Safety Data Sheet

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

0000 2234 Juniperberry oil

Version number: V 1.0 Date of compilation: 2018-10-29

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

1.1 Product identifier

Trade name	**Juniperberry oil**
Registration number (REACH)	not relevant (mixture)
Article number	0000 2234

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

Relevant identified uses	Professional use
Uses advised against	The product is not intended for consumer use.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Section	Hazard class	Hazard class and category	Hazard statement
2.6	flammable liquid	Flam. Liq. 3	H226
3.1O	acute toxicity (oral)	Acute Tox. 4	H302
3.2	skin corrosion/irritation	Skin Irrit. 2	H315
3.3	serious eye damage/eye irritation	Eye Irrit. 2	H319
3.4S	skin sensitisation	Skin Sens. 1	H317
3.10	aspiration hazard	Asp. Tox. 1	H304
4.1A	hazardous to the aquatic environment - acute hazard	Aquatic Acute 1	H400
4.1C	hazardous to the aquatic environment - chronic hazard	Aquatic Chronic 1	H410

For full text of abbreviations: see SECTION 16.

2.2 Label elements

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

- Signal word danger

- Pictograms

GHS02, GHS07,
GHS08, GHS09

- Hazard statements

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H410	Very toxic to aquatic life with long lasting effects.

- Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P331	Do NOT induce vomiting.
P370+P378	In case of fire: Use sand, carbon dioxide or powder extinguisher to extinguish.
P403+P235	Store in a well-ventilated place. Keep cool.

- Hazardous ingredients for labelling: alpha-Pinene, beta-Pinene, pin-2(3)-ene, beta-Caryophyllene, dl-Limonene, Terpinolene, delta-3-Carene

2.3 Other hazards

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not relevant (mixture)

3.2 Mixtures

Description of the mixture

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms
alpha-Pinene	CAS No 80-56-8 EC No 201-291-9 REACH Reg. No 01-2119519223-49-xxxx	25 – < 50	Flam. Liq. 3 / H226 Acute Tox. 4 / H302 Skin Irrit. 2 / H315 Skin Sens. 1 / H317 Asp. Tox. 1 / H304 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410	
beta-Pinene	CAS No 127-91-3 18172-67-3 EC No 204-872-5 242-060-2 REACH Reg. No 01-2119519230-54-xxxx	5 – < 10	Flam. Liq. 3 / H226 Skin Irrit. 2 / H315 Skin Sens. 1B / H317 Asp. Tox. 1 / H304 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410	

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms
Myrcene	CAS No 123-35-3 EC No 204-622-5 REACH Reg. No 01-2119514321-56-xxxx	5 – < 10	Flam. Liq. 3 / H226 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Asp. Tox. 1 / H304 Aquatic Acute 1 / H400 Aquatic Chronic 2 / H411	
pin-2(3)-ene	CAS No 80-56-8 EC No 201-291-9	5 – < 10	Flam. Liq. 3 / H226 Acute Tox. 4 / H312 Skin Irrit. 2 / H315 Skin Sens. 1 / H317 Asp. Tox. 1 / H304	
Sabinene	CAS No 3387-41-5 EC No 222-212-4	5 – < 10	Flam. Liq. 3 / H226 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 STOT SE 3 / H335	
beta-Caryophyllene	CAS No 87-44-5 EC No 201-746-1	1 – < 5	Skin Sens. 1B / H317 Asp. Tox. 1 / H304	
dl-Limonene	CAS No 138-86-3 EC No 205-341-0 Index No 601-029-00-7	1 – < 5	Flam. Liq. 3 / H226 Skin Irrit. 2 / H315 Skin Sens. 1 / H317 Asp. Tox. 1 / H304 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410	
α-Humulene	CAS No 6753-98-6 EC No 229-816-7	1 – < 5	Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 STOT SE 3 / H335	
p-menth-1-en-4-ol	CAS No 562-74-3 EC No 209-235-5	1 – < 5	Acute Tox. 4 / H302 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319	
p-Cymenene	CAS No 1195-32-0 EC No 214-795-9	1 – < 5	Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 STOT SE 3 / H335	
Germacrene D	CAS No 37839-63-7 EC No 817-191-9	1 – < 5	Asp. Tox. 1 / H304	
gamma-Terpinene	CAS No 99-85-4 EC No 202-794-6	1 – < 5	Flam. Liq. 3 / H226 Asp. Tox. 1 / H304	

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms
delta-3-Caren	CAS No 13466-78-9 EC No 236-719-3 REACH Reg. No 01-2119520252-55-xxxx	1 – < 5	Flam. Liq. 3 / H226 Skin Irrit. 2 / H315 Skin Sens. 1 / H317 Asp. Tox. 1 / H304 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410	
Terpinolene	CAS No 586-62-9 EC No 209-578-0 REACH Reg. No 01-2119982325-32-xxxx	< 1	Flam. Liq. 3 / H226 Skin Sens. 1B / H317 Asp. Tox. 1 / H304 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410	
Camphene	CAS No 79-92-5 EC No 201-234-8 REACH Reg. No 01-2119446293-40-xxxx	< 1	Flam. Sol. 2 / H228 Eye Irrit. 2 / H319 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410	

For full text of abbreviations: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. Provide fresh air.

Following skin contact

Wash with plenty of soap and water.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water spray, BC-powder, Carbon dioxide (CO2)

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

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

Hazardous combustion products

Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO2)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

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

Advices on how to contain a spill

Covering of drains

Advices on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: sawdust, kieselgur (diatomite), sand, universal binder

Appropriate containment techniques

Use of adsorbent materials.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

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

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Avoidance of ignition sources. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharge. Use only in well-ventilated areas. Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools.

- Specific notes/details

Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures. Vapours are heavier than air, spread along floors and form explosive mixtures with air. Vapours may form explosive mixtures with air.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

- Explosive atmospheres

Keep container tightly closed and in a well-ventilated place. Use local and general ventilation. Keep cool. Protect from sunlight.

- Flammability hazards

Keep away from sources of ignition - No smoking. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Protect from sunlight.

- Ventilation requirements

Use local and general ventilation. Ground/bond container and receiving equipment.

- Packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s)

See section 16 for a general overview.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Ceiling-C [ppm]	Ceiling-C [mg/m³]	Notation	Source
UK	hydrocarbon mixture (RCP method)		WEL		800		1,600				EH40/2005
GB	cycloalkanes, >C7	80-56-8	WEL		800						EH40/2005

Notation

Ceiling-C ceiling value is a limit value above which exposure should not occur

STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

Notation

TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs of components of the mixture

Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
alpha-Pinene	80-56-8	DNEL	3.8 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
alpha-Pinene	80-56-8	DNEL	0.54 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
beta-Pinene	127-91-3 18172-67-3	DNEL	5.69 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
beta-Pinene	127-91-3 18172-67-3	DNEL	0.8 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
beta-Pinene	127-91-3 18172-67-3	DNEL	54 µg/cm²	human, dermal	worker (industry)	chronic - local effects
delta-3-Carene	13466-78-9	DNEL	5.69 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
delta-3-Carene	13466-78-9	DNEL	0.8 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Terpinolene	586-62-9	DNEL	3.6 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Terpinolene	586-62-9	DNEL	0.52 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Terpinolene	586-62-9	DNEL	44 µg/cm²	human, dermal	worker (industry)	chronic - local effects
Camphene	79-92-5	DNEL	110.2 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Camphene	79-92-5	DNEL	110.2 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
Camphene	79-92-5	DNEL	0.21 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Camphene	79-92-5	DNEL	1.25 mg/kg bw/day	human, dermal	worker (industry)	acute - systemic effects

Relevant PNECs of components of the mixture

Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
alpha-Pinene	80-56-8	PNEC	0.606 µg/l	aquatic organisms	freshwater	short-term (single instance)
alpha-Pinene	80-56-8	PNEC	0.061 µg/l	aquatic organisms	marine water	short-term (single instance)
alpha-Pinene	80-56-8	PNEC	0.2 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
alpha-Pinene	80-56-8	PNEC	157 µg/kg	aquatic organisms	freshwater sediment	short-term (single instance)

Relevant PNECs of components of the mixture

Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
alpha-Pinene	80-56-8	PNEC	15.7 µg/kg	aquatic organisms	marine sediment	short-term (single instance)
alpha-Pinene	80-56-8	PNEC	31.7 µg/kg	terrestrial organisms	soil	short-term (single instance)
beta-Pinene	127-91-3 18172-67-3	PNEC	1.004 µg/l	aquatic organisms	freshwater	short-term (single instance)
beta-Pinene	127-91-3 18172-67-3	PNEC	0.1 µg/l	aquatic organisms	marine water	short-term (single instance)
beta-Pinene	127-91-3 18172-67-3	PNEC	3.26 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
beta-Pinene	127-91-3 18172-67-3	PNEC	0.337 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
beta-Pinene	127-91-3 18172-67-3	PNEC	0.034 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
beta-Pinene	127-91-3 18172-67-3	PNEC	0.067 mg/kg	terrestrial organisms	soil	short-term (single instance)
delta-3-Carene	13466-78-9	PNEC	0.44 µg/l	aquatic organisms	freshwater	short-term (single instance)
delta-3-Carene	13466-78-9	PNEC	0.044 µg/l	aquatic organisms	marine water	short-term (single instance)
delta-3-Carene	13466-78-9	PNEC	3.26 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
delta-3-Carene	13466-78-9	PNEC	104 µg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
delta-3-Carene	13466-78-9	PNEC	10.4 µg/kg	aquatic organisms	marine sediment	short-term (single instance)
delta-3-Carene	13466-78-9	PNEC	20.8 µg/kg	terrestrial organisms	soil	short-term (single instance)
Terpinolene	586-62-9	PNEC	0.634 µg/l	aquatic organisms	freshwater	short-term (single instance)
Terpinolene	586-62-9	PNEC	0.063 µg/l	aquatic organisms	marine water	short-term (single instance)
Terpinolene	586-62-9	PNEC	0.2 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Terpinolene	586-62-9	PNEC	147 µg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Terpinolene	586-62-9	PNEC	14.7 µg/kg	aquatic organisms	marine sediment	short-term (single instance)
Terpinolene	586-62-9	PNEC	29.1 µg/kg	terrestrial organisms	soil	short-term (single instance)
Camphene	79-92-5	PNEC	0.001 mg/l	aquatic organisms	freshwater	short-term (single instance)
Camphene	79-92-5	PNEC	0 mg/l	aquatic organisms	marine water	short-term (single instance)
Camphene	79-92-5	PNEC	10 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)

Relevant PNECs of components of the mixture

Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
Camphene	79-92-5	PNEC	0.026 $^{mg}/_{kg}$	aquatic organisms	freshwater sediment	short-term (single instance)
Camphene	79-92-5	PNEC	0.003 $^{mg}/_{kg}$	aquatic organisms	marine sediment	short-term (single instance)
Camphene	79-92-5	PNEC	0.021 $^{mg}/_{kg}$	terrestrial organisms	soil	short-term (single instance)

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- Hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well. 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.

- Type of material

NBR: acrylonitrile-butadiene rubber

- Material thickness

> 0.7 mm

- Breakthrough times of the glove material

>10 minutes (permeation: level 1)

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.
Filtering half mask (EN 149). Type: A (against organic gases and vapours with a boiling point of > 65 °C , colour code: Brown).

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	liquid
Colour	yellow
Odour	characteristic

Other safety parameters

pH (value)	not determined
Melting point/freezing point	not determined
Initial boiling point and boiling range	not determined
Flash point	37 °C
Evaporation rate	not determined
Flammability (solid, gas)	not relevant, (fluid)
Explosive limits	not determined
Vapour pressure	not determined
Density	0.86 $^{g}/_{cm^3}$
Vapour density	this information is not available
Solubility(ies)	not determined

Partition coefficient

- n-octanol/water (log KOW)	this information is not available

Auto-ignition temperature	not determined
Viscosity	not determined
Explosive properties	none
Oxidising properties	none

9.2 Other information

There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials". The mixture contains reactive substance(s). Risk of ignition.

If heated:

Risk of ignition

10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

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

Hints to prevent fire or explosion

Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Take precautionary measures against static discharge.

10.5 Incompatible materials

Oxidisers

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

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

Acute toxicity

Harmful if swallowed.

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

- Acute toxicity estimate (ATE)

Oral 1,162 $^{mg}/_{kg}$

Acute toxicity estimate (ATE) of components of the mixture

Name of substance	CAS No	Exposure route	ATE
alpha-Pinene	80-56-8	oral	500 $^{mg}/_{kg}$
pin-2(3)-ene	80-56-8	dermal	2,000 $^{mg}/_{kg}$
p-menth-1-en-4-ol	562-74-3	oral	500 $^{mg}/_{kg}$

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

May cause an allergic skin reaction.

Germ cell mutagenicity

The classification criteria for this hazard class are not met.

Carcinogenicity

The classification criteria for this hazard class are not met.

Reproductive toxicity

The classification criteria for this hazard class are not met.

Specific target organ toxicity - single exposure

The classification criteria for this hazard class are not met.

Specific target organ toxicity - repeated exposure

The classification criteria for this hazard class are not met.

Aspiration hazard

May be fatal if swallowed and enters airways.

SECTION 12: Ecological information

12.1 Toxicity

Very toxic to aquatic life with long lasting effects.

Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
alpha-Pinene	80-56-8	LC50	0.303 $^{mg}/_{l}$	fish	96 h
alpha-Pinene	80-56-8	EC50	0.475 $^{mg}/_{l}$	aquatic invertebrates	48 h
Myrcene	123-35-3	EC50	1.47 $^{mg}/_{l}$	aquatic invertebrates	48 h
Myrcene	123-35-3	ErC50	0.342 $^{mg}/_{l}$	algae	72 h
delta-3-Carene	13466-78-9	LC50	0.32 $^{mg}/_{l}$	fish	96 h
delta-3-Carene	13466-78-9	EC50	0.8 $^{mg}/_{l}$	aquatic invertebrates	48 h
delta-3-Carene	13466-78-9	ErC50	1.2 $^{mg}/_{l}$	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
Camphene	79-92-5	LC50	0.72 $^{mg}/_{l}$	fish	96 h
Camphene	79-92-5	EC50	0.96 $^{mg}/_{l}$	aquatic invertebrates	24 h
Camphene	79-92-5	ErC50	>1,000 $^{mg}/_{l}$	algae	72 h

Aquatic toxicity (chronic) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
beta-Pinene	127-91-3 18172-67-3	EC50	326 $^{mg}/_{l}$	microorganisms	3 h
delta-3-Carene	13466-78-9	EC50	326 $^{mg}/_{l}$	microorganisms	3 h
Terpinolene	586-62-9	EC50	69 $^{mg}/_{l}$	microorganisms	3 h
Camphene	79-92-5	EC50	>1,000 $^{mg}/_{l}$	microorganisms	3 h

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

Bioaccumulative potential of components of the mixture

Name of substance	CAS No	BCF	Log KOW	BOD5/COD
beta-Pinene	127-91-3 18172-67-3		4.425 (25 °C)	
Myrcene	123-35-3		4.82 (pH value: ~6.5, 30 °C)	
beta-Caryophyllene	87-44-5		6.23 (pH value: 7, 25 °C)	
delta-3-Carene	13466-78-9		4.38 (pH value: 7.2, 37 °C)	
Camphene	79-92-5		4.22 (pH value: 7.2, 37 °C)	

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Other adverse effects

Endocrine disrupting potential

None of the ingredients are listed.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste treatment-relevant information

Solvent reclamation/regeneration.

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings

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

Relevant provisions relating to waste

Decision 2000/532/EC on the list of waste

Product, Product residues: 07 06 99 wastes not otherwise specified
Packagings: 15 01 10x Packaging containing residues of or contaminated by dangerous substances.
Completely emptied packages can be recycled.

Remarks

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

SECTION 14: Transport information

14.1	**UN number**	1993
14.2	**UN proper shipping name**	FLAMMABLE LIQUID, N.O.S.
	Technical name (hazardous ingredients)	alpha-Pinene, beta-Pinene
14.3	**Transport hazard class(es)**	
	Class	3 (flammable liquids)
14.4	**Packing group**	III (substance presenting low danger)
14.5	**Environmental hazards**	hazardous to the aquatic environment
	Environmentally hazardous substance (aquatic environment)	alpha-Pinene

14.6 Special precautions for user

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

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number	1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S.
Particulars in the transport document	UN1993, FLAMMABLE LIQUID, N.O.S., (contains: alpha-Pinene, beta-Pinene), 3, III, (D/E), environmentally hazardous
Class	3
Classification code	F1
Packing group	III
Danger label(s)	3, fish and tree
Environmental hazards	yes (hazardous to the aquatic environment)
Special provisions (SP)	274, 601
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3

Tunnel restriction code (TRC)	D/E
Hazard identification No	30
Emergency Action Code	3YE

International Maritime Dangerous Goods Code (IMDG)

UN number	1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S.
Particulars in the shipper's declaration	UN1993, FLAMMABLE LIQUID, N.O.S., (contains: alpha-Pinene, beta-Pinene), 3, III, 37°C c.c., MARINE POLLUTANT
Class	3
Marine pollutant	yes (hazardous to the aquatic environment)
Packing group	III
Danger label(s)	3, fish and tree
Special provisions (SP)	223, 274, 955
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
EmS	F-E, S-E
Stowage category	A

International Civil Aviation Organization (ICAO-IATA/DGR)

UN number	1993
Proper shipping name	Flammable liquid, n.o.s.
Particulars in the shipper's declaration	UN1993, Flammable liquid, n.o.s., (contains: alpha-Pinene, beta-Pinene), 3, III
Class	3
Environmental hazards	yes (hazardous to the aquatic environment)
Packing group	III
Danger label(s)	3
Special provisions (SP)	A3
Excepted quantities (EQ)	E1
Limited quantities (LQ)	10 L

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

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

none of the ingredients are 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
E1	environmental hazards (hazardous to the aquatic environment, cat. 1)	100	200	56)
P5c	flammable liquids (cat. 2, 3)	5,000	50,000	51)

Notation
51) flammable liquids, categories 2 or 3 not covered by P5a and P5b
56) hazardous to the Aquatic Environment in category Acute 1 or Chronic 1

National inventories

Country	Inventory	Status
CA	DSL	not all ingredients are listed
CA	NDSL	not all ingredients are listed
EU	REACH Reg.	not all ingredients are listed
US	TSCA	not all ingredients are listed
AU	AICS	not all ingredients are listed
CN	IECSC	not all ingredients are listed
JP	CSCL-ENCS	not 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	not all ingredients are listed
PH	PICCS	not all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed

Legend

AICS	Australian Inventory of Chemical Substances
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
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
NDSL	Non-domestic Substances List (NDSL)
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
Acute Tox.	Acute toxicity
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
Aquatic Acute	Hazardous to the aquatic environment - acute hazard
Aquatic Chronic	Hazardous to the aquatic environment - chronic hazard
Asp. Tox.	Aspiration hazard
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)
Ceiling-C	Ceiling value
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
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)
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
Flam. Liq.	Flammable liquid
Flam. Sol.	Flammable solid
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code

Abbr.	Descriptions of used abbreviations
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
log KOW	n-Octanol/water
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
RCP	Reciprocal calculation procedure
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)
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
Skin Sens.	Skin sensitisation
STEL	Short-term exposure limit
STOT SE	Specific target organ toxicity - single exposure
SVHC	Substance of Very High Concern
TWA	Time-weighted average
vPvB	Very Persistent and very Bioaccumulative
WEL	Workplace exposure limit

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 2015/830/EU.

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties: The classification is based on tested mixture.
Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

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

Code	Text
H226	Flammable liquid and vapour.
H228	Flammable solid.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.

Code	Text
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
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.

Disclaimer

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