



A R O M O L O G Y

ELEMI EO

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 1/29/2016 Revision date: 4/10/2025 Supersedes version of: 3/7/2025 Version: 10.0

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

1.1. Product identifier

Product form : Substance (UVCB)
Trade name : ELEMI EO
EC No (EC/EINECS/ELINCS) : 945-898-3
CAS : 8023-89-0
REACH registration No. : 01-2120735788-38
Product code : 021348
Other means of identification : CAS EU: 97675-63-3 / 9000-75-3 ; EINECS: 232-557-2 / 307-636-0

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

Relevant identified uses

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

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	112 +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
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

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Adverse physicochemical, human health and environmental effects

Flammable liquid and vapour. Causes skin irritation. May cause an allergic skin reaction. May be fatal if swallowed and enters airways. 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)



Signal word (CLP)

Hazard statements (CLP)

Precautionary statements (CLP)

- : Danger
- : 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.
- : H411 - Toxic to aquatic life with long lasting effects.
- : 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 $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type	: UVCB
Name	: Essential oil of Canarium luzonicum obtained from gum by steam distillation
CAS	: 8023-89-0
EC No (EC/EINECS/ELINCS)	: 945-898-3

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
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	50 – 80	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 3, H412
alpha-Phellandrene	CAS: 99-83-2 EC No (EC/EINECS/ELINCS): 202-792-5	20 – 25	Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Asp. Tox. 1, H304 Flam. Liq. 3, H226 Skin Sens. 1, H317

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
p-Cymene	CAS: 99-87-6 EC No (EC/EINECS/ELINCS): 202-796-7 EC index number: 601-094-00-1	5 – 10	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)
Terpinolene	CAS: 586-62-9 EC No (EC/EINECS/ELINCS): 209-578-0	5 – 10	Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Eucalyptol	CAS: 470-82-6 EC No (EC/EINECS/ELINCS): 207-431-5	1 – 5	Flam. Liq. 3, H226 Skin Sens. 1B, H317 Eye Irrit. 2, H319
alpha-Terpineol	CAS: 98-55-5 EC No (EC/EINECS/ELINCS): 202-680-6	1 – 5	Skin Irrit. 2, H315 Eye Irrit. 2, H319
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	0.1 – 1	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Myrcene	CAS: 123-35-3 EC No (EC/EINECS/ELINCS): 204-622-5	0.1 – 1	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
alpha-Pinene	CAS: 80-56-8 EC No (EC/EINECS/ELINCS): 201-291-9	0.1 – 1	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
Eugenyl methyl ether	CAS: 93-15-2 EC No (EC/EINECS/ELINCS): 202-223-0	0.1 – 1	Acute Tox. 4 (Oral), H302 (ATE=1179 mg/kg bodyweight) Carc. 2, H351 Muta. 2, H341
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 Eye Irrit. 2, H319 Skin Irrit. 2, H315 Skin Sens. 1, H317 STOT SE 3, H336

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Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
beta-Caryophyllene	CAS: 87-44-5 EC No (EC/EINECS/ELINCS): 201-746-1	0.1 – 1	Asp. Tox. 1, H304 Skin Sens. 1B, H317
p-Mentha-1,3-diene	CAS: 99-86-5 EC No (EC/EINECS/ELINCS): 202-795-1 EC index number: 601-095-00-7	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
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
Carvone	CAS: 99-49-0 EC No (EC/EINECS/ELINCS): 202-759-5 EC index number: 606-148-00-8	0.1 – 1	Skin Sens. 1, H317
trans beta-Ocimene	CAS: 3779-61-1 EC No (EC/EINECS/ELINCS): 223-241-5	0.1 – 1	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
Germacrene D	CAS: 23986-74-5 EC No (EC/EINECS/ELINCS): 639-624-9	0.1 – 1	Asp. Tox. 1, H304
cis-beta-Ocimene	CAS: 3338-55-4 EC No (EC/EINECS/ELINCS): 222-081-3	0.1 – 1	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 2, H411
Carvacrol	CAS: 499-75-2 EC No (EC/EINECS/ELINCS): 207-889-6	0.1 – 1	Acute Tox. 4 (Oral), H302 (ATE=810 mg/kg bodyweight) Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1B, H317
Cuminaldehyde	CAS: 122-03-2 EC No (EC/EINECS/ELINCS): 204-516-9	< 0.1	Acute Tox. 4 (Oral), H302 (ATE=1390 mg/kg bodyweight) Repr. 2, H361
Linalool	CAS: 78-70-6 EC No (EC/EINECS/ELINCS): 201-134-4 EC index number: 603-235-00-2	< 0.1	Eye Irrit. 2, H319 Skin Irrit. 2, H315 Skin Sens. 1B, H317
toluene	CAS: 108-88-3 EC No (EC/EINECS/ELINCS): 203-625-9 EC index number: 601-021-00-3	< 0.1	Flam. Liq. 2, H225 Repr. 2, H361d Asp. Tox. 1, H304 STOT RE 2, H373 Skin Irrit. 2, H315 STOT SE 3, H336

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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	< 0.1	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

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

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Call a physician immediately. 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	: Remove person to fresh air and keep comfortable for breathing. Allow affected person to breathe fresh air. Allow the victim to rest.
First-aid measures after skin contact	: If skin irritation or rash occurs: Get medical advice/attention. 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 eyes with water as a precaution. Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists.
First-aid measures after ingestion	: Do not induce vomiting. Call a physician immediately. 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	: Irritation. May cause an allergic skin reaction. Causes skin irritation.
Symptoms/effects after ingestion	: Risk of lung oedema. May be fatal if swallowed and enters airways.

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

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 attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. Do not enter fire area without proper protective equipment, including respiratory protection.

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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.

For non-emergency personnel

Emergency procedures : Ventilate spillage area. No open flames, no sparks, and no smoking. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray. Evacuate unnecessary personnel.

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". 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

For containment : Collect spillage.

Methods for cleaning up : Take up liquid spill into absorbent material. Collect spills and put it into appropriated container. Notify authorities if product enters sewers or public waters. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

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. 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 : Ensure good ventilation of the work station. Obtain special instructions before use. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Flammable vapours may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Avoid contact with skin and eyes. 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 : Do not eat, drink or smoke when using this product. Always wash hands after handling the product. 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 : Store in a well-ventilated place. Keep cool. Store locked up. 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

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- 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

National occupational exposure and biological limit values

toluene (108-88-3)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Toluene
IOEL TWA	192 mg/m³
	50 ppm
IOEL STEL	384 mg/m³
	100 ppm
Remark	Skin
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
France - Occupational Exposure Limits	
Local name	Toluène
VME (OEL TWA)	76.8 mg/m³
	20 ppm
VLE (OEL C/STEL)	384 mg/m³
	100 ppm
Remark	Valeurs règlementaires contraignantes. Toxique pour la reproduction de catégorie 2, Risque de pénétration percutanée. Ces valeurs sont assortie de la mention "bruit" indiquant la possibilité d'une atteinte auditive en cas de co-exposition au bruit.
Regulatory reference	Article R4412-149 du Code du travail (réf.: INRS ED 6443, 2022; Outil65; Décret n° 2019-1487; Décret n° 2020-1546; Décret n° 2021-434; Décret n° 2021-1849; Décret n° 2024-307)
USA - ACGIH - Occupational Exposure Limits	
Local name	Toluene
ACGIH OEL TWA	20 ppm
Remark (ACGIH)	TLV® Basis: CNS, visual & hearing impair; female repro system eff; pregnancy loss. Notations: OTO; A4 (Not classifiable as a Human Carcinogen); BEI
Regulatory reference	ACGIH 2024
USA - ACGIH - Biological Exposure Indices	
Local name	Toluene
BEI	0.3 mg/g creatinine Parameter: o-Cresol (with hydrolysis) - Medium: urine - Sampling time: End of shift - Notations: B 0.03 mg/l Parameter: Toluene - Medium: urine - Sampling time: End of shift 0.02 mg/l Parameter: Toluene - Medium: blood - Sampling time: Prior to last shift of workweek

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toluene (108-88-3)	
Regulatory reference	ACGIH 2024
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

8.2. Exposure controls

Appropriate engineering controls

Appropriate engineering controls:
Ensure good ventilation of the work station.

Personal protection equipment

Personal protective equipment:
Avoid all unnecessary exposure.
Personal protective equipment symbol(s):



Eye and face protection

Eye protection:
Safety glasses. Chemical goggles or safety glasses

Skin protection

Skin and body protection:
Wear suitable protective clothing

Hand protection:
Protective gloves. Wear protective gloves.

Respiratory protection

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

Environmental exposure controls

Environmental exposure controls:
Avoid release to the environment.

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	: Characteristic, spicy, balsamic, with a top note of citrus zest.
Odour threshold	: Not available
Melting point	: Not applicable
Freezing point	: Not available
Boiling point	: Not available
Flammability	: Flammable liquid and vapour.

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Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point (closed cup)	: 53 °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)	: 0.8500 – 0.9100
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

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	1.98 mm Hg

alpha-Phellandrene (99-83-2)

Boiling point	175 – 176 °C
Flash point (closed cup)	45.4 °C
Vapour pressure	1.856 mm Hg (25°C, Source:thegoodscentcompany.com)

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

Terpinolene (586-62-9)

Boiling point	193.85 °C Atm. press.: 985 hPa Decomposition: 'no'
Flash point (closed cup)	61 °C
Vapour pressure	0.74 mm Hg at 25°C Source: National Library of Medicine/Hazardous Substances Data Bank

Eucalyptol (470-82-6)

Boiling point	177 °C Atm. press.: 101,325 kPa Decomposition: 'no'
Flash point (closed cup)	52 °C
Vapour pressure	122 Pa Temp.: 20 °C

alpha-Terpineol (98-55-5)

Boiling point	218.9 °C Atm. press.: 1 atm
Flash point (closed cup)	91 °C

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alpha-Terpineol (98-55-5)

Auto-ignition temperature	275 °C Source: ECHA
Vapour pressure	6.48 Pa Temp.: 23 °C

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

Myrcene (123-35-3)

Boiling point	167 °C
Flash point (closed cup)	45 °C
Vapour pressure	267.98 Pa Temp.: 25 °C

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

Eugenyl methyl ether (93-15-2)

Boiling point	254.7 °C
Flash point (closed cup)	> 93 °C
Vapour pressure	0.012 mm Hg

4-Carvomenthenol (562-74-3)

Flash point (closed cup)	79 °C
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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

p-Mentha-1,3-diene (99-86-5)

Boiling point	173 °C Atm. press.: 1 atm
Flash point (closed cup)	47 °C

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p-Mentha-1,3-diene (99-86-5)

Vapour pressure	0.8 mm Hg at 25°C Source: The Chemical Database, The Department of Chemistry at the University of Akron
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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

Carvone (99-49-0)

Boiling point	230 °C
Flash point (closed cup)	89 °C

Germacrene D (23986-74-5)

Boiling point	308 °C (760 mm Hg, Source: thegoodscentcompany.com)
Flash point (closed cup)	111.67 °C
Vapour pressure	0.007 mm Hg (25°C, Source: thegoodscentcompany.com)

cis-beta-Ocimene (3338-55-4)

Flash point (closed cup)	56 °C
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Carvacrol (499-75-2)

Boiling point	237 – 238 °C at 760mmHg Source: National Library of Medicine/Hazardous Substances Data Bank
Flash point (closed cup)	100 °C
Vapour pressure	0.0232 mm Hg

Cuminaldehyde (122-03-2)

Boiling point	235 – 236 °C Atm. press.: 1013,25 hPa
Flash point (closed cup)	104 °C

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

toluene (108-88-3)

Boiling point	110.6 °C Atm. press.: 1013 hPa Decomposition: 'no'
Flash point (closed cup)	4.4 °C Atm. press.: 1013 hPa
Auto-ignition temperature	480 °C Source: HSDB
Vapour pressure	29.3 hPa Temp.: 20 °C

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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

9.2. Other information

Other safety characteristics

Refractive index (20°C) : 1.4720 – 1.4900

SECTION 10: Stability and reactivity

10.1. Reactivity

Flammable liquid and vapour.

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

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

ELEMI EO (8023-89-0)

LD50 oral rat	3370 mg/kg
LD50 dermal rabbit	2500 mg/kg

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
LD50 dermal rabbit	> 5000 mg/kg Source: National Library of Medicine
ATE CLP (oral)	5000 mg/kg bodyweight

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

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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
Terpinolene (586-62-9)	
LD50 oral rat	4.39 ml/kg Source: ECHA
LD50 oral	3775 mg/kg
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)
ATE CLP (oral)	4390 mg/kg bodyweight
Eucalyptol (470-82-6)	
LD50 oral rat	2480 mg/kg Source: NLM; chemIDplus, TOMES;LOLI, RTECS;
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))
ATE CLP (oral)	2480 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
beta-Pinene (127-91-3)	
LD50 oral rat	4700 mg/kg Source: NLM,THOMSON
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)
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

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Eugenyl methyl ether (93-15-2)	
LD50 oral rat	1179 mg/kg
LD50 oral	1180 mg/kg
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Remarks on results: no indication of skin irritation up to the relevant limit dose level
LD50 dermal rabbit	2025 mg/kg
ATE CLP (oral)	1179 mg/kg bodyweight
ATE CLP (dermal)	2025 mg/kg bodyweight
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 (dermal)	2500 mg/kg bodyweight
ATE CLP (dust,mist)	1.5 mg/l/4h
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
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
ATE CLP (oral)	1680 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)
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
trans beta-Ocimene (3779-61-1)	
LD50 oral	5000 mg/kg bodyweight
cis-beta-Ocimene (3338-55-4)	
LD50 oral	5000 mg/kg bodyweight
Carvacrol (499-75-2)	
LD50 oral rat	810 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity), 95% CL: 710 - 920

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Carvacrol (499-75-2)	
LD50 oral	810 mg/kg bodyweight
LD50 dermal rabbit	5000 mg/kg Source: ECHA
ATE CLP (oral)	810 mg/kg bodyweight
ATE CLP (dermal)	5000 mg/kg bodyweight
Cuminaldehyde (122-03-2)	
LD50 oral rat	1390 mg/kg bodyweight Animal: rat, 95% CL: 1140 - 1700
LD50 oral	1390 mg/kg
LD50 dermal rabbit	2800 mg/kg Source: NLM;ChemIDplus Lite
LD50 dermal	2800 mg/kg
ATE CLP (oral)	1390 mg/kg bodyweight
ATE CLP (dermal)	2800 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
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
toluene (108-88-3)	
LD50 oral rat	5580 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: EU Method B.1 (Acute Toxicity (Oral)), 95% CL: 5300 - 5910
LD50 dermal rabbit	> 5000 mg/kg bodyweight Animal: rabbit, Animal sex: male, 95% CL: 9,63 - 20,77
LC50 Inhalation - Rat (Vapours)	> 20 mg/l Source: ECHA
ATE CLP (oral)	5580 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
Skin corrosion/irritation	: Causes skin irritation.
4-Carvomenthenol (562-74-3)	
pH	6.8 – 7.1 Temp.: 20 °C
Serious eye damage/irritation	: Not classified
Additional information	: Based on available data, the classification criteria are not met
4-Carvomenthenol (562-74-3)	
pH	6.8 – 7.1 Temp.: 20 °C
Respiratory or skin sensitisation	: May cause an allergic skin reaction.

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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

Eugenyl methyl ether (93-15-2)	
IARC group	2B - Possibly carcinogenic to humans

toluene (108-88-3)	
IARC group	3 - Not classifiable

Reproductive toxicity	: 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, F0/P)	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, F0/P)	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)
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

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

toluene (108-88-3)	
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

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Eucalyptol (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)
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)
Eugenyl methyl ether (93-15-2)	
NOAEL (oral, rat, 90 days)	> 300 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
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)
toluene (108-88-3)	
LOAEL (oral, rat, 90 days)	1250 mg/kg bodyweight Animal: rat, Guideline: EU Method B.26 (Sub-Chronic Oral Toxicity Test: Repeated Dose 90-Day Oral Toxicity Study in Rodents)
NOAEL (oral, rat, 90 days)	625 mg/kg bodyweight Animal: rat, Guideline: EU Method B.26 (Sub-Chronic Oral Toxicity Test: Repeated Dose 90-Day Oral Toxicity Study in Rodents)
NOAEC (inhalation, rat, vapour, 90 days)	2.355 mg/l air Animal: rat, Guideline: EU Method B.29 (Sub-Chronic Inhalation Toxicity:90-Day Study)
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	: May be fatal if swallowed and enters airways.
ELEMI EO (8023-89-0)	
Viscosity, kinematic	< 20.5 mm²/s
Linalool (78-70-6)	
Viscosity, kinematic	5.192 mm²/s

11.2. Information on other hazards

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

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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.

ELEMI EO (8023-89-0)	
LC50 - Fish [1]	3.5 mg/l
EC50 - Crustacea [1]	2.3 mg/l
EC50 72h - Algae [1]	5.2 mg/l
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)
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
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
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)
Eucalyptol (470-82-6)	
LC50 - Fish [1]	57 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 - Crustacea [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-Terpineol (98-55-5)	
LC50 - Fish [1]	70 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)

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alpha-Terpineol (98-55-5)	
EC50 - Crustacea [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)
beta-Pinene (127-91-3)	
LC50 - Fish [1]	0.624 mg/l Source: ECOSAR
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)
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
Eugenyl methyl ether (93-15-2)	
LC50 - Fish [1]	14 mg/l
EC50 - Crustacea [1]	≈ 38 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	≈ 22 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	9.6 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 96h - Algae [1]	8.3 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 96h - Algae [2]	11972 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
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 - Crustacea [1]	1.7 mg/l Test organisms (species): Daphnia magna
EC50 96h - Algae [1]	0.249 mg/l Source: Ecological Structure Activity Relationships

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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
Carvone (99-49-0)	
LC50 - Fish [1]	14.388 mg/l Source: EPISUITE
EC50 96h - Algae [1]	6.319 mg/l Source: EPISUITE
Carvacrol (499-75-2)	
LC50 - Fish [1]	6.17 mg/l Test organisms (species): other:
EC50 - Crustacea [1]	6.06 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	4.05 mg/l Source: ECHA
Cuminaldehyde (122-03-2)	
LC50 - Fish [1]	6.62 mg/l Test organisms (species): Pimephales promelas
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)
toluene (108-88-3)	
LC50 - Fish [1]	5.5 mg/l Test organisms (species): Oncorhynchus kisutch
EC50 - Crustacea [1]	3.78 mg/l Source: ECHA
LOEC (chronic)	2.76 mg/l Test organisms (species): Ceriodaphnia dubia Duration: '7 d'
NOEC (chronic)	0.74 mg/l Test organisms (species): Ceriodaphnia dubia Duration: '7 d'
NOEC chronic fish	1.39 mg/l Test organisms (species): Oncorhynchus kisutch Duration: '40 d'
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
12.2. Persistence and degradability	
ELEMI EO (8023-89-0)	
Persistence and degradability	May cause long-term adverse effects in the environment.
Limonene (5989-27-5/138-86-3/5989-54-8)	
Persistence and degradability	Rapidly degradable
alpha-Phellandrene (99-83-2)	
Persistence and degradability	Rapidly degradable

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p-Cymene (99-87-6)	
Persistence and degradability	Rapidly degradable
Terpinolene (586-62-9)	
Persistence and degradability	Rapidly degradable
Eucalyptol (470-82-6)	
Persistence and degradability	Rapidly degradable
alpha-Terpineol (98-55-5)	
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
Myrcene (123-35-3)	
Persistence and degradability	Rapidly degradable
alpha-Pinene (80-56-8)	
Persistence and degradability	Rapidly degradable
Eugenyl methyl ether (93-15-2)	
Persistence and degradability	Rapidly degradable
4-Carvomenthenol (562-74-3)	
Persistence and degradability	Rapidly degradable
beta-Caryophyllene (87-44-5)	
Persistence and degradability	Rapidly degradable
p-Mentha-1,3-diene (99-86-5)	
Persistence and degradability	Rapidly degradable
p-Mentha-1,4-diene (99-85-4)	
Persistence and degradability	Rapidly degradable
Carvone (99-49-0)	
Persistence and degradability	Rapidly degradable
trans beta-Ocimene (3779-61-1)	
Persistence and degradability	Rapidly degradable
Germacrene D (23986-74-5)	
Persistence and degradability	Rapidly degradable
cis-beta-Ocimene (3338-55-4)	
Persistence and degradability	Rapidly degradable
Carvacrol (499-75-2)	
Persistence and degradability	Rapidly degradable

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Cuminaldehyde (122-03-2)	
Persistence and degradability	Rapidly degradable
Linalool (78-70-6)	
Persistence and degradability	Rapidly degradable
toluene (108-88-3)	
Persistence and degradability	Rapidly degradable
delta-3-Carene (13466-78-9)	
Persistence and degradability	Rapidly degradable
12.3. Bioaccumulative potential	
ELEMI EO (8023-89-0)	
Bioaccumulative potential	Not established.
Limonene (5989-27-5/138-86-3/5989-54-8)	
Partition coefficient n-octanol/water (Log Pow)	4.57
alpha-Phellandrene (99-83-2)	
Partition coefficient n-octanol/water (Log Pow)	4.62 Source: Quantitative Structure Activity Relation
p-Cymene (99-87-6)	
Partition coefficient n-octanol/water (Log Pow)	4.1 Source: International Chemical Safety Cards
Terpinolene (586-62-9)	
Partition coefficient n-octanol/water (Log Pow)	4.47 Source: National Library of Medicine/Hazardous Substances Data Bank
Eucalyptol (470-82-6)	
Partition coefficient n-octanol/water (Log Pow)	2.74
alpha-Terpineol (98-55-5)	
Partition coefficient n-octanol/water (Log Pow)	2.98 Source: HSDB
beta-Pinene (127-91-3)	
Partition coefficient n-octanol/water (Log Pow)	4.16
Myrcene (123-35-3)	
Partition coefficient n-octanol/water (Log Pow)	4.17
alpha-Pinene (80-56-8)	
Partition coefficient n-octanol/water (Log Pow)	4.834 Source: International Uniform Chemical Information Database
Eugenyl methyl ether (93-15-2)	
Partition coefficient n-octanol/water (Log Pow)	3.03
4-Carvomenthenol (562-74-3)	
Partition coefficient n-octanol/water (Log Pow)	3.26 Source: NLM;ChemIDPlus
p-Mentha-1,3-diene (99-86-5)	
Partition coefficient n-octanol/water (Log Pow)	4.25 Source: ChemIDplus

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p-Mentha-1,4-diene (99-85-4)	
Partition coefficient n-octanol/water (Log Pow)	4.5 Source: NLM
Carvone (99-49-0)	
Partition coefficient n-octanol/water (Log Pow)	3.07 Source: NLM;ChemIDPlus
Carvacrol (499-75-2)	
Partition coefficient n-octanol/water (Log Pow)	3.49 Source: National Library of Medicine
Linalool (78-70-6)	
Partition coefficient n-octanol/water (Log Pow)	2.97 Source: International Chemical Safety Cards
toluene (108-88-3)	
Partition coefficient n-octanol/water (Log Pow)	2.73 Source: HSDB
delta-3-Carene (13466-78-9)	
Partition coefficient n-octanol/water (Log Pow)	4.38 Source: NLM;ChemIDplus
12.4. Mobility in soil	
alpha-Phellandrene (99-83-2)	
Mobility in soil	10220 Source: EPI Suite
Eucalyptol (470-82-6)	
Mobility in soil	223.9 Source: EPISUITE
alpha-Terpineol (98-55-5)	
Mobility in soil	1000 Source: HSDB
alpha-Pinene (80-56-8)	
Mobility in soil	2600 Source: HSDB
4-Carvomenthenol (562-74-3)	
Mobility in soil	207.4 Source: EPI SUITE
Carvone (99-49-0)	
Mobility in soil	136.2 Source: EPISUITE
Linalool (78-70-6)	
Mobility in soil	76 Source: HSDB
delta-3-Carene (13466-78-9)	
Mobility in soil	6324 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	
ELEMI EO (8023-89-0)	
Other information	Avoid release to the environment.

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
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	: Flammable vapours may accumulate in the container. Handle empty containers with care because residual vapours are flammable.
Ecological waste 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 1197	UN 1197	UN 1197	UN 1197	UN 1197
14.2. UN proper shipping name				
EXTRACTS, LIQUID	EXTRACTS, LIQUID	Extracts, liquid	EXTRACTS, LIQUID	EXTRACTS, LIQUID
Transport document description				
UN 1197 EXTRACTS, LIQUID, 3, III, (D/E), ENVIRONMENTALLY HAZARDOUS	UN 1197 EXTRACTS, LIQUID, 3, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS	UN 1197 Extracts, liquid, 3, III, ENVIRONMENTALLY HAZARDOUS	UN 1197 EXTRACTS, LIQUID, 3, III, ENVIRONMENTALLY HAZARDOUS	UN 1197 EXTRACTS, 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 EmS-No. (Fire): F-E EmS-No. (Spillage): S-D	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)	: 5I
Excepted quantities (ADR)	: E1
Packing instructions (ADR)	: P001, IBC03, LP01, R001
Mixed packing provisions (ADR)	: MP19
Portable tank and bulk container instructions (ADR)	: T2

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Portable tank and bulk container special provisions (ADR) : TP1

Tank code (ADR) : LGBF

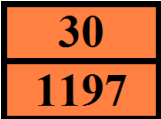
Vehicle for tank carriage : FL

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

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

Stowage category (IMDG) : A

Properties and observations (IMDG) : Usually consist of alcoholic solutions. Miscibility with water depends upon the composition.

MFAG-No : 127;128

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

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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

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)

Contains no substance(s) 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 (2024/590)

Not listed on the Ozone Depletion list (Regulation EU 2024/590)

Council Regulation (EC) for the control of dual-use items

Contains no substance subject to the COUNCIL REGULATION (EC) for the control 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 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)

Name	CN designation	CAS	CN code	Category, Subcategory	Threshold	Annex
Toluene		108-88-3	2902 30 00	Category 3		Annex I

National regulations

France

Occupational diseases	
Code	Description
RG 4 BIS	Gastrointestinal disorders caused by benzene, toluene, xylenes and all products containing them
RG 84	Conditions caused by liquid organic solvents for professional use: saturated or unsaturated aliphatic or cyclic liquid hydrocarbons and mixtures thereof; liquid halogenated hydrocarbons; nitrated derivatives of aliphatic hydrocarbons; alcohols; glycols, glycol ethers; ketones; aldehydes; aliphatic and cyclic ethers, including tetrahydrofuran; esters; dimethylformamide and dimethylacetamine; acetonitrile and propionitrile; pyridine; dimethylsulfone and dimethylsulfoxide

Germany

VOC ordinance (ChemVOCFarbV) :
Water hazard class (WGK) : WGK 3, Highly hazardous to water (Classification according to AwSV).
Major Accidents Ordinance (12. BImSchV) : Is not subject to the Major Accidents Ordinance (12. BImSchV)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

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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;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
The requirements from the Danish Working Environment Authorities regarding work with carcinogens must be followed during use and disposal

Poland

Polish National Regulations : Act of 25 February 2011 on chemical substances and their mixtures (J. o L. No. 63, item 322 as amended; consolidated text J. o L. 2019, item 1225).
Act of 14 December 2012 on waste (J. o L. 2013, item 322 as amended; consolidated text J. o L. 2020, item 797).
The announcement of Marshal of the Sejm of the Republic of Poland dated 19 October 2016 concerning the consolidated text announcement of the decree on the management of packaging and packaging waste (J. o L. 2016, item 1863 as amended).
Decree of the Minister of Environment of 14 December 2014 on the catalogue of waste (J. o L. 2014, item 1923).
Act of 19 August 2011 on the Carriage of Dangerous Goods (J. o L. 2011 No. 227, item 1367 as amended; consolidated text J. o L. 2020, item 154).
Regulation of the Minister of Family, Labour and Social Policy of 12 June 2018 on the highest permissible concentration and intensity of noxious agents for health at work environment (J. o L. item 1286 as amended).
The announcement of Minister of Health dated 9 September 2016 concerning the consolidated text announcement of the decree of the Minister of Health of 30 December 2004 on health and safety at work related to exposure to chemical agents at work (J. o L. of 16 September 2016, item 1488)
Regulation of the Minister of Health of 2 February 2011 on tests and measurements of the noxious agents for health at work environment (J. o L. No. 33, item 166 as amended).
Regulation of the Minister of Environment of 9 December 2003 on particularly hazardous substances to the environment (J. o L. No. 217, item 2141).
ADR Agreement: Government Statement of 13 March 2023 on the entry into force of amendments to Annexes A and B to the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), signed in Geneva on 30 September 1957 (J. o. L. 2023, item 891)

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes		
Section	Changed item	Comments
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.

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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
Carc. 2	Carcinogenicity, Category 2
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
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 RE 2	Specific target organ toxicity – Repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Narcosis
H225	Highly flammable liquid and vapour.
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.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H336	May cause drowsiness or dizziness.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
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.

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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.