]	2.7 mg/l
ErC50 algae	4 mg/l

Camphene (79-92-5)	
LC50 - Fish [1]	0.72 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	0.72 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	1.75 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 96h - Algae [1]	214 mg/l Source: ECOTOX

alpha-Pinene (80-56-8)	
LC50 - Fish [1]	0.28 mg/l Source: International Uniform ChemicaL Information Database
EC50 - Crustacea [1]	0.475 mg/l Test organisms (species): Daphnia magna

delta-3-Carene (13466-78-9)	
LC50 - Fish [1]	0.53 mg/l Source: ECOSAR
EC50 96h - Algae [1]	0.648 mg/l Source: ECOSAR
Limonene (5989-27-5/138-86-3/5989-54-8)	
LC50 - Fish [1]	0.7 mg/l Source: The ECOTOXicology database
LC50 - Fish [2]	702 µg/l Test organisms (species): Pimephales promelas
EC50 - Crustacea [1]	0.307 mg/l Source: ECHA Registered substances
EC50 - Crustacea [2]	0.51 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	0.32 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	0.214 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
beta-Pinene (127-91-3)	
LC50 - Fish [1]	0.624 mg/l Source: ECOSAR
Terpinolene (586-62-9)	
LC50 - Fish [1]	0.805 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	0.634 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	0.692 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	0.302 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
Myrcene (123-35-3)	
LC50 - Fish [1]	0.92 mg/l Source: NITE
EC50 - Crustacea [1]	1.47 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	0.342 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	0.31 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
Borneol (507-70-0)	
LC50 - Fish [1]	25.683 mg/l Source: Ecological Structure Activity Relationships
EC50 96h - Algae [1]	18.775 mg/l Source: Ecological Structure Activity Relationships
beta-Caryophyllene (87-44-5)	
EC50 - Crustacea [1]	> 0.17 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 0.033 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)
p-Mentha-1,3-diene (99-86-5)	
LC50 - Fish [1]	0.263 mg/l Source: Ecological Structure Activity Relationships
EC50 96h - Algae [1]	0.249 mg/l Source: Ecological Structure Activity Relationships
alpha-Terpineol (98-55-5)	
LC50 - Fish [1]	70 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	73 mg/l Test organisms (species): Daphnia magna

alpha-Terpineol (98-55-5)	
EC50 72h - Algae [1]	≈ 68 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	≈ 17 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)

p-Mentha-1,4-diene (99-85-4)	
LC50 - Fish [1]	0.263 mg/l Source: Ecological Structure Activity Relationships
EC50 - Crustacea [1]	10189 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 10.82 mg/l Test organisms (species): Scenedesmus capricornutum
EC50 96h - Algae [1]	0.249 mg/l Source: Ecological Structure Activity Relationships

Linalool (78-70-6)	
LC50 - Fish [1]	27.8 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 - Crustacea [1]	59 mg/l Test organisms (species): Daphnia magna
EC50 96h - Algae [1]	88.3 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
EC50 96h - Algae [2]	156.7 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)

Geranyl acetate (105-87-3)	
LC50 - Fish [1]	68.12 mg/l Test organisms (species): Leuciscus idus
EC50 - Crustacea [1]	14.1 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	3.72 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)

p-Cymene (99-87-6)	
LC50 - Fish [1]	48 mg/l Source: ECOTOX
EC50 - Crustacea [1]	3.7 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	4.03 mg/l Test organisms (species): Scenedesmus capricornutum
EC50 72h - Algae [2]	2.01 mg/l Test organisms (species): Scenedesmus capricornutum
EC50 96h - Algae [1]	22 mg/l Source: The ECOTOXicology database

alpha-Phellandrene (99-83-2)	
LC50 - Fish [1]	0.521 mg/l Source: Ecological Structure Activity Relationships
EC50 96h - Algae [1]	0.64 mg/l Source: Ecological Structure Activity Relationships

1,7,7-Trimethylbicyclo[2.2.1]heptan-2-one (76-22-2)	
LC50 - Fish [1]	35 – 50 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
LC50 - Fish [2]	110 mg/l Test organisms (species): Pimephales promelas
EC50 - Crustacea [1]	4.23 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	0.3 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	1.71 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 96h - Algae [1]	6.951 mg/l Test organisms (species):

4-Carvomenthenol (562-74-3)	
LC50 - Fish [1]	8.004 mg/l Source: EPI SUITE
EC50 - Other aquatic organisms [1]	26.6 mg/l Test organisms (species):
EC50 96h - Algae [1]	4.651 mg/l Source: EPI SUITE

dl-Citronellol (106-22-9)	
LC50 - Fish [1]	3.958 mg/l Source: Ecological Structure Activity Relationships
EC50 - Crustacea [1]	17.48 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	2.4 mg/l Test organisms (species):
EC50 96h - Algae [1]	3.231 mg/l Source: Ecological Structure Activity Relationships

Geraniol (106-24-1)	
LC50 - Fish [1]	≈ 22 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	10.8 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	13.1 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)

Carvone (99-49-0)	
LC50 - Fish [1]	14.388 mg/l Source: EPISUITE
EC50 96h - Algae [1]	6.319 mg/l Source: EPISUITE

12.2. Persistence and degradability

PINE EO SIBERIA (8021-29-2)	
Persistence and degradability	May cause long-term adverse effects in the environment.

Camphene (79-92-5)	
Persistence and degradability	Rapidly degradable

alpha-Pinene (80-56-8)	
Persistence and degradability	Rapidly degradable

delta-3-Carene (13466-78-9)	
Persistence and degradability	Rapidly degradable

Limonene (5989-27-5/138-86-3/5989-54-8)	
Persistence and degradability	Rapidly degradable

beta-Phellandrene (555-10-2)	
Persistence and degradability	Rapidly degradable

beta-Pinene (127-91-3)	
Persistence and degradability	Rapidly degradable

santene (529-16-8)	
Persistence and degradability	Rapidly degradable

Terpinolene (586-62-9)	
Persistence and degradability	Rapidly degradable

Myrcene (123-35-3)	
Persistence and degradability	Rapidly degradable
Borneol (507-70-0)	
Persistence and degradability	Rapidly degradable
beta-Caryophyllene (87-44-5)	
Persistence and degradability	Rapidly degradable
alpha-fenchene (471-84-1)	
Persistence and degradability	Rapidly degradable
p-Mentha-1,3-diene (99-86-5)	
Persistence and degradability	Rapidly degradable
alpha-Terpineol (98-55-5)	
Persistence and degradability	Rapidly degradable
alpha-Cedrene (469-61-4)	
Persistence and degradability	Rapidly degradable
p-Mentha-1,4-diene (99-85-4)	
Persistence and degradability	Rapidly degradable
Linalool (78-70-6)	
Persistence and degradability	Rapidly degradable
Geranyl acetate (105-87-3)	
Persistence and degradability	Rapidly degradable
p-Cymene (99-87-6)	
Persistence and degradability	Rapidly degradable
alpha-Phellandrene (99-83-2)	
Persistence and degradability	Rapidly degradable
1,7,7-Trimethylbicyclo[2.2.1]heptan-2-one (76-22-2)	
Persistence and degradability	Rapidly degradable
4-Carvomenthenol (562-74-3)	
Persistence and degradability	Rapidly degradable
dl-Citronellol (106-22-9)	
Persistence and degradability	Rapidly degradable
Geraniol (106-24-1)	
Persistence and degradability	Rapidly degradable
Carvone (99-49-0)	
Persistence and degradability	Rapidly degradable

12.3. Bioaccumulative potential

PINE EO SIBERIA (8021-29-2)	
Bioaccumulative potential	Not established.
Camphene (79-92-5)	
Partition coefficient n-octanol/water (Log Pow)	4.1 Source: ICSC
alpha-Pinene (80-56-8)	
Partition coefficient n-octanol/water (Log Pow)	4.834 Source: International Uniform ChemicaL Information Database
delta-3-Carene (13466-78-9)	
Partition coefficient n-octanol/water (Log Pow)	4.38 Source: NLM;ChemIDplus
Limonene (5989-27-5/138-86-3/5989-54-8)	
Partition coefficient n-octanol/water (Log Pow)	4.38 Source: ECHA Registered substances
beta-Pinene (127-91-3)	
Partition coefficient n-octanol/water (Log Pow)	4.16
Terpinolene (586-62-9)	
Partition coefficient n-octanol/water (Log Pow)	4.47 Source: National Library of Medicine/Hazardous Substances Data Bank
Myrcene (123-35-3)	
Partition coefficient n-octanol/water (Log Pow)	4.17
Borneol (507-70-0)	
Partition coefficient n-octanol/water (Log Pow)	2.69 Source: National Institute of Technology and Evaluation
p-Mentha-1,3-diene (99-86-5)	
Partition coefficient n-octanol/water (Log Pow)	4.25 Source: ChemIDplus
alpha-Terpineol (98-55-5)	
Partition coefficient n-octanol/water (Log Pow)	2.98 Source: HSDB
p-Mentha-1,4-diene (99-85-4)	
Partition coefficient n-octanol/water (Log Pow)	4.5 Source: NLM
Linalool (78-70-6)	
Partition coefficient n-octanol/water (Log Pow)	2.97 Source: International Chemical Safety Cards
p-Cymene (99-87-6)	
Partition coefficient n-octanol/water (Log Pow)	4.1 Source: International Chemical Safety Cards
alpha-Phellandrene (99-83-2)	
Partition coefficient n-octanol/water (Log Pow)	4.62 Source: Quantitative Structure Activity Relation
1,7,7-Trimethylbicyclo[2.2.1]heptan-2-one (76-22-2)	
Partition coefficient n-octanol/water (Log Pow)	2.38 Source: HSDB
4-Carvomenthenol (562-74-3)	
Partition coefficient n-octanol/water (Log Pow)	3.26 Source: NLM;ChemIDPlus
dl-Citronellol (106-22-9)	
Partition coefficient n-octanol/water (Log Pow)	3.91 Source: National Library of Medicine

Geraniol (106-24-1)	
Partition coefficient n-octanol/water (Log Pow)	3.56

Carvone (99-49-0)	
Partition coefficient n-octanol/water (Log Pow)	3.07 Source: NLM;ChemIDPlus

12.4. Mobility in soil

alpha-Pinene (80-56-8)	
Mobility in soil	2600 Source: HSDB

delta-3-Carene (13466-78-9)	
Mobility in soil	6324 Source: EPISUITE

alpha-Terpineol (98-55-5)	
Mobility in soil	1000 Source: HSDB

Linalool (78-70-6)	
Mobility in soil	76 Source: HSDB

alpha-Phellandrene (99-83-2)	
Mobility in soil	10220 Source: EPI Suite

4-Carvomenthenol (562-74-3)	
Mobility in soil	207.4 Source: EPI SUITE

dl-Citronellol (106-22-9)	
Mobility in soil	70.79 Source: Quantitative Structure Activity Relation

Carvone (99-49-0)	
Mobility in soil	136.2 Source: EPISUITE

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

Additional information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional waste regulation : Disposal must be done according to official regulations.

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Additional information : Handle empty containers with care because residual vapours are flammable.

Ecological information : Avoid release to the environment. Hazardous waste due to toxicity.

SECTION 14: Transport information

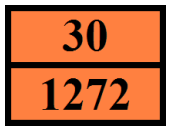
In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 1272	UN 1272	UN 1272	UN 1272	UN 1272
14.2. UN proper shipping name				
PINE OIL	PINE OIL	Pine oil	PINE OIL	PINE OIL
Transport document description				
UN 1272 PINE OIL, 3, III, (D/E), ENVIRONMENTALLY HAZARDOUS	UN 1272 PINE OIL, 3, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS (57°C c.c.)	UN 1272 Pine oil, 3, III, ENVIRONMENTALLY HAZARDOUS	UN 1272 PINE OIL, 3, III, ENVIRONMENTALLY HAZARDOUS	UN 1272 PINE OIL, 3, III, ENVIRONMENTALLY HAZARDOUS
14.3. Transport hazard class(es)				
3	3	3	3	3
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR) : F1
Limited quantities (ADR) : 5l
Excepted quantities (ADR) : E1
Packing instructions (ADR) : P001, IBC03, LP01, R001
Mixed packing provisions (ADR) : MP19
Portable tank and bulk container instructions (ADR) : T2
Portable tank and bulk container special provisions (ADR) : TP1
Tank code (ADR) : LGBF
Vehicle for tank carriage : FL
Transport category (ADR) : 3
Special provisions for carriage - Packages (ADR) : V12
Special provisions for carriage - Operation (ADR) : S2
Hazard identification number (Kemler No.) : 30
Orange plates :



Tunnel restriction code (ADR) : D/E
EAC code : 3Y

Transport by sea

Limited quantities (IMDG) : 5 L
Excepted quantities (IMDG) : E1
Packing instructions (IMDG) : P001, LP01

IBC packing instructions (IMDG)	:	IBC03
Tank instructions (IMDG)	:	T2
Tank special provisions (IMDG)	:	TP2
EmS-No. (Fire)	:	F-E
EmS-No. (Spillage)	:	S-E
Stowage category (IMDG)	:	A
Flash point (IMDG)	:	57°C to 60°C c.c.
Properties and observations (IMDG)	:	Volatile oils with characteristic odours. Flashpoint: 57°C to 60°C c.c. Immiscible with water.
MFAG-No	:	129

Air transport

PCA Excepted quantities (IATA)	:	E1
PCA Limited quantities (IATA)	:	Y344
PCA limited quantity max net quantity (IATA)	:	10L
PCA packing instructions (IATA)	:	355
PCA max net quantity (IATA)	:	60L
CAO packing instructions (IATA)	:	366
CAO max net quantity (IATA)	:	220L
ERG code (IATA)	:	3L

Inland waterway transport

Classification code (ADN)	:	F1
Limited quantities (ADN)	:	5 L
Excepted quantities (ADN)	:	E1
Equipment required (ADN)	:	PP, EX, A
Ventilation (ADN)	:	VE01
Number of blue cones/lights (ADN)	:	0

Rail transport

Classification code (RID)	:	F1
Limited quantities (RID)	:	5L
Excepted quantities (RID)	:	E1
Packing instructions (RID)	:	P001, IBC03, LP01, R001
Mixed packing provisions (RID)	:	MP19
Portable tank and bulk container instructions (RID)	:	T2
Portable tank and bulk container special provisions (RID)	:	TP1
Tank codes for RID tanks (RID)	:	LGBF
Transport category (RID)	:	3
Special provisions for carriage – Packages (RID)	:	W12
Colis express (express parcels) (RID)	:	CE4
Hazard identification number (RID)	:	30

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

Not listed on REACH Annex XVII

REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Not listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Not listed on the PIC list (Regulation EU 649/2012)

POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

Ozone Regulation (1005/2009)

Not listed on the Ozone Depletion list (Regulation EU 1005/2009)

Dual-Use Regulation (428/2009)

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

Explosives Precursors Regulation (2019/1148)

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

Drug Precursors Regulation (273/2004)

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

15.1.2. National regulations

Germany

Water hazard class (WGK)	:	Not classified according to Regulation Governing Systems for Handling Substances Hazardous to Waters (AwSV).
Hazardous Incident Ordinance (12. BImSchV)	:	Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

SZW-lijst van kankerverwekkende stoffen	:	Fir, Abies sibirica, ext. is listed
SZW-lijst van mutagene stoffen	:	The substance is not listed
SZW-lijst van reprotoxische stoffen – Borstvoeding	:	The substance is not listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid	:	The substance is not listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling	:	The substance is not listed

Denmark

Class for fire hazard	:	Class II-1
Store unit	:	5 liter
Classification remarks	:	R10 <H226;H304;H315;H317;H319;H411>; Emergency management guidelines for the storage of flammable liquids must be followed
Danish National Regulations	:	Young people below the age of 18 years are not allowed to use the product Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes

Section	Changed item	Change	Comments
	Revision date	Modified	
	Supersedes	Modified	
3	Composition/information on ingredients	Modified	

Data sources	:	REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.
Other information	:	None.

Full text of H- and EUH-statements:	
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
Asp. Tox. 1	Aspiration hazard, Category 1
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Flam. Sol. 1	Flammable solids, Category 1
Flam. Sol. 2	Flammable solids, Category 2
H226	Flammable liquid and vapour.
H228	Flammable solid.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H336	May cause drowsiness or dizziness.
H361	Suspected of damaging fertility or the unborn child.
H371	May cause damage to organs.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
Repr. 2	Reproductive toxicity, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
Skin Sens. 1B	Skin sensitisation, category 1B
STOT SE 2	Specific target organ toxicity – Single exposure, Category 2
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Narcosis

Safety Data Sheet (SDS), EU

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