NHR ORGANIC OILS
24 CHATHAM PLACE, BRIGHTON, BN1 3TN, UK
+44 (0)1273 746505 info@nhrorganicoils.com www.nhrorganicoils.com

Safety Data Sheet
Organic White Spruce Essential Oil
(Picea glauca)

According to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 Issue date: 12/23/2020

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

1.1. Product identifier

Version: 1.0

Product form	: Substance
Substance name	: White spruce organic essential oil
EC-No.	: 294-419-8
CAS-No.	: 91722-18-8
Product code	: 27993TOC
Type of product	: Essential oil
Product group	: Raw material

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
Function or use category	: Perfuming agent, Cosmetics

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

NHR Organic Oils
24 Chatham Place Brighton
BN 3TN UK
T + 44 (0)1273 746505
info@nhrorganicoils.com

1.4. Emergency telephone number

+44 (0)1273 746505

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
Acute toxicity (oral), Category 4	H302
Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 1	H318
Skin sensitisation, Category 1	H317
Specific target organ toxicity — Single exposure, Category 2	H371
Hazardous to the aquatic environment — Acute Hazard, Category 1	H400
Hazardous to the aquatic environment — Chronic Hazard, Category 1	H410

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Flammable liquid and vapour. May cause damage to organs. Harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Very toxic to aquatic life with long lasting effects.

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS02 GHS05 GHS07 GHS08 GHS09

Signal word (CLP) : Danger

Hazard statements (CLP) : H226 - Flammable liquid and vapour.
H302 - Harmful if swallowed.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H318 - Causes serious eye damage.
H371 - May cause damage to organs.
H410 - Very 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.
P261 - Avoid breathing mist, fume, vapours.
P280 - Wear protective clothing, eye protection, face protection.
P305+P351+P338+P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER, a doctor.
P321 - Specific treatment (see supplemental first aid instruction on this label).
P391 - Collect spillage.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name : White spruce organic essential oil

CAS-No. : 91722-18-8

EC-No. : 294-419-8

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Beta Pinene	(CAS-No.) 127-91-3 (EC-No.) 204-872-5	10 – 50	Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1B, H317
Alpha pinene	(CAS-No.) 80-56-8 (EC-No.) 201-291-9 (REACH-no) 01-2119519223-49	10 – 50	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1, H317 Asp. Tox. 1, H304
Camphene	(CAS-No.) 79-92-5 (EC-No.) 201-234-8	1 – 25	Flam. Sol. 2, H228 Eye Irrit. 2, H319 Aquatic Chronic 1, H410
bornyl acetate	(CAS-No.) 92618-89-8 (EC-No.) 227-101-4	1 – 20	Not classified
Camphor	(CAS-No.) 76-22-2 (EC-No.) 200-945-0	1 – 20	STOT SE 2, H371 Skin Irrit. 2, H315 Flam. Sol. 2, H228 Eye Dam. 1, H318 Aquatic Chronic 2, H411 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332
Limonene	(CAS-No.) 138-86-3 (EC-No.) 227-813-5 (EC Index-No.) 601-029-00-7 (REACH-no) 01-2119529223-47	5 – 20	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Delta 3-carene	(CAS-No.) 13466-78-9 (EC-No.) 236-719-3	1 – 10	Skin Sens. 1, H317 Skin Irrit. 2, H315 Flam. Liq. 3, H226 Asp. Tox. 1, H304 Aquatic Chronic 1, H410 Aquatic Acute 1, H400 Acute Tox. 4 (Inhalation), H332

myrcene beta	(CAS-No.) 123-35-3 (EC-No.) 204-622-5	1 – 5	Asp. Tox. 1, H304 Eye Irrit. 2, H319 Aquatic Acute 1, H400 Aquatic Chronic 2, H411 Flam. Liq. 3, H226 Skin Irrit. 2, H315
1,8 Cineole	(CAS-No.) 470-82-6 (EC-No.) 207-431-5	0.1 – 5	Flam. Liq. 3, H226 Skin Sens. 1B, H317
Beta Phellandrene	(CAS-No.) 555-10-2 (EC-No.) 209-081-9	0.1 – 5	Asp. Tox. 1, H304 Flam. Liq. 3, H226
Borneol	(CAS-No.) 507-70-0 (EC-No.) 208-080-0	1 – 5	Skin Irrit. 2, H315 Flam. Sol. 1, H228 Aquatic Chronic 2, H411
3-hexene-1-ol	(CAS-No.) 928-96-1 (EC-No.) 213-192-8	0.1 – 5	Eye Irrit. 2, H319 Flam. Liq. 3, H226
Alpha terpineol	(CAS-No.) 98-55-5 (EC-No.) 202-680-6	0.1 – 5	Skin Irrit. 2, H315 Eye Irrit. 2, H319
Terpinolene	(CAS-No.) 586-62-9 (EC-No.) 209-578-0	0.1 – 5	Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Skin Sens. 1B, H317
	(CAS-No.) 508-32-7 (EC-No.) 208-083-7	0.1 – 5	Not classified
Piperitone	(CAS-No.) 89-81-6 (EC-No.) 201-942-7	0.1 – 1	Not classified
Terpinen-4-ol	(CAS-No.) 562-74-3 (EC-No.) 209-235-5	0.1 – 1	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319
Camphene hydrate	(CAS-No.) 465-31-6	0.1 – 1	Not classified
Cadinene Delta	(CAS-No.) 483-76-1	0.1 – 1	Not classified
Fenchone	(CAS-No.) 1195-79-5 (EC-No.) 214-804-6	0.1 – 1	Not classified
Alpha Phellandrene	(CAS-No.) 99-83-2 (EC-No.) 202-792-5	0.1 – 1	Asp. Tox. 1, H304 Flam. Liq. 3, H226
Citronellol *	(CAS-No.) 106-22-9 (EC-No.) 203-375-0 (REACH-no) 01-2119453995-23	0.1 – 1	Eye Irrit. 2, H319 Skin Irrit. 2, H315 Skin Sens. 1B, H317
Paracymene	(CAS-No.) 99-87-6 (EC-No.) 202-796-7	0.1 – 1	Repr. 2, H361 Flam. Liq. 3, H226 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
1-Hexanol	(CAS-No.) 111-27-3 (EC-No.) 203-852-3 (EC Index-No.) 603-059-00-6	< 1	Acute Tox. 4 (Oral), H302
Gamma terpinene	(CAS-No.) 99-85-4 (EC-No.) 202-794-6	0.1 – 1	Repr. 2, H361 Flam. Liq. 3, H226 Asp. Tox. 1, H304
Alpha thuyene	(CAS-No.) 2867-05-2 (EC-No.) 220-686-7	< 1	Not classified
E,E-alpha-Farnesene	(CAS-No.) 502-61-4 (EC-No.) 207-948-6	< 1	Not classified
Isobornyl acetate	(CAS-No.) 125-12-2 (EC-No.) 204-727-6	< 1	Not classified
	(CAS-No.) 88-84-6 (EC-No.) 201-860-1	< 1	Asp. Tox. 1, H304 Eye Irrit. 2, H319 Skin Irrit. 2, H315
Gamma cadinene	(CAS-No.) 1460-97-5	< 1	Not classified
Geranyl acetate	(CAS-No.) 105-87-3 (EC-No.) 203-341-5	< 1	Skin Sens. 1B, H317 Skin Irrit. 2, H315 Aquatic Chronic 3, H412
Alpha thuyone	(CAS-No.) 546-80-5 (EC-No.) 208-912-2	< 1	Acute Tox. 4 (Oral), H302

Longifolene	(CAS-No.) 475-20-7 (EC-No.) 207-491-2	< 1	Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 Skin Sens. 1B, H317
Alpha terpinene	(CAS-No.) 99-86-5 (EC-No.) 202-795-1	< 1	Asp. Tox. 1, H304 Acute Tox. 4 (Oral), H302 Aquatic Chronic 2, H411 Flam. Liq. 3, H226
Beta Caryophyllene	(CAS-No.) 87-44-5 (EC-No.) 201-746-1	< 1	Asp. Tox. 1, H304 Aquatic Chronic 4, H413 Skin Sens. 1B, H317
Santene	(CAS-No.) 529-16-8	< 1	Not classified
Sabinene	(CAS-No.) 3387-41-5 (EC-No.) 222-212-4	< 1	Acute Tox. 4 (Oral), H302
Trans pinocarveol	(CAS-No.) 1674-08-4 (EC-No.) 216-813-0	< 1	Not classified
Beta Elemen	(CAS-No.) 33880-83-0 (EC-No.) 251-713-0	< 1	Not classified
Linalool *	(CAS-No.) 78-70-6 (EC-No.) 201-134-4 (EC Index-No.) 603-235-00-2 (REACH-no) 01-2119474016-42	< 1	Skin Sens. 1B, H317
alpha-p-dimethylstyrene	(CAS-No.) 1195-32-0 (EC-No.) 214-795-9	< 1	Not classified
Alpha Humulene	(CAS-No.) 6753-98-6 (EC-No.) 229-816-7	< 1	Not classified
Iso borneol	(CAS-No.) 124-76-5 (EC-No.) 204-712-4	< 1	Skin Irrit. 2, H315 Flam. Sol. 1, H228
Beta thuyone	(CAS-No.) 1125-12-8 (EC-No.) 214-405-7	< 1	Not classified
Dodecane	(CAS-No.) 112-40-3 (EC-No.) 203-967-9	< 1	Asp. Tox. 1, H304
Methyl chavicol	(CAS-No.) 140-67-0 (EC-No.) 205-427-8	< 1	Skin Sens. 1B, H317 Skin Irrit. 2, H315 Muta. 2, H341 Carc. 2, H351 Aquatic Chronic 3, H412 Acute Tox. 4 (Oral), H302
Fenchyl acetate	(CAS-No.) 13851-11-1 (EC-No.) 237-588-5	< 1	Not classified
Geraniol *	(CAS-No.) 106-24-1 (EC-No.) 203-377-1 (REACH-no) 01-2119552430-49	< 1	Skin Sens. 1B, H317 Skin Irrit. 2, H315 Eye Dam. 1, H318
Verbenone	(CAS-No.) 1196-01-6 (EC-No.) 214-807-2	< 1	Not classified
Alpha cadinol	(CAS-No.) 481-34-5	< 1	Not classified
		< 1	Not classified
Alpha curcumene	(CAS-No.) 644-30-4	< 1	Not classified
Nonanal	(CAS-No.) 124-19-6 (EC-No.) 204-688-5	< 1	Aquatic Chronic 3, H412
Trans alpha bisabolene	(CAS-No.) 25532-79-0	< 1	Not classified

Methyl salicylate	(CAS-No.) 119-36-8 (EC-No.) 204-317-7	< 0.1	Repr. 2, H361 Acute Tox. 4 (Oral), H302
Methyl eugenol	(CAS-No.) 93-15-2 (EC-No.) 202-223-0	< 0.1	Acute Tox. 4 (Oral), H302 Carc. 2, H351 Muta. 2, H341

Full text of H-statements: see section 16

3.2. Mixtures

Not established.

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : IF exposed or concerned: Get medical advice/attention. Call a poison center or a doctor if you feel unwell.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact : Rinse skin with water/shower. Take off immediately all contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

First-aid measures after ingestion : Rinse mouth. Call a poison center or a doctor if you feel unwell.

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

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

Symptoms/effects after eye contact : Serious damage to eyes.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable liquid and vapour.

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. No open flames, no sparks, and no smoking. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.

Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapours may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes.

Hygiene measures : Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Ground/bond container and receiving equipment.
Storage conditions	: Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Camphor (76-22-2)	
France - Occupational Exposure Limits	
Local name	Camphre
VME [mg/m³]	12 mg/m³
VME [ppm]	2 ppm

Camphor (76-22-2)	
Note (FR)	Valeurs recommandées/admises
Regulatory reference	Circulaire du Ministère du travail (réf.: INRS ED 984, 2016)

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

Hand protection:
Protective gloves

Eye protection:
Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment

Personal protective equipment symbol(s):

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Colour	: Colorless to yellow.
Odour	: balsamic. Fresh. Softwood.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: 42 °C
Auto-ignition temperature	: No data available

Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: 0.87 – 0.926
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

Refractive index : 1.46 – 1.49

SECTION 10: Stability and reactivity

10.1. Reactivity

Flammable liquid and vapour.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Harmful if swallowed.
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

1,8 Cineole (470-82-6)	
LD50 oral	2480 mg/kg bodyweight
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal))

1-Hexanol (111-27-3)	
LD50 oral	500 mg/kg bodyweight
LD50 dermal	1750 mg/kg bodyweight

Alpha pinene (80-56-8)	
LD50 oral	3700 mg/kg bodyweight
LD50 dermal	> 5000 mg/kg bodyweight

Alpha terpinene (99-86-5)	
LD50 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)
LD50 dermal rabbit	> 3000 mg/kg OECD 402

Alpha thuyone (546-80-5)	
LD50 oral	500 mg/kg bodyweight

Beta Pinene (127-91-3)	
LD50 oral rat	300 – 2000 mg/kg OCDE 423
LD50 dermal rat	> 2000 mg/kg

Borneol (507-70-0)	
LD50 oral	2500 mg/kg bodyweight

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 rat	> 2500 mg/kg bodyweight Animal:
LD50 dermal rabbit	> 2000 mg/kg bodyweight Animal: rabbit
LC50 Inhalation - Rat	> 25 mg/l air Animal:

Camphor (76-22-2)	
LD50 oral	1500 mg/kg bodyweight
LC50 Inhalation - Rat	0.5 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)
LC50 Inhalation - Rat (Dust/Mist)	1.5 mg/l/4h

Citronellol * (106-22-9)	
LD50 oral	3450 mg/kg bodyweight
LD50 dermal	2650 mg/kg bodyweight

Delta 3-carene (13466-78-9)	
LD50 oral	4800 mg/kg bodyweight
LC50 Inhalation - Rat (Dust/Mist)	1.5 mg/l/4h

Dodecane (112-40-3)	
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
LD50 dermal rabbit	≥ 3160 mg/kg bodyweight Animal: rabbit, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)

Gamma terpinene (99-85-4)	
LD50 oral	3850 mg/kg bodyweight

Geraniol * (106-24-1)	
LD50 oral rat	3600 mg/kg bodyweight Animal: rat, 95% CL: 2840 - 4570
LD50 oral	2100 mg/kg bodyweight
LD50 dermal rabbit	> 5000 mg/kg bodyweight Animal: rabbit
LD50 dermal	> 5000 mg/kg bodyweight

Limonene (138-86-3)

LD50 oral	4400 mg/kg bodyweight
LD50 dermal	> 2000 mg/kg bodyweight

Linalool * (78-70-6)	
LD50 oral rat	2790 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity), 95% CL: 2440 - 3180
LD50 oral	2790 mg/kg bodyweight
LD50 dermal rabbit	5610 mg/kg bodyweight Animal: rabbit, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), 95% CL: 3578 - 8374

LD50 dermal	5610 mg/kg bodyweight

Methyl chavicol (140-67-0)	
LD50 oral	1230 mg/kg bodyweight

Methyl eugenol (93-15-2)	
LD50 oral	1180 mg/kg bodyweight

Paracymene (99-87-6)	
LD50 oral	4750 mg/kg bodyweight

Piperitone (89-81-6)	
LD50 oral	3550 mg/kg bodyweight

Terpinolene (586-62-9)	
LD50 oral	3775 mg/kg bodyweight
LD50 dermal rabbit	> 4300 mg/kg bodyweight Animal: rabbit, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)

Methyl salicylate (119-36-8)	
LD50 oral rat	887 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity), 95% CL: 715 - 1100
LD50 oral	890 mg/kg bodyweight

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitisation : May cause an allergic skin reaction.

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

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

Alpha terpineol (98-55-5)	
NOAEL (animal/male, F0/P)	≥ 750 mg/kg OECD 422
NOAEL (animal/female, F0/P)	≥ 750 mg/kg OECD 422

Nonanal (124-19-6)

LOAEL (animal/female, F0/P)	1500 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: other:Unclear; makes reference to FDA (1987)

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)

STOT-single exposure : May cause damage to organs.

STOT-repeated exposure : Not classified

1,8 Cineole (470-82-6)	
NOAEL (oral, rat, 90 days)	600 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: other:japanese Ministry of Economy Trade and Industry Guideline for 28 day repeat oral dose toxicity study., Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity in Rodents), Guideline: EPA OPPTS 870.3150 (90-Day Oral Toxicity in Nonrodents)

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)

Camphor (76-22-2)	
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)

Citronellol * (106-22-9)	
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)

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)

Linalool * (78-70-6)	
LOAEL (dermal, rat/rabbit, 90 days)	Animal: rat, Guideline: OECD Guideline 411 (Subchronic Dermal Toxicity: 90-Day Study)

Methyl salicylate (119-36-8)	
NOAEL (oral, rat, 90 days)	50 mg/kg bodyweight Animal: rat

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Very toxic to aquatic life with long lasting effects.

Hazardous to the aquatic environment, short-term (acute) : Very toxic to aquatic life.

Hazardous to the aquatic environment, long-term (chronic) : Very toxic to aquatic life with long lasting effects.

Not rapidly degradable

1,8 Cineole (470-82-6)	
LC50 fish 1	57 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 Daphnia 1	> 100 mg/l Test organisms (species): Daphnia magna
EC50 72h algae (1)	> 74 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 96h algae (1)	> 74 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)

Alpha pinene (80-56-8)	
LC50 fish 1	0.28 mg/l
EC50 other aquatic organisms 1	1.44 mg/l waterflea

Alpha terpineol (98-55-5)	
LC50 fish 1	70 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 Daphnia 1	73 mg/l Test organisms (species): Daphnia magna
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)

Camphene (79-92-5)	
LC50 fish 1	0.72 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 Daphnia 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)

Camphor (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 96h algae (1)	6.951 mg/l Test organisms (species):

Citronellol * (106-22-9)	
LC50 fish 1	10 mg/l
EC50 Daphnia 1	17.48 mg/l Test organisms (species): Daphnia magna
EC50 other aquatic organisms 1	17.48 mg/l waterflea
EC50 other aquatic organisms 2	2.38 mg/l
EC50 72h algae (1)	2.4 mg/l Test organisms (species):

Geraniol * (106-24-1)	
LC50 fish 1	≈ 22 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 Daphnia 1	10.8 mg/l Test organisms (species): Daphnia magna
EC50 other aquatic organisms 1	10.8 mg/l waterflea
EC50 other aquatic organisms 2	13.1 mg/l
EC50 72h algae (1)	13.1 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)

Limonene (138-86-3)	
LC50 fish 1	0.72 mg/l
EC50 other aquatic organisms 1	0.36 mg/l waterflea

Linalool * (78-70-6)	
LC50 fish 1	27.8 mg/l
EC50 Daphnia 1	59 mg/l Test organisms (species): Daphnia magna
EC50 other aquatic organisms 1	20 mg/l waterflea
EC50 other aquatic organisms 2	88.3 mg/l

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)

Nonanal (124-19-6)	
LC50 fish 1	2.1 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
LC50 fish 2	1.45 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 Daphnia 1	1.54 mg/l Test organisms (species): Daphnia magna

Terpinolene (586-62-9)	
LC50 fish 1	0.805 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 Daphnia 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)

Methyl salicylate (119-36-8)	
LC50 fish 1	19.8 mg/l Test organisms (species): Pimephales promelas
LC50 fish 2	1370 mg/l Test organisms (species): Pimephales promelas
EC50 Daphnia 1	28 mg/l Test organisms (species): Daphnia magna
EC50 72h algae (1)	1.6 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
EC50 72h algae (2)	1.1 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Alpha pinene (80-56-8)	
Partition coefficient n-octanol/water (Log Pow)	4.32

Citronellol * (106-22-9)	
Partition coefficient n-octanol/water (Log Pow)	3.1

Geraniol * (106-24-1)	
Partition coefficient n-octanol/water (Log Pow)	3.5

Limonene (138-86-3)	
Partition coefficient n-octanol/water (Log Pow)	4.38

Linalool * (78-70-6)	
Partition coefficient n-octanol/water (Log Pow)	2.84

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Additional information : Flammable vapours may accumulate in the container.

SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
UN 1169	UN 1169	UN 1169	UN 1169	UN 1169
14.2. UN proper shipping name				
EXTRACTS, AROMATIC, LIQUID	EXTRACTS, AROMATIC, LIQUID	Extracts, aromatic, liquid	EXTRACTS, AROMATIC, LIQUID	EXTRACTS, AROMATIC, LIQUID
Transport document description				
UN 1169 EXTRACTS, AROMATIC, LIQUID, 3, III, (D/E), ENVIRONMENTALLY HAZARDOUS	UN 1169 EXTRACTS, AROMATIC, LIQUID, 3, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS	UN 1169 Extracts, aromatic, liquid, 3, III, ENVIRONMENTALLY HAZARDOUS	UN 1169 EXTRACTS, AROMATIC, LIQUID, 3, III, ENVIRONMENTALLY HAZARDOUS	UN 1169 EXTRACTS, AROMATIC, LIQUID, 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

Special provisions (ADR) 601

Limited quantities (ADR) : 5l

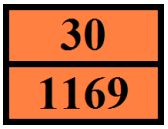
Excepted quantities (ADR) : E1

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

Transport by sea

Special provisions (IMDG)	: 223, 955
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)	: TP1
EmS-No. (Fire)	: F-E
EmS-No. (Spillage)	: S-D
Stowage category (IMDG)	: A
Properties and observations (IMDG)	: Usually consist of alcoholic solutions. Miscibility with water depends upon the composition.

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
Special provisions (IATA)	: A3
ERG code (IATA)	: 3L

Inland waterway transport

Classification code (ADN)	: F1
Special provisions (ADN)	601
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
Special provisions (RID)	601
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. Transport in bulk according to Annex II of Marpol and the IBC Code

Not established.

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

White spruce organic essential oil, is not on the REACH Candidate ListWhite spruce organic essential oil, is not on the REACH Annex XIV List

White spruce organic essential oil, is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 july2012 concerning the export and import of hazardous chemicals.

White spruce organic essential oil, is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20June 2019 on persistent organic pollutants

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BLV	Biological limit value
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration
EC-No.	European Community number
EN	European Standard
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
vPvB	Very Persistent and Very Bioaccumulative
WGK	Water Hazard Class

Full text of H- and EUH-statements:

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
Aquatic Chronic 4	Hazardous to the aquatic environment — Chronic Hazard, Category 4
Asp. Tox. 1	Aspiration hazard, Category 1
Carc. 2	Carcinogenicity, Category 2

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
Muta. 2	Germ cell mutagenicity, Category 2
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
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.
H332	Harmful if inhaled.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
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.
H413	May cause long lasting harmful effects to aquatic life.

SDS EU (REACH Annex II)

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.