SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

APPLE & HONEYCRISP

Version	Revision Date:	SDS Number:	Date of last issue: 02.12.2022
5.0	01.01.2023		Date of first issue: 28.07.2022

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

1.1 Product identifier

Trade name : APPLE & HONEYCRISP

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

Use of the Substance/Mixture : Fragrance mix

1.3 Details of the supplier of the safety data sheet

Candle Supply Pty Ltd
Unit 3 8-9 Lagana Place
Wetherill Park, NSW 2164
ABN: 70612899626

Phone Number: 02 8741 4000
e-mail: customerservice@candlesupply.com.au

1.4 Emergency telephone number

13 11 26

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Warning

Hazard statements : H317 May cause an allergic skin reaction.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P261 Avoid breathing mist or vapours.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves.

Response:
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P391 Collect spillage.

Hazardous components which must be listed on the label:
1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one
[3R-(3α,3aβ,7β,8aα)]-1-(2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen-5-yl)ethan-1-one
Dimethylcyclohex-3-ene-1-carbaldehyde
Ethyl 2,3-epoxy-3-phenylbutyrate
2,4,6-Trimethylcyclohex-3-enecarbaldehyde
1-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-2-buten-1-one
3-p-Cumenyl-2-methylpropionaldehyde
(R)-p-mentha-1,8-diene; d-limonene
Eugenol
trans-Hex-2-enal

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)

cis-2-tert-Butylcyclohexyl acetate	20298-69-5 243-718-1	Aquatic Chronic 2; H411	>= 10 - < 20
benzyl benzoate	120-51-4 204-402-9 607-085-00-9	Acute Tox. 4; H302 Aquatic Acute 1; H400 Aquatic Chronic 2; H411 --- Acute toxicity esti-mate Acute dermal toxicity: 4.000 mg/kg	>= 10 - < 20
1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one	54464-57-2 259-174-3	Skin Irrit. 2; H315 Skin Sens. 1; H317 Aquatic Chronic 1; H410 --- M-Factor (Chronic aquatic toxicity): 1	>= 2,5 - < 10
2,6-Dimethyloct-7-en-2-ol	18479-58-8 242-362-4 01-2119457274-37-000301-2119457274-37	Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H336 (Central nervous system)	>= 1 - < 10
α,α-Dimethylphenethyl butyrate	10094-34-5 233-221-8 01-2120742578-44 01-2120742578-44 01-2120742578-44	Skin Irrit. 2; H315 Aquatic Chronic 3; H412	>= 1 - < 2,5
[3R-(3α,3aβ,7β,8aα)]-1-(2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen-5-yl)ethan-1-one	32388-55-9 251-020-3	Skin Sens. 1B; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	>= 1 - < 2,5
2-tert-Butylcyclohexyl acetate	88-41-5 201-828-7	Aquatic Chronic 2; H411	>= 1 - < 2,5

α,α-Dimethylphenethyl acetate	151-05-3 205-781-3 01-2120258394-51 01-2120258394-51	Aquatic Chronic 3; H412	>= 1 - < 2,5
Allyl (3-methylbutoxy)acetate	67634-00-8 266-803-5	Acute Tox. 4; H302 Acute Tox. 2; H330 Skin Irrit. 2; H315	>= 0,1 - < 1
Dimethylcyclohex-3-ene-1-carbaldehyde	68737-61-1 68039-49-6 272-113-5 01-2119982384-28 01-2119982384-28 01-2119982384-28 01-2119982384-28 01-2119982384-28 01-2119982384-28	Skin Irrit. 2; H315 Skin Sens. 1; H317 Aquatic Chronic 2; H411	>= 0,25 - < 1
Ethyl 2,3-epoxy-3-phenylbutyrate	77-83-8 201-061-8 01-2119967770-28 01-2119967770-28	Skin Sens. 1B; H317 Aquatic Chronic 2; H411	>= 0,25 - < 1
2,4,6-Trimethylcyclohex-3-enecarbaldehyde	1423-46-7 1335-66-6 215-833-7	Eye Irrit. 2; H319 Skin Sens. 1B; H317 Aquatic Chronic 3; H412	>= 0,25 - < 1
2,6-di-tert-Butyl-p-cresol	128-37-0 204-881-4	Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	>= 0,25 - < 1

1-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-2-buten-1-one	57378-68-4 260-709-8	Acute Tox. 4; H302 Skin Irrit. 2; H315 Skin Sens. 1A; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	>= 0,1 - < 0,25
3-p-Cumenyl-2-methylpropionaldehyde	103-95-7 203-161-7	Skin Irrit. 2; H315 Skin Sens. 1B; H317 Aquatic Chronic 3; H412	>= 0,1 - < 0,25
(R)-p-mentha-1,8-diene; d-limonene	5989-27-5 227-813-5 601-029-00-7	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Skin Sens. 1B; H317 Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 3; H412 M-Factor (Acute aquatic toxicity): 1	>= 0,1 - < 0,25
Eugenol	97-53-0 202-589-1	Eye Irrit. 2; H319 Skin Sens. 1B; H317	>= 0,1 - < 1
trans-Hex-2-enal	6728-26-3 229-778-1	Flam. Liq. 3; H226 Acute Tox. 4; H302 Acute Tox. 3; H311 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1B; H317 Aquatic Chronic 2; H411	>= 0,1 - < 0,25
Allyl hexanoate	123-68-2 204-642-4 01-2119983573-26-0000	Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 Aquatic Acute 1; H400 Aquatic Chronic 3; H412 M-Factor (Acute aquatic toxicity): 1	>= 0,1 - < 0,25
[3R-(3α,3aβ,7β,8aα)]-	469-61-4	Skin Irrit. 2; H315	>= 0,025 - <

2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulene	207-418-4	Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10	0,1
[3R-(3α,3aβ,7β,8aα)]-Octahydro-3,8,8-trimethyl-6-methylene-1H-3a,7-methanoazulene	546-28-1 208-898-8	Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10	>= 0,0025 - < 0,025
Substances with a workplace exposure limit :			
(2-Methoxymethylethoxy)propanol	34590-94-8 252-104-2 01-2119450011-60 01-2119450011-60 01-2119450011-60 01-2119450011-60 01-2119450011-60		>= 50 - < 70

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing

If inhaled : Remove person to fresh air. If signs/symptoms continue, get medical attention.
Keep patient warm and at rest.

If breathing is irregular or stopped, administer artificial respiration.

In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off with soap and plenty of water.
If symptoms persist, call a physician.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Rinse mouth with water.
Keep respiratory tract clear.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

Risks : May cause an allergic skin reaction.

First aider needs to protect himself.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : The first aid procedure should be established in consultation with the doctor responsible for industrial medicine.
There is no specific antidote available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products : No hazardous combustion products are known

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : In the event of fire and/or explosion do not breathe fumes.
Standard procedure for chemical fires.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Use a water spray to cool fully closed containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.
Ensure adequate ventilation.
Evacuate personnel to safe areas.

6.2 Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal considerations see section 13., For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Avoid formation of aerosol.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Provide sufficient air exchange and/or exhaust in work rooms.
Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Hygiene measures : When using do not eat or drink. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Electrical installations / working materials must comply with the technological safety standards.

Advice on common storage : No special restrictions on storage with other products.

Storage class (TRGS 510) : 10, Combustible liquids

Further information on storage stability : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s) : Fragrance mix

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
(2-Methoxymethylethoxy)propanol	34590-94-8	MAK (vapour)	50 ppm 310 mg/m3	DFG
		TWA	50 ppm 308 mg/m3	91/322/EEC
		TWA	50 ppm 308 mg/m3	EU SCOEL
		AGW (Vapor and aerosol)	50 ppm 310 mg/m3	DE TRGS 900
	Further information: Sum of vapors and aerosols.			
2,6-di-tert-Butyl-p-cresol	128-37-0	MAK (Vapor and aerosol, inhalable fraction.)	10 mg/m3	DFG
		AGW (inhalable fraction)	10 mg/m3	DE TRGS 900
	Further information: Sum of vapors and aerosols.			
(R)-p-mentha-1,8-diene; d-limonene	5989-27-5	MAK	5 ppm 28 mg/m3	DFG
		AGW	5 ppm 28 mg/m3	DE TRGS 900

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
2,6-Dimethyloct-7-en-2-ol	Workers	Inhalation	Long-term systemic effects	24,7 mg/m3
	Workers	Skin contact	Long-term systemic effects	7 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	4,35 mg/m3
	Consumers	Skin contact	Long-term systemic effects	2,5 mg/kg bw/day

	Consumers	Ingestion	Long-term systemic effects	2,5 mg/kg bw/day
Ethyl 2,3-epoxy-3-phenylbutyrate	Workers	Inhalation	Long-term systemic effects	17,63 mg/m3
	Workers	Skin contact	Long-term systemic effects	5 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	2,17 mg/m3
	Consumers	Skin contact	Long-term systemic effects	1,25 mg/kg bw/day
Allyl hexanoate	Workers	Inhalation	Long-term systemic effects	15 mg/m3
	Workers	Skin contact	Long-term systemic effects	4,3 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	3,7 mg/m3
	Consumers	Skin contact	Long-term systemic effects	2,1 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	2,1 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
2,6-Dimethyloct-7-en-2-ol	Fresh water	0,0278 mg/l
	Fresh water sediment	0,594 mg/kg dry weight (d.w.)
	Marine water	0,00278 mg/l
	Marine sediment	0,059 mg/kg dry weight (d.w.)
	Sewage treatment plant	10 mg/l
	Soil	0,103 mg/kg dry weight (d.w.)
Ethyl 2,3-epoxy-3-phenylbutyrate	Fresh water	0,084 mg/l
	Marine water	0,0084 mg/l
	Fresh water sediment	0,214 mg/kg dry weight (d.w.)
	Marine sediment	0,0214 mg/kg dry weight (d.w.)
	Soil	0,0378 mg/kg dry weight (d.w.)
	Sewage treatment plant	10 mg/l
3-Methylbutyl butyrate	Fresh water	0,00319 mg/l
	Fresh water sediment	0,100 mg/kg dry weight (d.w.)
	Marine water	0,000319 mg/l
	Marine sediment	0,010 mg/kg dry weight (d.w.)
	Sewage treatment plant	1,51 mg/l
	Soil	0,0181 mg/kg dry weight (d.w.)
Allyl hexanoate	Fresh water	0,000117 mg/l
	Fresh water sediment	0,00446 mg/kg dry weight (d.w.)

	Marine water	0,000012 mg/l
	Marine sediment	0,000446 mg/kg dry weight (d.w.)
	Sewage treatment plant	10 mg/l
	Soil	0,000825 mg/kg dry weight (d.w.)

8.2 Exposure controls

Personal protective equipment

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles

Hand protection

Remarks : Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). As the product is a mixture of several substances, the durability of the glove materials cannot be calculated in advance and has to be tested before use. Wear chemicals-resistant gloves, e.g. safety gloves of nitril (thickness 0.4mm) or of butyl rubber (thickness 0.7mm).

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : Not required; except in case of aerosol formation.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : liquid

Colour : colorless to orange

Odour : characteristic

Odour Threshold : No data available

Melting point/freezing point :

not determined

Boiling point/boiling range : not determined

Upper explosion limit / Upper flammability limit : Vapours may form explosive mixtures with air.

Lower explosion limit / Lower flammability limit : Vapours may form explosive mixtures with air.

Flash point	:	82 °C
Decomposition temperature	:	not determined
pH	:	Not applicable
Viscosity		
Viscosity, dynamic	:	not determined
Viscosity, kinematic	:	not determined
Solubility(ies)		
Water solubility	:	immiscible
Partition coefficient: n-octanol/water	:	Not applicable
Vapour pressure	:	< 1 kPa (50 °C) calculated
Relative density	:	0,9583 - 0,9783 (20 °C) relation to density of water at 4°C
Bulk density	:	Not applicable
Relative vapour density	:	not determined

9.2 Other information

Explosives	:	Due to its structural properties, the product is not classified as explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Self-ignition	:	The substance or mixture is not classified as self heating.
Evaporation rate	:	Not applicable
Molecular weight	:	Not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions : No decomposition if stored and applied as directed.

Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Conditions to avoid : No data available

10.5 Incompatible materials

Materials to avoid : No data available

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

SECTION 11: Toxicological information

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

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity	:	Acute toxicity estimate: > 2.000 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate: > 5 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: > 2.000 mg/kg Method: Calculation method

Components:

cis-2-tert-Butylcyclohexyl acetate:

Acute oral toxicity	:	LD50 Oral (Rat): 4.600 mg/kg Method: OECD Test Guideline 401 GLP: no
Acute dermal toxicity	:	LD50 Dermal (Rabbit): > 5.000 mg/kg Method: OECD Test Guideline 402 GLP: no

benzyl benzoate:

Acute oral toxicity	:	LD50 Oral (Rat): 1.500 mg/kg
Acute dermal toxicity	:	Acute toxicity estimate: 4.000 mg/kg

1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one:

Acute oral toxicity	:	LD50 Oral (Rat, male and female): > 5.000 mg/kg Method: OECD Test Guideline 401 GLP: yes

Acute dermal toxicity	:	LD50 Dermal (Rat, male and female): > 5.000 mg/kg Method: OECD Test Guideline 402 GLP: no

2,6-Dimethyloct-7-en-2-ol:

Acute oral toxicity	:	LD50 Oral (Rat): 3.600 mg/kg

α,α-Dimethylphenethyl butyrate:

Acute oral toxicity	:	LD50 (Rat): > 5.000 mg/kg
Acute dermal toxicity	:	LD50 (Rabbit): > 5.000 mg/kg

[3R-(3α,3aβ,7β,8aα)]-1-(2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen- 5-yl)ethan-1-one:

Acute oral toxicity	:	LD50 Oral (Rat, male and female): 4.500 mg/kg Method: OECD Test Guideline 401 GLP: no
Acute dermal toxicity	:	LD50 (Rabbit, male and female): > 5.000 mg/kg Method: OECD Test Guideline 402 GLP: no

2-tert-Butylcyclohexyl acetate:

Acute oral toxicity	:	LD50 (Rat): 4.600 mg/kg Remarks: No data available
Acute inhalation toxicity	:	Remarks: No data available
Acute dermal toxicity	:	LD50 (Rabbit): > 5.000 mg/kg

α,α-Dimethylphenethyl acetate:

Acute oral toxicity	:	LD50 Oral (Rat, male): 3.300 mg/kg GLP: no
Acute dermal toxicity	:	LD50 Dermal (Rabbit): > 3.000 mg/kg

Allyl (3-methylbutoxy)acetate:

Acute inhalation toxicity	:	LC50 (Rat, male and female): 0,46 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 GLP: yes

Dimethylcyclohex-3-ene-1-carbaldehyde:

Acute oral toxicity	:	LD50 Oral (Rat): 3.900 mg/kg GLP: No information available.

Acute dermal toxicity : LD50 Dermal (Rabbit): > 5.000 mg/kg
GLP: No information available.

Ethyl 2,3-epoxy-3-phenylbutyrate:

Acute dermal toxicity : LD50 Dermal (Rat, male and female): > 2.000 mg/kg
Method: OECD Test Guideline 402
GLP: yes

2,4,6-Trimethylcyclohex-3-enecarbaldehyde:

Acute oral toxicity : LD50 Oral (Rat): 4.100 mg/kg

Acute dermal toxicity : LD50 Dermal (Rabbit): > 5.000 mg/kg

2,6-di-tert-Butyl-p-cresol:

Acute oral toxicity : LD50 Oral (Rat, male and female): > 6.000 mg/kg
Method: OECD Test Guideline 401
GLP: yes

Acute dermal toxicity : LD50 Dermal (Rat, male and female): > 2.000 mg/kg
Method: OECD Test Guideline 402
GLP: yes

1-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-2-buten-1-one:

Acute oral toxicity : LD50 Oral (Mouse, male and female): 1.400 mg/kg
Method: OECD Test Guideline 401
GLP: no

Acute dermal toxicity : LD50 Dermal (Rabbit): > 5.000 mg/kg
Method: OECD Test Guideline 402

3-p-Cumenyl-2-methylpropionaldehyde:

Acute oral toxicity : LD50 (Rat): 3.810 mg/kg

Acute dermal toxicity : LD50 Dermal (Rat): > 5.000 mg/kg

(R)-p-mentha-1,8-diene; d-limonene:

Acute oral toxicity : LD50 Oral (Rat, female): > 2.000 mg/kg
Method: OECD Test Guideline 423
GLP: yes

Acute dermal toxicity : LD50 (Rabbit): > 5.000 mg/kg
Remarks: Information given is based on data obtained from similar substances.

Eugenol:

Acute oral toxicity : LD50 (Rat, male and female): > 2.000 mg/kg
Method: OECD 423
GLP: No information available.

Acute inhalation toxicity	:	LC50 (Rat, male and female): > 5 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 GLP: No information available.

trans-Hex-2-enal:

Acute oral toxicity	:	LD50 (Rat): 900 mg/kg
Acute dermal toxicity	:	LD50 (Rabbit): 600 mg/kg

Allyl hexanoate:

Acute oral toxicity	:	LD50 (Rat, male and female): 218 mg/kg Method: OECD Test Guideline 401 GLP: no
Acute dermal toxicity	:	LD50 (Rabbit): 820 mg/kg Method: OECD Test Guideline 402 GLP: no

(2-Methoxymethylethoxy)propanol:

Acute oral toxicity	:	LD50 (Rat): > 5.000 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): 500 mg/l Exposure time: 7 h
Acute dermal toxicity	:	LD50 (Rabbit): > 5.000 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Components:

cis-2-tert-Butylcyclohexyl acetate:

Species	:	Rabbit
Exposure time	:	4 h
Method	:	OECD Test Guideline 404
Result	:	Mild skin irritation
GLP	:	no
Concentration	:	100 %

benzyl benzoate:

Species	:	Rabbit
Exposure time	:	4 h
Method	:	OECD Test Guideline 404
Result	:	Mild skin irritation
GLP	:	yes
Dose	:	0,5 ml
Concentration	:	100 %

1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one:

Species	:	reconstructed human epidermis (RhE)
Exposure time	:	0,25 h
Method	:	OECD 439
Result	:	Skin irritation
GLP	:	yes
Concentration	:	100 %

α,α-Dimethylphenethyl butyrate:

Species	:	Rabbit
Exposure time	:	24 h
Result	:	Skin irritation
Concentration	:	100 %

Species	:	Humans
Exposure time	:	48 h
Method	:	Closed patch test
Result	:	No skin irritation
Concentration	:	10 %
solvents	:	Petrolatum

[3R-(3α,3aβ,7β,8aα)]-1-(2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen- 5-yl)ethan-1-one:

Species	:	reconstructed human epidermis (RhE)
Exposure time	:	0,25 h
Method	:	OECD 439
Result	:	No skin irritation
GLP	:	yes
Dose	:	0,01 ml
Concentration	:	100 %

2-tert-Butylcyclohexyl acetate:

Species	:	Humans
Exposure time	:	48 h
Method	:	Closed patch test
Result	:	No skin irritation
Concentration	:	4 %
solvents	:	Vaseline

Species	:	Rabbit
Exposure time	:	24 h
Result	:	Moderate irritation of skin
Concentration	:	100 %

α,α-Dimethylphenethyl acetate:

Species	:	Humans
Result	:	Mild skin irritation
Concentration	:	4 %

Species	:	Rabbit
Exposure time	:	24 h

Result	:	Moderate irritation of skin
Dose	:	500 mg

Allyl (3-methylbutoxy)acetate:

Species	:	Humans
Method	:	Closed patch test
Result	:	No skin irritation
Concentration	:	1 %
solvents	:	Diethylphthalate

Ethyl 2,3-epoxy-3-phenylbutyrate:

Species	:	reconstructed human epidermis (RhE)
Method	:	Commission Regulation (EC) No. 440/2008 B46
Result	:	No skin irritation
GLP	:	yes
Concentration	:	100 %

2,4,6-Trimethylcyclohex-3-enecarbaldehyde:

Species	:	Rabbit
Exposure time	:	72 h
Method	:	OECD Test Guideline 404
Result	:	Mild skin irritation
GLP	:	no
Concentration	:	100 %

2,6-di-tert-Butyl-p-cresol:

Species	:	Rabbit
Exposure time	:	4 h
Method	:	OECD Test Guideline 404
Result	:	No skin irritation
GLP	:	yes
Dose	:	250 mg
Concentration	:	100 %

1-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-2-buten-1-one:

Species	:	reconstructed human epidermis (RhE)
Exposure time	:	15 min
Method	:	Tested according to Annex V of Directive 67/548/EEC.
Result	:	Skin irritation
GLP	:	yes
Dose	:	10 yl
Concentration	:	100 %

3-p-Cumenyl-2-methylpropionaldehyde:

Species	:	Humans
Result	:	Mild skin irritation
Concentration	:	3 %

Species	:	Rabbit

Result : Irritating to skin.

(R)-p-mentha-1,8-diene; d-limonene:

Species	:	Rabbit
Exposure time	:	4 h
Method	:	OECD Test Guideline 404
Result	:	Skin irritation
GLP	:	yes
Concentration	:	100 %

Eugenol:

Species	:	Rabbit
Exposure time	:	4 h
Method	:	OECD Test Guideline 404
Result	:	Mild skin irritation
GLP	:	yes
Dose	:	0,5 ml
Concentration	:	100 %

Allyl hexanoate:

Species	:	reconstructed human epidermis (RhE)
Exposure time	:	15 min
Method	:	Commission Regulation (EC) No. 440/2008 B46
Result	:	No skin irritation
GLP	:	yes
Dose	:	0,015 ml
Concentration	:	100 %

(2-Methoxymethylethoxy)propanol:

Species	:	Rabbit
Result	:	Mild skin irritation
Dose	:	500 mg

Serious eye damage/eye irritation

Not classified based on available information.

Components:

cis-2-tert-Butylcyclohexyl acetate:

Species	:	Rabbit
Exposure time	:	24 h
Method	:	OECD Test Guideline 405
Result	:	No eye irritation
GLP	:	no
Dose	:	0,1 ML
Concentration	:	100 %

benzyl benzoate:

Species	:	Rabbit
Method	:	OECD Test Guideline 405

Result	:	Mild eye irritation
GLP	:	yes
Dose	:	0,1 ML
Concentration	:	100 %

1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one:

Species	:	Rabbit
Method	:	Draize Test
Result	:	No eye irritation
Dose	:	0,1 ML
Concentration	:	2,5 %
solvents	:	Ethyl alcohol

2,6-Dimethyloct-7-en-2-ol:

Species	:	Rabbit
Result	:	Eye irritation
GLP	:	yes
Dose	:	0,1 ML
Concentration	:	100 %

α,α-Dimethylphenethyl butyrate:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	Mild eye irritation
GLP	:	yes

[3R-(3α,3aβ,7β,8aα)]-1-(2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen- 5-yl)ethan-1-one:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	No eye irritation
GLP	:	no
Dose	:	0,1 ML
Concentration	:	100 %

2-tert-Butylcyclohexyl acetate:

Species	:	Rabbit
Exposure time	:	24 h
Result	:	No eye irritation
Concentration	:	5 %

α,α-Dimethylphenethyl acetate:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	No eye irritation
GLP	:	yes
Concentration	:	100 %

Allyl (3-methylbutoxy)acetate:

Species	:	Bovine cornea
Method	:	OECD 437
Result	:	No eye irritation
GLP	:	yes
Dose	:	0,75 ML
Concentration	:	100 %

Dimethylcyclohex-3-ene-1-carbaldehyde:

Species	:	Rabbit
Result	:	Eye irritation
GLP	:	No information available.
Dose	:	0,1 ML
Concentration	:	100 %

Ethyl 2,3-epoxy-3-phenylbutyrate:

Species	:	Rabbit
Exposure time	:	24 h
Method	:	OECD Test Guideline 405
Result	:	No eye irritation
GLP	:	yes
Dose	:	0,1 ML
Concentration	:	100 %

2,4,6-Trimethylcyclohex-3-enecarbaldehyde:

Result	:	Eye irritation

2,6-di-tert-Butyl-p-cresol:

Species	:	Rabbit
Method	:	Draize Test
Result	:	Mild eye irritation

1-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-2-buten-1-one:

Species	:	Rabbit
Result	:	No eye irritation
Concentration	:	1 %
solvents	:	Propylene glycol

Species	:	hen' s egg
Exposure time	:	0,6 min
Method	:	OECD Test Guideline 438
Result	:	No eye irritation
GLP	:	yes
Dose	:	30 YL
Concentration	:	100 %

3-p-Cumenyl-2-methylpropionaldehyde:

Species	:	Rabbit
Result	:	No eye irritation

Dose	:	0,1 ML
Concentration	:	6 %
solvents	:	Propylene glycol

(R)-p-mentha-1,8-diene; d-limonene:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	Mild eye irritation
GLP	:	yes
Concentration	:	100 %

Eugenol:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	Eye irritation
Dose	:	0,1 ML
Concentration	:	100 %

Allyl hexanoate:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	No eye irritation
GLP	:	yes
Dose	:	0,1 ML
Concentration	:	100 %

(2-Methoxymethylethoxy)propanol:

Species	:	Rabbit
Exposure time	:	24 h
Result	:	Mild eye irritation
Dose	:	500 MG

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

Components:

cis-2-tert-Butylcyclohexyl acetate:

Test Type	:	Buehler Test
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	No sensitizing effect.
GLP	:	no
Concentration	:	100 %

benzyl benzoate:

Test Type	:	Local Lymph Node Assay
Species	:	Mouse
Method	:	OECD 429
Result	:	No sensitizing effect.
GLP	:	yes
Concentration	:	50 %
solvents	:	Diethylphthalate/Ethyl alcohol (3:1)

1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one:

Test Type	:	Local Lymph Node Assay
Species	:	Mouse
Method	:	OECD 429
Result	:	Sensitizing effect.
GLP	:	yes
Concentration	:	6,07 %
solvents	:	Diethylphthalate/Ethyl alcohol (1:1)

2,6-Dimethyloct-7-en-2-ol:

Species	:	Humans
Result	:	No sensitizing effect.
Rate of positive effects	:	0/25
Concentration	:	4 %

Test Type	:	Maximisation Test
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	No sensitizing effect.
GLP	:	yes
Concentration	:	100 %

α,α-Dimethylphenethyl butyrate:

Test Type	:	Maximisation Test
Species	:	Humans
Result	:	No sensitizing effect.
Concentration	:	10 %
solvents	:	Petrolatum

[3R-(3α,3aβ,7β,8aα)]-1-(2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen- 5-yl)ethan-1-one:

Test Type	:	Local Lymph Node Assay
Species	:	Mouse
Method	:	OECD 429
Result	:	Sensitizing effect.
GLP	:	yes
Concentration	:	13,93 %
solvents	:	Diethylphthalate/Ethyl alcohol (3:1)

2-tert-Butylcyclohexyl acetate:

Species	:	Humans

Result	:	No sensitizing effect.
Concentration	:	4 %
solvents	:	Vaseline

Test Type	:	HRIPT
Species	:	Humans
Result	:	No sensitizing effect.
Concentration	:	100 %
solvents	:	Diethylphthalate/Ethyl alcohol (3:1)

α,α-Dimethylphenethyl acetate:

Species	:	Humans
Result	:	No sensitizing effect.
Concentration	:	5 %

Species	:	Guinea pig
Result	:	No sensitizing effect.
Concentration	:	4 %

Dimethylcyclohex-3-ene-1-carbaldehyde:

Test Type	:	Maximisation Test
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Sensitizing effect.
GLP	:	yes
Concentration	:	25 %
solvents	:	Diethylphthalate/Ethyl alcohol (1:1)

Ethyl 2,3-epoxy-3-phenylbutyrate:

Test Type	:	Maximisation Test
Species	:	Guinea pig
Result	:	Sensitizing effect.
GLP	:	no
Concentration	:	100 %

2,4,6-Trimethylcyclohex-3-enecarbaldehyde:

Test Type	:	Local Lymph Node Assay
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	Sensitizing effect.
GLP	:	yes
Concentration	:	0,5 - 10 %
solvents	:	Diethylphthalate/Ethyl alcohol (3:1)

2,6-di-tert-Butyl-p-cresol:

Species	:	Humans
Result	:	No sensitizing effect.
GLP	:	No information available.
Rate of positive effects	:	11/11454
Concentration	:	2 %

solvents : Petrolatum

3-p-Cumenyl-2-methylpropionaldehyde:

Test Type	:	HRIPT
Species	:	Humans
Result	:	No sensitizing effect.
Concentration	:	2 %

Test Type	:	Local Lymph Node Assay
Species	:	Mouse
Method	:	OECD 429
Result	:	Sensitizing effect.
GLP	:	No information available.
Concentration	:	22,3 %
solvents	:	Acetone/Olive oil (4:1)

(R)-p-mentha-1,8-diene; d-limonene:

Test Type	:	Local Lymph Node Assay
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	Sensitizing effect.
GLP	:	yes
Concentration	:	22 %
solvents	:	Diethylphthalate/Ethyl alcohol (3:1)

Eugenol:

Test Type	:	Local Lymph Node Assay
Species	:	Mouse
Method	:	OECD 429
Result	:	Sensitizing effect.
GLP	:	No information available.
Concentration	:	> 5,4 %
solvents	:	Diethylphthalate/Ethyl alcohol (3:1)

Allyl hexanoate:

Test Type	:	Magnusson & Kligmann test
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	No sensitizing effect.
GLP	:	yes
Concentration	:	50 %
solvents	:	sesame oil
Remarks	:	Information given is based on data obtained from similar substances.

(2-Methoxymethylethoxy)propanol:

Result	:	No sensitizing effect.

Germ cell mutagenicity

Not classified based on available information.

Components:

cis-2-tert-Butylcyclohexyl acetate:

Genotoxicity in vitro : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD 471
Result: negative
GLP: yes

Test Type: In vitro Mammalian Chromosome Aberration Test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD 473
Result: negative
GLP: yes

Test Type: In vitro Mammalian Cell Gene Mutation Test
Test system: mouse lymphoma L5178Y cells
Metabolic activation: with and without metabolic activation
Method: OECD 476
Result: negative
GLP: yes

1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one:

Genotoxicity in vitro : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test Type: In vitro Mammalian Chromosome Aberration Test
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: yes

Test Type: In vitro Mammalian Cell Gene Mutation Test
Test system: mouse lymphoma L5178Y cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

2,6-Dimethyloct-7-en-2-ol:

Genotoxicity in vitro : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD 471
Result: negative
GLP: yes

Test Type: In vitro Mammalian Cell Gene Mutation Test
Test system: mouse lymphoma L5178Y cells
Metabolic activation: with and without metabolic activation
Method: OECD 476
Result: negative
GLP: yes

Test Type: In vitro Mammalian Chromosome Aberration Test
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD 473
Result: negative
GLP: yes

α,α-Dimethylphenethyl butyrate:

Genotoxicity in vitro : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD 471
Result: negative
GLP: yes

Test Type: In vitro Mammalian Cell Gene Mutation Test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD 476
Result: negative
GLP: yes

Test Type: In Vitro Mammalian Cell Micronucleus Test
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD 487
Result: negative
GLP: yes

[3R-(3α,3aβ,7β,8aα)]-1-(2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen- 5-yl)ethan-1-one:

Genotoxicity in vitro : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD 471
Result: negative
GLP: yes

Test Type: In vitro Mammalian Cell Gene Mutation Test
Test system: mouse lymphoma L5178Y cells
Metabolic activation: with and without metabolic activation
Method: OECD 476
Result: negative
GLP: yes

Test Type: In vitro Mammalian Chromosome Aberration Test
Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation
Method: OECD 473
Result: negative
GLP: yes

α,α-Dimethylphenethyl acetate:

Genotoxicity in vitro : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD 471
Result: negative
GLP: yes

Test Type: In Vitro Mammalian Cell Micronucleus Test
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 487
Result: negative
GLP: yes

Test Type: In vitro Mammalian Cell Gene Mutation Test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD 476
Result: negative
GLP: yes

Allyl (3-methylbutoxy)acetate:

Genotoxicity in vitro : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD 471
Result: negative
GLP: yes

Dimethylcyclohex-3-ene-1-carbaldehyde:

Genotoxicity in vitro : Test Type: Ames test
Test system: TA98
Metabolic activation: with and without metabolic activation
Method: OECD 471
Result: negative
GLP: yes

Test Type: Ames test
Test system: TA100
Metabolic activation: with and without metabolic activation
Method: OECD 471
Result: negative
GLP: yes

Test Type: Ames test
Test system: TA1535
Metabolic activation: with and without metabolic activation
Method: OECD 471

Result: negative
GLP: yes

Test Type: Ames test
Test system: TA1537
Metabolic activation: with and without metabolic activation
Method: OECD 471
Result: negative
GLP: yes

Ethyl 2,3-epoxy-3-phenylbutyrate:

Genotoxicity in vitro : Test Type: In vitro Mammalian Chromosome Aberration Test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Result: Positive results were obtained in some in vitro tests.
GLP: No information available.

Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Result: Positive results were obtained in some in vitro tests.
GLP: No information available.

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Result: negative

2,4,6-Trimethylcyclohex-3-enecarbaldehyde:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

2,6-di-tert-Butyl-p-cresol:

Genotoxicity in vitro : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Result: negative
GLP: No information available.

Test Type: In vitro Mammalian Cell Gene Mutation Test
Test system: mammalian liver cells
Result: negative
GLP: No information available.

Test Type: In vitro Mammalian Chromosome Aberration Test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Result: negative

GLP: No information available.

Genotoxicity in vivo : Test Type: Micronucleus test
Result: negative

1-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-2-buten-1-one:

Genotoxicity in vitro : Test Type: reverse mutation assay
Test system: Escherichia coli
Metabolic activation: with and without metabolic activation
Result: negative

Test Type: In vitro Mammalian Chromosome Aberration Test
Test system: Human lymphocytes
Method: OECD 473
Result: positive
GLP: yes

Test Type: In vitro Mammalian Chromosome Aberration Test
Test system: Human lymphocytes
Method: OECD 473
Result: negative
GLP: yes

Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD 471
Result: negative
GLP: yes

Genotoxicity in vivo : Test Type: Mammalian Erythrocyte Micronucleus Test
Species: Mouse (male)
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative
GLP: yes

3-p-Cumenyl-2-methylpropionaldehyde:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD 471
Result: negative
GLP: yes

(R)-p-mentha-1,8-diene; d-limonene:

Genotoxicity in vitro : Test Type: In vitro Mammalian Cell Gene Mutation Test
Test system: mouse lymphoma L5178Y cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: negative
GLP: no

Test Type: In vitro Mammalian Chromosome Aberration Test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: no

Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Genotoxicity in vivo : Test Type: comet assay
Species: Rat (male)
Application Route: Oral
Result: negative
GLP: no

Eugenol:

Genotoxicity in vitro : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD 471
Result: negative
GLP: No information available.

Test Type: In vitro Mammalian Chromosome Aberration Test
Method: OECD 473
Result: positive
GLP: No information available.

Test Type: In vitro Mammalian Cell Gene Mutation Test
Method: OECD 476
Result: positive
GLP: No information available.

Genotoxicity in vivo : Test Type: Mammalian Erythrocyte Micronucleus Test
Species: Mouse (male)
Method: OECD 474
Result: negative
GLP: No information available.

Allyl hexanoate:

APPLE & HONEYCRISP

Genotoxicity in vitro	:	Test Type: Ames test Metabolic activation: with and without metabolic activation Method: OECD 471

Result: negative
GLP: no

Test Type: In Vitro Mammalian Cell Micronucleus Test
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD 487
Result: negative
GLP: yes

Test Type: In vitro Mammalian Cell Gene Mutation Test
Test system: V79 cells
Metabolic activation: with and without metabolic activation
Method: OECD 476
Result: negative
GLP: yes

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Repeated dose toxicity

Components:

1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one:

Species	:	Rat, male and female
NOAEL	:	120 mg/kg bw/day
Application Route	:	Oral
Exposure time	:	91 d
Control Group	:	yes
Method	:	OECD Test Guideline 408
GLP	:	yes
Target Organs	:	Liver, spleen

Allyl hexanoate:

Species	:	Rat, male and female
NOAEL	:	2.500 mg/kg
Application Route	:	Oral
Exposure time	:	1 y
GLP	:	no

Aspiration toxicity

Not classified based on available information.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Further information

Components:

2,6-Dimethyloct-7-en-2-ol:

Remarks : Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Concentrations substantially above the TLV value may cause narcotic effects.
Solvents may degrease the skin.

trans-Hex-2-enal:

Remarks : Solvents may degrease the skin.

SECTION 12: Ecological information

12.1 Toxicity

Components:

cis-2-tert-Butylcyclohexyl acetate:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 1,7 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: Directive 67/548/EEC, Annex V, C.1.
GLP: yes

LC50 (Danio rerio (zebra fish)): 5,6 mg/l
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
Method: Directive 67/548/EEC, Annex V, C.1.
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 17 mg/l
Exposure time: 48 h
Test Type: static test
Method: Directive 67/548/EEC, Annex V, C.2.

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 4,2 mg/l
End point: Growth rate

Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

NOEC (Desmodesmus subspicatus (green algae)): 0,57 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

Toxicity to fish (Chronic toxicity) : EC10: 0,91 mg/l
End point: mortality
Exposure time: 33 d
Species: Pimephales promelas (fathead minnow)
Test Type: flow-through test
Analytical monitoring: yes
Method: OECD 210
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : 0,99 mg/l
End point: Reproduction rate
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD 211
GLP: yes

benzyl benzoate:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 2,32 mg/l
End point: mortality
Exposure time: 96 h
Test Type: semi-static test
Method: Directive 67/548/EEC, Annex V, C.1.
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3,09 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 0,475 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201

GLP: yes

NOEC (Pseudokirchneriella subcapitata (green algae)): 0,247 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

Toxicity to microorganisms : EC50 (Activated sludge): > 10.000 mg/l
End point: Respiration inhibition
Exposure time: 3 h
Test Type: static test
Method: OECD 209 / ISO 8192
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,258 mg/l
End point: Reproduction rate
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Method: OECD 211
GLP: yes

1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 1,3 mg/l
End point: mortality
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1,38 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): > 2,6 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

NOEC (Desmodesmus subspicatus (green algae)): >= 2,6 mg/l
End point: Growth rate

Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

Toxicity to microorganisms : NOEC (Activated sludge): > 100 mg/l
Exposure time: 42 d
Test Type: static test
Method: OECD 301F
GLP: yes

Toxicity to fish (Chronic toxicity) : NOEC: 0,16 mg/l
End point: mortality
Exposure time: 30 d
Species: Danio rerio (zebra fish)
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 210
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,028 mg/l
End point: Reproduction rate
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: flow-through test
Analytical monitoring: yes
Method: OECD 211
GLP: yes

M-Factor (Chronic aquatic toxicity) : 1

2,6-Dimethyloct-7-en-2-ol:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna): 38 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 80 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

NOEC (Desmodesmus subspicatus (green algae)): 25 mg/l
Exposure time: 72 h
Test Type: static test

Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

α,α-Dimethylphenethyl butyrate:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): > 2,7 mg/l
End point: mortality
Exposure time: 96 h
Test Type: flow-through test
Analytical monitoring: yes
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna): 2 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: Directive 67/548/EEC, Annex V, C.2.
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 1,9 mg/l
End point: Growth rate
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

EC10 (Pseudokirchneriella subcapitata (green algae)): 0,19 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

[3R-(3α,3aβ,7β,8aα)]-1-(2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen- 5-yl)ethan-1-one:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 2,3 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna Straus): 0,86 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

APPLE & HONEYCRISP

Toxicity to algae/aquatic : EC10 (Pseudokirchneriella subcapitata (algae)): 3 mg/l

plants		End point: Growth rate Exposure time: 96 h Test Type: static test Method: OECD Test Guideline 201 GLP: yes EC50 (Pseudokirchneriella subcapitata (algae)): > 4,3 mg/l End point: Growth rate Exposure time: 96 h Test Type: static test Method: OECD Test Guideline 201 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0,087 mg/l End point: Reproduction rate Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: flow-through test Method: OECD 211 GLP: yes

α,α-Dimethylphenethyl acetate:

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 15,4 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202 GLP: yes
Toxicity to microorganisms	:	EC50 : 684 mg/l Exposure time: 3 h Method: OECD 209 GLP: yes

Allyl (3-methylbutoxy)acetate:

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna): 10 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202 GLP: yes

Dimethylcyclohex-3-ene-1-carbaldehyde:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 7,5 mg/l End point: mortality Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 22,4 mg/l End point: Immobilization Exposure time: 48 h

Test Type: static test
Analytical monitoring: yes
Method: Directive 67/548/EEC, Annex V, C.2.
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 31 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

NOEC (Desmodesmus subspicatus (green algae)): 10 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

Ethyl 2,3-epoxy-3-phenylbutyrate:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 4,2 mg/l
End point: mortality
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna): 52 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 36 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

NOEC (Pseudokirchneriella subcapitata (green algae)): 9,3 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

2,4,6-Trimethylcyclohex-3-enecarbaldehyde:

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna): 11 mg/l Exposure time: 48 h Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 3 mg/l End point: Growth rate Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes EC10 (Pseudokirchneriella subcapitata (green algae)): 1,1 mg/l End point: Growth rate Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes

2,6-di-tert-Butyl-p-cresol:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): >= 0,57 mg/l End point: mortality Exposure time: 96 h Test Type: semi-static test Analytical monitoring: yes Method: Directive 67/548/EEC, Annex V, C.1. GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna): 0,48 mg/l End point: mortality Exposure time: 48 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): > 0,4 mg/l End point: Growth rate Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: Directive 67/548/EEC, Annex V, C.3. GLP: yes EC10 (Desmodesmus subspicatus (green algae)): ca. 0,4 mg/l End point: Growth rate Exposure time: 72 h

		Test Type: static test Analytical monitoring: yes Method: Regulation (EC) No. 440/2008, Annex, C.3 GLP: yes Remarks: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
M-Factor (Acute aquatic toxicity)	:	1
Toxicity to microorganisms	:	EC50 (Activated sludge): > 1.000 mg/l End point: Respiration inhibition Exposure time: 3 h Test Type: static test Analytical monitoring: no Method: OECD 209 GLP: yes
Toxicity to fish (Chronic toxicity)	:	0,053 mg/l Exposure time: 30 d Species: Oryzias latipes (Japanese medaka) Method: OECD 210 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0,069 mg/l End point: Reproduction rate Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD 211 GLP: yes
M-Factor (Chronic aquatic toxicity)	:	1

1-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-2-buten-1-one:

Toxicity to fish	:	LC50 (Oryzias latipes (Japanese medaka)): 0,977 mg/l Exposure time: 96 h Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 203 GLP: yes
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 4,54 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 GLP: yes NOEC (Pseudokirchneriella subcapitata (green algae)): 0,883 mg/l Exposure time: 72 h Test Type: static test

Method: OECD Test Guideline 201
GLP: yes

M-Factor (Acute aquatic toxicity) : 1

Toxicity to microorganisms : EC50 (Activated sludge): 241 mg/l
Exposure time: 3 h
Test Type: static test
Analytical monitoring: yes
Method: OECD 209
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,35 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Analytical monitoring: no
Method: OECD 211
GLP: yes

M-Factor (Chronic aquatic toxicity) : 1

3-p-Cumenyl-2-methylpropionaldehyde:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna): 1,4 mg/l
Exposure time: 48 h
Test Type: semi-static test
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 3,8 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

NOEC (Pseudokirchneriella subcapitata (green algae)): 0,7 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

Toxicity to microorganisms : EC50 (Activated sludge): ca. 100 mg/l
Exposure time: 3 h
Test Type: static test
Method: OECD 209
GLP: yes

(R)-p-mentha-1,8-diene; d-limonene:

APPLE & HONEYCRISP

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 0,720 mg/l

End point: mortality
Exposure time: 96 h
Test Type: flow-through test
Analytical monitoring: yes
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,307 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Raphidocelis subcapitata (freshwater green alga)): 0,32 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

EC10 (Raphidocelis subcapitata (freshwater green alga)): 0,174 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

M-Factor (Acute aquatic toxicity) : 1

Toxicity to microorganisms : EC50 (Activated sludge): 209 mg/l
Exposure time: 3 h
Test Type: static test
Analytical monitoring: no
Method: OECD Test Guideline 209
GLP: yes

EC10 (Activated sludge): 18 mg/l
Exposure time: 3 h
Test Type: static test
Analytical monitoring: no
Method: OECD Test Guideline 209
GLP: yes

Toxicity to fish (Chronic toxicity) : EC10: > 0,37 - < 0,67 mg/l
Exposure time: 8 d
Species: Pimephales promelas (fathead minnow)
Test Type: semi-static test
Analytical monitoring: yes

Method: OECD 212
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10: 0,153 mg/l
End point: Reproduction rate
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 211
GLP: yes

Eugenol:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 13 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1,13 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 24 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

trans-Hex-2-enal:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna): 4,1 mg/l
Exposure time: 48 h
Method: OECD 202 / ISO 6341

Allyl hexanoate:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 0,117 mg/l
End point: mortality
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna): 2 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): > 4,6 mg/l End point: Growth rate Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 GLP: yes ErC10 (Desmodesmus subspicatus (green algae)): 0,255 mg/l End point: Growth rate Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 GLP: yes
M-Factor (Acute aquatic toxicity)	:	1

[3R-(3α,3aβ,7β,8aα)]-2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulene:

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia (water flea)): 0,044 mg/l Exposure time: 48 h
M-Factor (Acute aquatic toxicity)	:	10
M-Factor (Chronic aquatic toxicity)	:	10

[3R-(3α,3aβ,7β,8aα)]-Octahydro-3,8,8-trimethyl-6-methylene-1H-3a,7-methanoazulene:

Toxicity to fish	:	LC50 (Fish): 0,042 mg/l Exposure time: 96 h
M-Factor (Acute aquatic toxicity)	:	10
M-Factor (Chronic aquatic toxicity)	:	10

(2-Methoxymethylethoxy)propanol:

Toxicity to fish	:	LC50 (Fathead minnow (Pimephales promelas)): > 10.000 mg/l
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna): 1.919 mg/l
Toxicity to algae/aquatic plants	:	EC50 (Scenedesmus capricornutum (fresh water algae)): > 969 mg/l Exposure time: 96 h

12.2 Persistence and degradability

Components:

cis-2-tert-Butylcyclohexyl acetate:

Biodegradability : Test Type: Manometric respiration test
Result: Inherently biodegradable.
Biodegradation: 61 %
Exposure time: 60 d
Method: OECD 301F
GLP: yes

benzyl benzoate:

Biodegradability : Test Type: Manometric respiration test
Result: Readily biodegradable.
Biodegradation: 94,4 %
Exposure time: 28 d
Method: OECD 301
GLP: yes

1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one:

Biodegradability : Test Type: MITI Test II
Result: Not inherently biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD 302C
GLP: yes

Result: Product is not persistent.
Remarks: Weight of Evidence

2,6-Dimethyloct-7-en-2-ol:

Biodegradability : Test Type: CO2 Evolution Test
Result: Readily biodegradable.
Biodegradation: 72 %
Exposure time: 28 d
Method: OECD 301B
GLP: yes

α,α-Dimethylphenethyl butyrate:

Biodegradability : Test Type: Closed Bottle test
Result: Readily biodegradable.
Biodegradation: 83 %
Exposure time: 28 d
Method: OECD 301D
GLP: yes

[3R-(3α,3aβ,7β,8aα)]-1-(2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen- 5-yl)ethan-1-one:

Biodegradability : Test Type: Manometric Respirometry Test

Result: Not readily biodegradable.
Biodegradation: 36 %
Exposure time: 28 d
Method: OECD 301F

Test Type: MITI Test II
Result: Partially inherently biodegradable.
Biodegradation: 36 %
Exposure time: 28 d
Method: OECD 302C

2-tert-Butylcyclohexyl acetate:

Biodegradability : Test Type: Manometric respiration test
Result: Inherently biodegradable.
Biodegradation: 61 %
Exposure time: 60 d
Method: OECD 301F
GLP: yes

α,α-Dimethylphenethyl acetate:

Biodegradability : Test Type: Manometric respiration test
Result: not readily biodegradable (only 10 day window failed)
Biodegradation: 79 %
Exposure time: 28 d
Method: OECD 301F
GLP: yes

Allyl (3-methylbutoxy)acetate:

Biodegradability : Test Type: Sturm test, OECD 301-B, (CO2):
Result: Readily biodegradable.
Biodegradation: 89,1 %
Exposure time: 28 d
Method: OECD 301B
GLP: no

Dimethylcyclohex-3-ene-1-carbaldehyde:

Biodegradability : Test Type: MITI Test I
Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD 301C
GLP: yes

Ethyl 2,3-epoxy-3-phenylbutyrate:

Biodegradability : Test Type: MITI Test II
Result: Partially inherently biodegradable.
Biodegradation: 55 %
Exposure time: 28 d
Method: OECD 302C
GLP: yes

2,4,6-Trimethylcyclohex-3-enecarbaldehyde:

Biodegradability : Test Type: Closed Bottle test
Result: Not readily biodegradable.
Biodegradation: 10 %
Exposure time: 28 d
Method: OECD 301D
GLP: yes

2,6-di-tert-Butyl-p-cresol:

Biodegradability : Test Type: MITI test, (BOD/COD):
Result: Not readily biodegradable.
Biodegradation: 4,5 %
Exposure time: 28 d
Method: OECD 301C

1-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-2-buten-1-one:

Biodegradability : Test Type: MITI Test II
Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 31 d
Method: OECD 302C
GLP: yes

Test Type: aerobic
Inoculum: activated sludge
Concentration: 100 mg/l
Result: Not readily biodegradable.
Biodegradation: 16 %
Exposure time: 28 d
Method: OECD 301C
GLP: yes

3-p-Cumenyl-2-methylpropionaldehyde:

Biodegradability : Test Type: CO2 Evolution Test
Result: Readily biodegradable.
Biodegradation: 66 %
Exposure time: 28 d
Method: OECD 301B
GLP: No information available.

(R)-p-mentha-1,8-diene; d-limonene:

Biodegradability : Test Type: CO2 Evolution Test
Result: Readily biodegradable.
Biodegradation: 71 %
Exposure time: 28 d
Method: OECD 301B
GLP: yes

Eugenol:

Biodegradability : Test Type: Closed Bottle test
Result: Readily biodegradable.
Biodegradation: 82 %
Exposure time: 28 d
Method: OECD 301D
GLP: yes

trans-Hex-2-enal:

Biodegradability : Test Type: Manometric respiration test
Result: not readily biodegradable (only 10 day window failed)
Biodegradation: 71 %
Exposure time: 28 d
Method: OECD 301F
GLP: yes

Allyl hexanoate:

Biodegradability : Test Type: Manometric Respirometry Test
Result: Readily biodegradable.
Biodegradation: 70 %
Exposure time: 28 d
Method: OECD 301F
GLP: yes

[3R-(3α,3aβ,7β,8aα)]-2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulene:

Biodegradability : Test Type: Manometric respiration test
Result: Readily biodegradable.
Biodegradation: 78 %
Exposure time: 28 d
Method: OECD 301F
GLP: yes

[3R-(3α,3aβ,7β,8aα)]-Octahydro-3,8,8-trimethyl-6-methylene-1H-3a,7-methanoazulene:

Biodegradability : Result: Readily biodegradable.
Remarks: Information given is based on data obtained from similar substances.

(2-Methoxymethylethoxy)propanol:

Biodegradability : Test Type: Manometric respiration test
Result: Readily biodegradable.
Biodegradation: 96 %
Exposure time: 28 d
Method: OECD 301F
GLP: yes

12.3 Bioaccumulative potential

Components:

cis-2-tert-Butylcyclohexyl acetate:

Partition coefficient: n- : log Pow: 4,8 (25 °C)

octanol/water		pH: 7 Method: OECD 117 GLP: yes

benzyl benzoate:

Partition coefficient: n-octanol/water	:	log Pow: ca. 3,97 (25 °C)

1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one:

Bioaccumulation	:	Species: Lepomis macrochirus (Bluegill sunfish) Exposure time: 21 d Bioconcentration factor (BCF): 600 Method: OECD Test Guideline 305 GLP: yes
Partition coefficient: n-octanol/water	:	log Pow: 5,65 (30 °C) Method: OECD 117 GLP: yes

2,6-Dimethyloct-7-en-2-ol:

Partition coefficient: n-octanol/water	:	log Pow: 3,25 (40 °C) pH: 7 Method: OECD 117 GLP: yes

α,α-Dimethylphenethyl butyrate:

Bioaccumulation	:	Bioconcentration factor (BCF): < 500
Partition coefficient: n-octanol/water	:	log Pow: ca. 4,7 (25 °C) Method: OECD Test Guideline 117 GLP: no

[3R-(3α,3aβ,7β,8aα)]-1-(2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen- 5-yl)ethan-1-one:

Partition coefficient: n-octanol/water	:	log Pow: 5,6 - 5,9 Method: OECD 117 GLP: yes

2-tert-Butylcyclohexyl acetate:

Partition coefficient: n-octanol/water	:	log Pow: 4,7

α,α-Dimethylphenethyl acetate:

Partition coefficient: n-octanol/water	:	log Pow: 3,64 (25 °C) pH: > 6 - < 7 Method: OECD 117 GLP: No information available.

Dimethylcyclohex-3-ene-1-carbaldehyde:

Partition coefficient: n-octanol/water	:	log Pow: 2,7 (25 °C) Method: OECD Test Guideline 117 GLP: yes

Ethyl 2,3-epoxy-3-phenylbutyrate:

Partition coefficient: n-octanol/water	:	log Pow: 2,4 - 2,8 (25 °C) Method: OECD 117 GLP: yes

2,4,6-Trimethylcyclohex-3-enecarbaldehyde:

Partition coefficient: n-octanol/water	:	log Pow: 2,87

2,6-di-tert-Butyl-p-cresol:

Partition coefficient: n-octanol/water	:	log Pow: 5,1

1-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-2-buten-1-one:

Bioaccumulation	:	Species: Cyprinus carpio (Carp) Exposure time: 60 d Temperature: 25 °C Bioconcentration factor (BCF): 58,3 Method: OECD Test Guideline 305 GLP: yes
Partition coefficient: n-octanol/water	:	log Pow: 4,2

3-p-Cumenyl-2-methylpropionaldehyde:

Partition coefficient: n-octanol/water	:	log Pow: 3,4 (35 °C) Method: OECD 117 GLP: yes

(R)-p-mentha-1,8-diene; d-limonene:

Partition coefficient: n-octanol/water	:	log Pow: 4,38 (37 °C) pH: 7,2 Method: OECD Test Guideline 117

Eugenol:

Partition coefficient: n-octanol/water	:	log Pow: 1,83 (30 °C) pH: 5,5 Method: OECD 117 GLP: no

trans-Hex-2-enal:

Partition coefficient: n-octanol/water	:	Remarks: not determined

Allyl hexanoate:

Bioaccumulation	:	Bioconcentration factor (BCF): 102,3 Remarks: calculated
Partition coefficient: n-octanol/water	:	log Pow: 3,191 (20 °C) Method: OECD Test Guideline 107 GLP: yes

[3R-(3α,3aβ,7β,8aα)]-2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulene:

Partition coefficient: n-octanol/water	:	log Pow: 6,09 Remarks: calculated

(2-Methoxymethylethoxy)propanol:

Partition coefficient: n-octanol/water	:	log Pow: 1,01

12.4 Mobility in soil

Components:

benzyl benzoate:

Distribution among environmental compartments	:	Adsorption/Soil Koc: 6310, log Koc: 3,8 Method: OECD 121

2,6-Dimethyloct-7-en-2-ol:

Distribution among environmental compartments	:	Medium: Soil Koc: 177,83, log Koc: 2,25 Method: OECD 121

Dimethylcyclohex-3-ene-1-carbaldehyde:

Distribution among environmental compartments	:	Adsorption/Soil Medium: Soil log Koc: 2,2 Method: OECD 121

Ethyl 2,3-epoxy-3-phenylbutyrate:

Distribution among environmental compartments	:	Adsorption/Soil Medium: Sludge log Koc: 2,34 - 2,74 Method: OECD 121

Allyl hexanoate:

Distribution among environmental compartments	:	log Koc: 2,53 Remarks: calculated

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Components:

Allyl hexanoate:

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).. This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

Components:

2,6-Dimethyloct-7-en-2-ol:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

α,α-Dimethylphenethyl butyrate:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

[3R-(3α,3aβ,7β,8aα)]-1-(2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen- 5-yl)ethan-1-one:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

α,α-Dimethylphenethyl acetate:

Additional ecological infor- : An environmental hazard cannot be excluded in the event of

mation

unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

Dimethylcyclohex-3-ene-1-carbaldehyde:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

Ethyl 2,3-epoxy-3-phenylbutyrate:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

trans-Hex-2-enal:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

Allyl hexanoate:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.
Harmful to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.

SECTION 14: Transport information

14.1 UN number or ID number

ADR : UN 3082

RID : UN 3082

IMDG : UN 3082

IATA	:	UN 3082

14.2 UN proper shipping name

ADR	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (OCTAHYDRO-TETRAMETHYL-NAPHTHALENYL-ETHANONE, CEDRYLKETONE)
RID	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (OCTAHYDRO-TETRAMETHYL-NAPHTHALENYL-ETHANONE, CEDRYLKETONE)
IMDG	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (OCTAHYDRO-TETRAMETHYL-NAPHTHALENYL-ETHANONE, CEDRYLKETONE)
IATA	:	Environmentally hazardous substance, liquid, n.o.s. (OCTAHYDRO-TETRAMETHYL-NAPHTHALENYL-ETHANONE, CEDRYLKETONE)

14.3 Transport hazard class(es)

ADR	:	9
RID	:	9
IMDG	:	9
IATA	:	9

14.4 Packing group

ADR

Packing group	:	III
Classification Code	:	M6
Hazard Identification Number	:	90
Labels	:	9
Tunnel restriction code	:	(-)

RID

Packing group	:	III
Classification Code	:	M6
Hazard Identification Number	:	90
Labels	:	9

IMDG

Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F

IATA (Cargo)

Packing instruction (cargo aircraft)	:	964
Packing instruction (LQ)	:	Y964
Packing group	:	III
Labels	:	Miscellaneous

Packing instruction (passenger aircraft)	:	964
Packing instruction (LQ)	:	Y964
Packing group	:	III
Labels	:	Miscellaneous

14.5 Environmental hazards

ADR
Environmentally hazardous : yes

RID
Environmentally hazardous : yes

IMDG
Marine pollutant : yes

IATA (Cargo)
Environmentally hazardous : yes

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Conditions of restriction for the following entries should be considered: Number on list 3

Isocyclocitral (Number on list 3)
Ethyl 2-methylbutyrate (Number on list 40, 3)
Hexyl acetate (Number on list 40, 3)
Allyl hexanoate (Number on list 3)
3-Methylbutyl butyrate (Number on list 40, 3)
3-Methyl-2-butenyl acetate (Number on list 40, 3)
benzyl benzoate (Number on list 3)
2-Ethyl-4-(2,2,3-trimethyl-3-cyclopenten-1-yl)-2-buten-1-ol (Number on list 3)
1-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-2-buten-1-one (Number on list 3)
1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one (Number on list 3)
2-Methylpent-2-en-1-oic acid

(Number on list 3)
Allyl (3-methylbutoxy)acetate (Number on list 3)
trans-Hex-2-enal (Number on list 40, 3)
3-p-Cumenyl-2-methylpropionaldehyde (Number on list 3)
α,α-Dimethylphenethyl acetate (Number on list 3)
[3R-(3α,3aβ,7β,8aα)]-1-(2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen-5-yl)ethan-1-one (Number on list 3)
Ethyl 2,3-epoxy-3-phenylbutyrate (Number on list 3)
1-[(2-tert-butyl)cyclohexyloxy]-2-butanol (Number on list 3)
Resins, Manila elemi (Number on list 40, 3)
Dimethylcyclohex-3-ene-1-carbaldehyde (Number on list 3)
Juniper, Juniperus virginiana, ext. (Number on list 3)
α,α-Dimethylphenethyl butyrate (Number on list 3)
α,3,3-Trimethylcyclohexylmethyl formate (Number on list 3)
2,6-Dimethyloct-7-en-2-ol (Number on list 3)

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

		Quantity 1	Quantity 2
E2	ENVIRONMENTAL HAZARDS	200 t	500 t

Water hazard class (Germany) : WGK 2 obviously hazardous to water
Classification according to AwSV, Annex 1 (5.2)

TA Luft List (Germany) : Total dust:
Not applicable
Inorganic substances in powdered form:
Not applicable
Inorganic substances in vapour or gaseous form:
Not applicable

Organic Substances:
portion Class 1: 0,88 %

Carcinogenic substances:
portion Class 3: < 0,01 %

Mutagenic:
Not applicable
Toxic to reproduction:
Not applicable

Volatile organic compounds : Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control)
Volatile organic compounds (VOC) content: 58,62 %

Other regulations:

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance.

SECTION 16: Other information

Full text of H-Statements

H226	:	Flammable liquid and vapour.
H301	:	Toxic if swallowed.
H302	:	Harmful if swallowed.
H304	:	May be fatal if swallowed and enters airways.
H311	:	Toxic in contact with skin.
H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H319	:	Causes serious eye irritation.
H330	:	Fatal if inhaled.
H331	:	Toxic if inhaled.
H336	:	May cause drowsiness or dizziness.
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.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Asp. Tox.	:	Aspiration hazard
Eye Irrit.	:	Eye irritation
Flam. Liq.	:	Flammable liquids
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
STOT SE	:	Specific target organ toxicity - single exposure
91/322/EEC	:	Europe. Commission Directive 91/322/EEC on establishing

		indicative limit values
DE TRGS 900	:	Germany. TRGS 900 - Occupational exposure limit values.
DFG	:	Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).
EU SCOEL	:	EU. Scientific Committee on Occupational Exposure Limit Values (SCOELs), European Commission - SCOEL, as amended
91/322/EEC / TWA	:	Time weighted average
DE TRGS 900 / AGW	:	Exposure limit(s):
DFG / MAK	:	Maximum allowable concentration:
EU SCOEL / TWA	:	Time weighted average

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Test- ing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regula- tion (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergen- cy Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration as- sociated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good La- boratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships car- rying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - Interna- tional Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL
- Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test popula- tion; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - Interna- tional Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Ef- fect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic sub- stance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quanti- tative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Re- striction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture:		**Classification procedure:**
Skin Sens. 1	H317	Calculation method
Aquatic Chronic 2	H411	Calculation method

The data contained in this Safety Data Sheet is accurate to the best knowledge of Candle Supply Pty Ltd, applies to the product as supplied Candle Supply Pty Ltd, and does not relate to use in combination with any other material or in any process. Data and information is furnished without warranty expressed or implied, nor does Candle Supply Pty Ltd, assume responsibility for use or reliance upon this data.

This SDS is current to the date listed above. However, the GHS classifications may change due to hazard communication updates by the overseeing governing body. For the most current SDS information please contact customerservice@candlesupply.com.au