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

GG 347-12% H 12% Bright Gold Lustre

Version	Revision Date:	Date of last issue: 02.08.2016
2.0	18.05.2017	Date of first issue: 26.11.2015

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

1.1 Product identifier

Trade name : GG 347-12% H

Product code : 88004308

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

Use of the Substance/Mixture : Industrial use, Colouring agent

1.3 Details of the supplier of the safety data sheet

Company : Cromartie Hobbycraft Ltd
Park Hall Road, Longton
Stoke-on-Trent, Staffordshire ST3 5AY

Telephone : 01782 319435

E-mail address of person responsible for the SDS : enquiries@cromart ie.co.uk

1.4 Emergency telephone number

Emergency telephone number : +49 6132-84463
International Emergency Number
This telephone number is available 24 hours per day, 7 days per week.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Skin irritation, Category 2	H315: Causes skin irritation.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Reproductive toxicity, Category 2	H361d: Suspected of damaging the unborn child.
Acute aquatic toxicity, Category 1	H400: Very toxic to aquatic life.
Chronic aquatic toxicity, Category 1	H410: Very 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 :
H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H361d Suspected of damaging the unborn child.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P201 Obtain special instructions before use.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P362 + P364 Take off contaminated clothing and wash it before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Hazardous components which must be listed on the label:

dipentene
Turpentine, oil
toluene
Pine oil
abietic acid
pin-2(3)-ene
Oil, lavender
Peppermint oil
pin-2(10)-ene
Oils, spike
Eucalyptus globulus, ext.
Oils, spruce
Lemon oils
(+/-)-1-methyl-4-(1-methylvinyl)cyclohexene

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.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Paint

Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
dipentene	138-86-3 205-341-0 601-029-00-7	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Skin Sens. 1; H317 Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	>= 10 - < 20
cyclohexanol	108-93-0 203-630-6 603-009-00-3	Acute Tox. 4; H302 Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335	>= 10 - < 20
Turpentine, oil	8006-64-2 232-350-7 650-002-00-6	Flam. Liq. 3; H226 Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Asp. Tox. 1; H304 Aquatic Chronic 2; H411	>= 5 - < 10
toluene	108-88-3 203-625-9 601-021-00-3	Flam. Liq. 2; H225 Skin Irrit. 2; H315 Repr. 2; H361d STOT SE 3; H336 STOT RE 2; H373 Asp. Tox. 1; H304 Aquatic Chronic 3; H412	>= 5 - < 10
benzyl alcohol	100-51-6 202-859-9 603-057-00-5	Acute Tox. 4; H302 Acute Tox. 4; H332 Eye Irrit. 2; H319	>= 5 - < 10
Pine oil	8002-09-3	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Asp. Tox. 1; H304 Aquatic Chronic 2; H411	>= 5 - < 10
silver(1+) neodecanoate	68683-18-1	Skin Irrit. 2; H315	>= 2.5 - < 5

	272-065-5	Eye Irrit. 2; H319 STOT SE 3; H335 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	
abietic acid	514-10-3 208-178-3	Skin Sens. 1; H317	>= 1 - < 5
sulfur	7704-34-9 231-722-6 016-094-00-1	Flam. Sol. 2; H228 Skin Irrit. 2; H315	>= 1 - < 5
pin-2(3)-ene	80-56-8 201-291-9	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Skin Sens. 1; H317 Asp. Tox. 1; H304	>= 1 - < 5
Oil, lavender	8000-28-0	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Asp. Tox. 1; H304 Aquatic Chronic 2; H411	>= 0.25 - < 1
Peppermint oil	8006-90-4	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Aquatic Chronic 3; H412	>= 0.25 - < 1
pin-2(10)-ene	127-91-3 204-872-5	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Skin Sens. 1B; H317 Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	>= 0.25 - < 1
Oils, spike	8016-78-2	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	>= 0.25 - < 1
Eucalyptus globulus, ext.	84625-32-1 283-406-2	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Asp. Tox. 1; H304 Aquatic Chronic 2; H411	>= 0.25 - < 1
Oils, spruce	8008-80-8	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Skin Sens. 1; H317	>= 0.1 - < 0.25

		Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	
Lemon oils	8008-56-8	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Skin Sens. 1; H317 Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	>= 0.1 - < 0.25
(+/-)-1-methyl-4-(1-methylvinyl)cyclohexene	7705-14-8 231-732-0 601-029-00-7	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Skin Sens. 1; H317 Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	>= 0.1 - < 0.25

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : First aider needs to protect himself.
Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.

If inhaled : Move to fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Get medical attention.

In case of skin contact : Take off all contaminated clothing immediately.
Wash off with:
Polyethylene glycol 400.
Obtain medical attention.

In case of eye contact : In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Keep eye wide open while rinsing.
Protect unharmed eye.
Call a physician immediately.

If swallowed : Immediately give large quantities of water to drink.
Do NOT induce vomiting.
Get medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Risks : Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
Suspected of damaging the unborn child.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Exposure to decomposition products may be a hazard to health.

Hazardous combustion products : Metal oxides
Carbon oxides
Sulphur oxides
Nitrogen oxides (NOx)
Silver compounds
Hydrogen chloride

5.3 Advice for firefighters

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

Further information : Use a water spray to cool fully closed containers.
Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Follow safe handling advice and personal protective equipment recommendations.
Ensure adequate ventilation.
Evacuate personnel to safe areas.
Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions : Do not allow contact with soil, surface or ground water.
Do not let product enter drains.

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 : Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).
Sweep up or vacuum up spillage and collect in suitable container for disposal.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Take precautionary measures against static discharges.
Provide sufficient air exchange and/or exhaust in work rooms.
Wear personal protective equipment.
Keep away from heat and sources of ignition.
Avoid inhalation, ingestion and contact with skin and eyes.
Smoking, eating and drinking should be prohibited in the application area.

Hygiene measures : Keep away from food and drink. Wash hands before breaks and at the end of workday. Keep working clothes separately. Remove and wash contaminated clothing and gloves, including the inside, before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep tightly closed in a dry, cool and well-ventilated place.
Keep locked up or in an area accessible only to qualified or authorised persons.

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal

protection 8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
cyclohexanol	108-93-0	TWA	50 ppm 208 mg/m3	GB EH40

Further information	Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used			
Turpentine, oil	8006-64-2	STEL	150 ppm 850 mg/m3	GB EH40
		TWA	100 ppm 566 mg/m3	GB EH40
toluene	108-88-3	TWA	50 ppm 192 mg/m3	2006/15/EC
Further information	Indicative, Identifies the possibility of significant uptake through the skin			
		STEL	100 ppm 384 mg/m3	2006/15/EC
Further information	Indicative, Identifies the possibility of significant uptake through the skin			
		TWA	50 ppm 191 mg/m3	GB EH40
Further information	Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
		STEL	100 ppm 384 mg/m3	GB EH40
Further information	Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			

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

Substance name	End Use	Exposure routes	Potential health effects	Value
Cyclohexanol	Workers	Inhalation	Long-term systemic effects	130 mg/m3
	Workers	Skin contact	Long-term systemic effects	3.58 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	32.5 mg/m3
	Consumers	Skin contact	Long-term systemic effects	1.79 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	1.79 mg/kg bw/day
Turpentine	Workers	Inhalation	Long-term systemic effects	11.2 mg/m3
	Workers	Skin contact	Long-term systemic effects	1.6 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	0.57 mg/kg bw/day
Toluene	Workers	Inhalation	Acute systemic effects	384 mg/m3
	Workers	Inhalation	Acute local effects	384 mg/m3
	Workers	Skin contact	Long-term systemic effects	384 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	192 mg/m3
	Workers	Inhalation	Long-term local effects	192 mg/m3
	Consumers	Inhalation	Acute systemic effects	226 mg/m3
	Consumers	Inhalation	Acute local effects	226 mg/m3

	Consumers	Skin contact	Long-term systemic effects	226 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	56.5 mg/m3
	Consumers	Ingestion	Long-term systemic effects	8.13 mg/kg bw/day
	Consumers	Inhalation	Long-term local effects	56.5 mg/m3
Benzyl alcohol	Workers	Inhalation	Long-term systemic effects	22 mg/m3
	Workers	Inhalation	Acute systemic effects	110 mg/m3
	Workers	Skin contact	Long-term systemic effects	8 mg/kg bw/day
	Workers	Skin contact	Acute systemic effects	40 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	5.4 mg/m3
	Consumers	Inhalation	Acute systemic effects	27 mg/m3
	Consumers	Skin contact	Long-term systemic effects	4 mg/kg bw/day
	Consumers	Skin contact	Acute systemic effects	20 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	4 mg/kg bw/day
	Consumers	Ingestion	Acute systemic effects	20 mg/kg bw/day
Bicyclo[3.1.1]hept-2-ene, 2,6,6-trimethyl-	Workers	Inhalation	Long-term systemic effects	5.98 mg/m3
	Workers	Skin contact	Acute local effects	0.161 mg/cm2
	Consumers	Inhalation	Long-term systemic effects	1.06 mg/m3
	Consumers	Skin contact	Acute local effects	0.081 mg/cm2
	Consumers	Ingestion	Long-term systemic effects	0.31 mg/kg bw/day
Bicyclo[3.1.1]heptane, 6,6-dimethyl-2-methylene-	Workers	Inhalation	Long-term systemic effects	5.98 mg/m3
	Workers	Skin contact	Acute local effects	0.161 mg/cm2
	Consumers	Inhalation	Long-term systemic effects	1.06 mg/m3
	Consumers	Skin contact	Acute local effects	0.081 mg/cm2
	Consumers	Ingestion	Long-term systemic effects	0.31 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
Cyclohexanol	Fresh water	0.017 mg/l
	Marine water	0.0017 mg/l
	Intermittent use/release	0.17 mg/l
	Sewage treatment plant	199.5 mg/l

	Fresh water sediment	0.042 mg/kg
	Marine sediment	0.0042 mg/kg
	Soil	0.005 mg/kg
Toluene	Fresh water	0.68 mg/l
	Marine water	0.68 mg/l
	Intermittent use/release	0.68 mg/l
	Sewage treatment plant	13.61 mg/l
	Fresh water sediment	16.39 mg/kg
	Marine sediment	16.39 mg/kg
	Soil	2.89 mg/kg
Benzyl alcohol	Fresh water	1 mg/l
	Marine water	0.1 mg/l
	Intermittent use/release	2.3 mg/l
	Sewage treatment plant	39 mg/l
	Fresh water sediment	5.27 mg/kg
	Marine sediment	0.527 mg/kg
	Soil	0.456 mg/kg
Bicyclo[3.1.1]hept-2-ene, 2,6,6-trimethyl-	Fresh water	0.004 mg/l
	Marine water	0.0004 mg/l
	Sewage treatment plant	3.26 mg/l
	Fresh water sediment	1.033 mg/kg
	Marine sediment	0.103 mg/kg
	Soil	0.593 mg/kg
	Oral (Secondary Poisoning)	1.35 mg/kg food
Bicyclo[3.1.1]heptane, 6,6-dimethyl-2-methylene-	Fresh water	2 µg/l
	Marine water	0.2 µg/l
	Sewage treatment plant	3.26 mg/l
	Fresh water sediment	0.485 mg/kg
	Marine sediment	0.048 mg/kg
	Soil	0.49 mg/kg
	Oral (Secondary Poisoning)	1.35 mg/kg food

8.2 Exposure controls

Engineering measures

Provide sufficient air exchange and/or exhaust in work rooms.

Personal protective equipment

Eye protection : Safety glasses with side-shields

Hand protection
Remarks : Before removing gloves clean them with soap and water. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Please ob-serve the instructions regarding permeability and break-through time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions un-der which the product is used, such as the danger of cuts, abrasion, and the contact time. As the product is a mixture of several substances, the durability of the glove materials can-

not be calculated in advance and has to be tested before use.

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 : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type : Recommended Filter type:

Filter type ABEK-P

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	: liquid
Colour	: dark brown
Odour	: characteristic
Odour Threshold	: No data available
pH	: Not applicable
Melting point/range	: No data available
Boiling point/boiling range	: > 35 °C (1,013 hPa)
Flash point	: 34 °C(1,013 hPa)
Evaporation rate	: No data available
Flammability (solid, gas)	: Not applicable
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapour pressure	: <= 1,100 hPa
Relative vapour density	: No data available
Relative density	: No data available
Density	: No data available

Solubility(ies)
Water solubility : practically insoluble (20 °C, 1,013 hPa)

Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Viscosity
Viscosity, dynamic : 110 mPa.s (23 °C)

Viscosity, kinematic : > 40 mm2/s (23 °C)

> 20.5 mm2/s (40 °C)

Explosive properties : Not applicable

Oxidizing properties : No data available

9.2 Other information
Self-ignition : Not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity
No dangerous reaction known under conditions of normal use.

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions
Hazardous reactions : No dangerous reaction known under conditions of normal use.

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 data available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

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:

dipentene:

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg Method: OECD Test Guideline 423 Assessment: The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	:	LC50 (Mouse): > 1.11 mg/l Exposure time: 4 h Test atmosphere: vapour Assessment: The substance or mixture has no acute inhalation toxicity Remarks: Based on data from similar materials
Acute dermal toxicity	:	LD50 (Rabbit): > 5,000 mg/kg Remarks: Based on data from similar materials

cyclohexanol:

Acute oral toxicity	:	LD50 (Rat): 1,400 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): > 3.6 mg/l Exposure time: 4 h Test atmosphere: dust/mist

Turpentine, oil:

Acute oral toxicity	:	Acute toxicity estimate: 500 mg/kg Method: Expert judgement Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Acute inhalation toxicity : LC50 (Rat): 13.7 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : Acute toxicity estimate: 1,100 mg/kg
Method: Expert judgement
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

toluene:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): 28.1 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

benzyl alcohol:

Acute oral toxicity : LD50 (Rat): 1,620 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 4.178 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

silver(1+) neodecanoate:

Acute oral toxicity : LD50 (Rat): 2,066 mg/kg
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 3,640 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Based on data from similar materials

abietic acid:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Remarks: Based on data from similar materials

sulfur:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 5.43 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

pin-2(3)-ene:

Acute oral toxicity : LD50 (Rat): 3,700 mg/kg

Peppermint oil:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

Oils, spike:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Eucalyptus globulus, ext.:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 5,000 mg/kg

Oils, spruce:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Remarks: Based on data from similar materials

Lemon oils:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

(+/-)-1-methyl-4-(1-methylvinyl)cyclohexene:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Mouse): > 1.11 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Components:

dipentene:

Result: Skin irritation
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

cyclohexanol:

Species: Rabbit
Result: Skin irritation

Turpentine, oil:

Species: reconstructed human epidermis (RhE)
Result: Skin irritation

toluene:

Species: Rabbit
Method: Directive 67/548/EEC, Annex V, B.4.
Result: Skin irritation

benzyl alcohol:

Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Pine oil:

Species: Rabbit
Result: Skin irritation
Remarks: Based on data from similar materials

silver(1+) neodecanoate:

Result: Skin irritation
Remarks: Expert judgement

Species: Rabbit
Result: No skin irritation
Remarks: Based on data from similar materials

abietic acid:

Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Remarks: Based on data from similar materials

sulfur:

Species: Rabbit
Method: OECD Test Guideline 404
Result: Skin irritation

pin-2(3)-ene:

Method: EPISKIN Human Skin Model Test
Result: Skin irritation

Peppermint oil:

Species: Rabbit
Result: Skin irritation
Remarks: Based on data from similar materials

pin-2(10)-ene:

Species: reconstructed human epidermis (RhE)
Result: Skin irritation

Oils, spike:

Result: Skin irritation
Remarks: Based on data from similar materials

Eucalyptus globulus, ext.:

Result: Skin irritation
Remarks: Based on data from similar materials

Oils, spruce:

Result: Skin irritation
Remarks: Based on data from similar materials

Lemon oils:

Species: Rabbit
Result: Skin irritation

(+/-)-1-methyl-4-(1-methylvinyl)cyclohexene:

Species: Rabbit
Method: OECD Test Guideline 404
Result: Skin irritation
Remarks: Based on data from similar materials

Serious eye damage/eye irritation

Causes serious eye irritation.

Components:

dipentene:

Species: Rabbit
Result: No eye irritation
Remarks: Based on data from similar materials

cyclohexanol:

Species: Rabbit
Method: OECD Test Guideline 405
Result: Irritation to eyes, reversing within 21 days

Turpentine, oil:

Result: Irritation to eyes, reversing within 21 days
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

toluene:

Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation

benzyl alcohol:

Species: Rabbit
Method: OECD Test Guideline 405
Result: Irritation to eyes, reversing within 21 days

Pine oil:

Species: Rabbit
Result: Irritation to eyes, reversing within 21 days
Remarks: Based on data from similar materials

silver(1+) neodecanoate:

Species: Rabbit
Result: No eye irritation
Remarks: Based on data from similar materials

abietic acid:

Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation
Remarks: Based on data from similar materials

sulfur:

Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation

pin-2(3)-ene:

Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation
Remarks: Based on data from similar materials

Peppermint oil:

Species: Rabbit
Result: Eye irritation
Remarks: Based on data from similar materials

pin-2(10)-ene:

Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation

Oils, spike:

Result: Irritation to eyes, reversing within 21 days
Remarks: Based on data from similar materials

Eucalyptus globulus, ext.:

Result: Irritation to eyes, reversing within 21 days
Remarks: Based on data from similar materials

Lemon oils:

Species: Rabbit
Result: No eye irritation

(+/-)-1-methyl-4-(1-methylvinyl)cyclohexene:

Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation
Remarks: Based on data from similar materials

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

Components:

dipentene:

Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact
Species: Mouse

Result: positive
Remarks: Based on data from similar materials

Assessment: Probability or evidence of skin sensitisation in humans

cyclohexanol:

Test Type: Maximisation Test
Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

Turpentine, oil:

Test Type: Maximisation Test
Exposure routes: Skin contact
Species: Guinea pig
Result: positive

Assessment: Probability or evidence of skin sensitisation in humans

toluene:

Test Type: Maximisation Test
Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

benzyl alcohol:

Test Type: Maximisation Test
Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

Pine oil:

Exposure routes: Skin contact
Assessment: Probability or evidence of skin sensitisation in humans
Remarks: Based on data from similar materials

silver(1+) neodecanoate:

Exposure routes: Skin contact
Species: Guinea pig
Result: negative

abietic acid:

Test Type: Maximisation Test
Exposure routes: Skin contact
Species: Guinea pig

Result: Probability or evidence of skin sensitisation in humans

sulfur:

Test Type: Magnusson-Kligman-Test
Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

pin-2(3)-ene:

Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact
Species: Mouse
Method: OECD Test Guideline 429
Result: positive
Remarks: Based on data from similar materials

Assessment: Probability or evidence of skin sensitisation in humans

Peppermint oil:

Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact
Species: Mouse
Method: OECD Test Guideline 429
Result: positive
Remarks: Based on data from similar materials

Assessment: Probability or evidence of skin sensitisation in humans

pin-2(10)-ene:

Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact
Species: Mouse
Method: OECD Test Guideline 429
Result: positive

Assessment: Probability or evidence of low to moderate skin sensitisation rate in humans

Oils, spike:

Exposure routes: Skin contact
Result: positive
Remarks: Based on data from similar materials

Assessment: Probability or evidence of skin sensitisation in humans

Eucalyptus globulus, ext.:

Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact

Species: Mouse
Method: OECD Test Guideline 429
Result: positive
Remarks: Based on data from similar materials

Assessment: Probability or evidence of skin sensitisation in humans

Oils, spruce:

Assessment: Probability or evidence of skin sensitisation in humans
Remarks: Based on data from similar materials

Lemon oils:

Test Type: Human repeat insult patch test (HRIPT)
Exposure routes: Skin contact
Result: positive

Assessment: Probability or evidence of skin sensitisation in humans

(+/-)-1-methyl-4-(1-methylvinyl)cyclohexene:

Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact
Species: Mouse
Result: positive
Remarks: Based on data from similar materials

Assessment: Probability or evidence of skin sensitisation in humans

Germ cell mutagenicity

Not classified based on available information.

Components:

dipentene:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Test Type: In vivo mammalian alkaline comet assay
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

cyclohexanol:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)

Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 474
Result: negative

Turpentine, oil:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

toluene:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Result: negative

: Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
Species: Mouse
Application Route: Ingestion
Result: negative

benzyl alcohol:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Intraperitoneal injection
Result: negative

silver(1+) neodecanoate:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
Remarks: Based on data from similar materials

: Test Type: in vitro micronucleus test
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

abietic acid:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
Remarks: Based on data from similar materials

sulfur:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 474
Result: negative

pin-2(3)-ene:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Result: negative

pin-2(10)-ene:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 474
Result: negative
Remarks: Based on data from similar materials

Eucalyptus globulus, ext.:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

: Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

: Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476

Result: negative

Lemon oils:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative
Remarks: Based on data from similar materials

(+/-)-1-methyl-4-(1-methylvinyl)cyclohexene:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: In vivo mammalian alkaline comet assay
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Carcinogenicity

Not classified based on available information.

Components:

dipentene:

Species: Mouse
Application Route: Ingestion
Exposure time: 103 weeks
Result: negative
Remarks: Based on data from similar materials

toluene:

Species: Rat
Application Route: inhalation (vapour)
Exposure time: 24 Months
Result: negative

benzyl alcohol:

Species: Mouse
Application Route: Ingestion
Exposure time: 103 weeks
Method: OECD Test Guideline 451
Result: negative

Reproductive toxicity

Suspected of damaging the unborn child.

Components:

cyclohexanol:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: inhalation (vapour)
Result: negative
Remarks: Based on data from similar materials

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: inhalation (vapour)
Result: negative
Remarks: Based on data from similar materials

Turpentine, oil:

Effects on fertility : Test Type: One-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Result: negative

Effects on foetal development : Test Type: Fertility/early embryonic development
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative
Remarks: Based on data from similar materials

toluene:

Effects on fertility : Test Type: One-generation reproduction toxicity study
Species: Rat
Application Route: inhalation (vapour)
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: inhalation (vapour)
Result: positive

Reproductive toxicity - Assessment : Some evidence of adverse effects on development, based on animal experiments.

benzyl alcohol:

Effects on fertility : Test Type: Fertility/early embryonic development
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Effects on foetal development : Test Type: Embryo-foetal development
Species: Mouse

Application Route: Ingestion
Result: negative

pin-2(3)-ene:

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

pin-2(10)-ene:

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative
Remarks: Based on data from similar materials

Eucalyptus globulus, ext.:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative

STOT - single exposure

Not classified based on available information.

Components:

cyclohexanol:

Assessment: May cause respiratory irritation.

toluene:

Assessment: May cause drowsiness or dizziness.

STOT - repeated exposure

Not classified based on available information.

Components:

toluene:

Target Organs: Central nervous system
Assessment: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

dipentene:

Species: Rat
NOAEL: 150 mg/kg
Application Route: Ingestion
Exposure time: 13 Weeks
Remarks: Based on data from similar materials

cyclohexanol:

Species: Rat
NOAEL: 143 mg/kg
Application Route: Ingestion
Exposure time: 90 Days
Method: OECD Test Guideline 408
Remarks: Based on data from similar materials

toluene:

Species: Rat
LOAEL: 1.875 mg/l
Application Route: inhalation (vapour)
Exposure time: 6 Months

benzyl alcohol:

Species: Rat
NOAEL: 1.072 mg/l
Application Route: inhalation (dust/mist/fume)
Exposure time: 28 Days
Method: OECD Test Guideline 412

sulfur:

Species: Rat
NOAEL: 1,000 mg/kg
Application Route: Ingestion
Exposure time: 90 Days
Method: OECD Test Guideline 408

pin-2(3)-ene:

Species: Rat, female
NOAEL: 200 ppm
Application Route: inhalation (dust/mist/fume)
Exposure time: 90 Days

pin-2(10)-ene:

Species: Rat
NOAEL: 1.11 mg/l
Application Route: inhalation (vapour)

Exposure time: 14 Weeks
Remarks: Based on data from similar materials

Eucalyptus globulus, ext.:

Species: Rat
NOAEL: 300 mg/kg
LOAEL: 1,000 mg/kg
Application Route: Ingestion
Exposure time: 5 Weeks
Method: OECD Test Guideline 422

(+/-)-1-methyl-4-(1-methylvinyl)cyclohexene:

Species: Rat
NOAEL: 600 mg/kg
LOAEL: 1,200 mg/kg
Application Route: Ingestion
Exposure time: 13 Weeks
Remarks: Based on data from similar materials

Aspiration toxicity

Not classified based on available information.

Components:

dipentene:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Turpentine, oil:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

toluene:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Pine oil:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

pin-2(3)-ene:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

pin-2(10)-ene:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Oils, spike:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Eucalyptus globulus, ext.:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Oils, spruce:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Lemon oils:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

(+/-)-1-methyl-4-(1-methylvinyl)cyclohexene:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Experience with human exposure

Components:

toluene:

Inhalation : Target Organs: Central nervous system
Symptoms: Neurological disorders, Fatigue, Vertigo

SECTION 12: Ecological information

12.1 Toxicity

Components:

dipentene:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 0.702 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.36 mg/l
Exposure time: 48 h
Remarks: Based on data from similar materials

Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 8 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201

Remarks: Based on data from similar materials

NOEC (Desmodesmus subspicatus (green algae)): 2.62 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

M-Factor (Acute aquatic toxicity) : 1

Toxicity to microorganisms : EC50 : 209 mg/l
Exposure time: 3 h

cyclohexanol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 704 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 17 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): > 500 mg/l
Exposure time: 72 h

EC10 (Desmodesmus subspicatus (green algae)): 1.55 mg/l
Exposure time: 72 h

Toxicity to microorganisms : EC50 : 9,000 mg/l
Exposure time: 30 min

Turpentine, oil:

Toxicity to fish : LL50 (Danio rerio (zebra fish)): 29 mg/l
Exposure time: 96 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 8.8 mg/l
Exposure time: 48 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 202

Toxicity to algae : EL50 (Desmodesmus subspicatus (green algae)): 16.4 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201

toluene:

Toxicity to fish : LC50 (Oncorhynchus kisutch (coho salmon)): 5.5 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Ceriodaphnia dubia (water flea)): 3.78 mg/l Exposure time: 48 h
Toxicity to algae	:	NOEC (Skeletonema costatum (marine diatom)): 10 mg/l Exposure time: 72 h
Toxicity to microorganisms	:	EC50 (Nitrosomonas sp.): 84 mg/l Exposure time: 24 h
Toxicity to fish (Chronic tox-icity)	:	NOEC: 1.39 mg/l Exposure time: 40 d Species: Oncorhynchus kisutch (coho salmon)
Toxicity to daphnia and other aquatic invertebrates (Chron-ic toxicity)	:	NOEC: 1 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) NOEC: 0.74 mg/l Exposure time: 7 d Species: Ceriodaphnia dubia (water flea)

benzyl alcohol:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 460 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 230 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 770 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 NOEC (Pseudokirchneriella subcapitata (green algae)): 310 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chron-ic toxicity)	:	NOEC: 51 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211

Pine oil:

Toxicity to fish	:	LC50 : > 1 - 10 mg/l Exposure time: 96 h Remarks: Based on data from similar materials

silver(1+) neodecanoate:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 0.0031 mg/l

Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 0.00056 mg/l
Exposure time: 48 h
Remarks: Based on data from similar materials

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 0.047 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to fish (Chronic toxicity) : EC10: 0.00044 mg/l
Exposure time: 196 d
Species: Oncorhynchus mykiss (rainbow trout)
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10: 0.0021 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Remarks: Based on data from similar materials

abietic acid:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 2.38 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): > 10 - 100 mg/l
Exposure time: 48 h
Remarks: Based on data from similar materials

Toxicity to algae : EL50 (Pseudokirchneriella subcapitata (green algae)): > 1,000 mg/l
Exposure time: 72 h
Remarks: Based on data from similar materials

sulfur:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 5 µg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 5 µg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: > 100 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211

pin-2(3)-ene:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 0.15 mg/l
Exposure time: 96 h
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.38 mg/l
Exposure time: 48 h
Remarks: **Based on data from similar materials**
No toxicity at the limit of solubility

Toxicity to algae : ErC50 (Pseudokirchneriella subcapitata (green algae)): Exposure time: 48 h
Remarks: **Based on data from similar materials**
No toxicity at the limit of solubility

Peppermint oil:

Toxicity to fish : LL50 (Danio rerio (zebra fish)): > 10 - 100 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): > 10 - 100 mg/l
Exposure time: 48 h
Remarks: Based on data from similar materials

Toxicity to algae : EL50 (Desmodesmus subspicatus (green algae)): > 10 - 100 mg/l
Exposure time: 72 h
Remarks: Based on data from similar materials

Toxicity to microorganisms : EC10 : 51 mg/l
Exposure time: 3 h
Remarks: Based on data from similar materials

pin-2(10)-ene:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 502 µg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1,250 µg/l
Exposure time: 48 h

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): > 0.18 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 201
Remarks: No toxicity at the limit of solubility

Remarks: Based on data from similar materials

NOEC (Pseudokirchneriella subcapitata (green algae)): 0.18 mg/l
Exposure time: 48 h

Method: OECD Test Guideline 201
Remarks: No toxicity at the limit of solubility

Remarks: Based on data from similar materials

M-Factor (Acute aquatic toxicity) : 1

Toxicity to microorganisms : EC50 : 326 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

Oils, spike:

Toxicity to fish : LC50 : > 0.1 - 1 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 : > 0.1 - 1 mg/l
Exposure time: 48 h
Remarks: Based on data from similar materials

M-Factor (Acute aquatic toxicity) : 1

Eucalyptus globulus, ext.:

Toxicity to fish : LC50 : > 1 - 10 mg/l
Exposure time: 96 h

Oils, spruce:

Toxicity to fish : LL50 : > 0.1 - 1 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): > 0.1 - 1 mg/l
Exposure time: 48 h
Remarks: Based on data from similar materials

Toxicity to algae : EL50 : > 0.1 - 1 mg/l
Exposure time: 72 h
Remarks: Based on data from similar materials

M-Factor (Acute aquatic toxicity) : 1

Lemon oils:

Toxicity to fish : LC50 : > 0.1 - 1 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 0.1 - 1 mg/l Exposure time: 48 h Remarks: Based on data from similar materials
Toxicity to algae	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1 - 10 mg/l Exposure time: 72 h Remarks: Based on data from similar materials
M-Factor (Acute aquatic toxicity)	:	1

(+/-)-1-methyl-4-(1-methylvinyl)cyclohexene:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 0.7 mg/l Exposure time: 96 h Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.36 mg/l Exposure time: 48 h Remarks: Based on data from similar materials
Toxicity to algae	:	EC50 (Desmodesmus subspicatus (green algae)): 8 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials NOEC (Desmodesmus subspicatus (green algae)): 2.62 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
M-Factor (Acute aquatic toxicity)	:	1
Toxicity to microorganisms	:	EC50 : 209 mg/l Exposure time: 3 h

12.2 Persistence and degradability

Components:

dipentene:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 80 % Exposure time: 28 d

cyclohexanol:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 94 - 99 % Exposure time: 28 d Method: OECD Test Guideline 301C

Turpentine, oil:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 71.7 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

toluene:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 86 %
Exposure time: 20 d

benzyl alcohol:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 92 - 96 %
Exposure time: 14 d

abietic acid:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 71 %
Exposure time: 28 d
Remarks: Based on data from similar materials

pin-2(3)-ene:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 62 %
Exposure time: 28 d

Peppermint oil:

Biodegradability : Result: Readily biodegradable.
Remarks: Based on data from similar materials

pin-2(10)-ene:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 76 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Eucalyptus globulus, ext.:

Biodegradability : Result: Readily biodegradable.
Remarks: Based on data from similar materials

Oils, spruce:

Biodegradability : Result: Readily biodegradable.
Remarks: Based on data from similar materials

Lemon oils:

Biodegradability : Result: Readily biodegradable.
Biodegradation: > 60 %
Exposure time: 28 d
Remarks: Based on data from similar materials

(+/-)-1-methyl-4-(1-methylvinyl)cyclohexene:

Biodegradability : Result: Readily biodegradable.
Biodegradation: >= 80 %
Exposure time: 28 d
Remarks: Based on data from similar materials

12.3 Bioaccumulative potential

Components:

dipentene:

Partition coefficient: n-octanol/water : log Pow: 4.59

cyclohexanol:

Partition coefficient: n-octanol/water : log Pow: 1.25

Turpentine, oil:

Partition coefficient: n-octanol/water : log Pow: > 4
Method: OECD Test Guideline 117
Remarks: Based on data from similar materials

toluene:

Bioaccumulation : Species: Leuciscus idus (Golden orfe)
Bioconcentration factor (BCF): 90

Partition coefficient: n-octanol/water : log Pow: 2.73

benzyl alcohol:

Partition coefficient: n-octanol/water : log Pow: 1.05

pin-2(3)-ene:

Partition coefficient: n-octanol/water : log Pow: 4.48

Peppermint oil:

Partition coefficient: n-octanol/water : log Pow: > 4
Remarks: Based on data from similar materials

pin-2(10)-ene:

Partition coefficient: n-octanol/water : log Pow: 4.425

Eucalyptus globulus, ext.:

Partition coefficient: n-octanol/water : log Pow: > 4

Oils, spruce:

Partition coefficient: n-octanol/water : log Pow: > 4
Remarks: Based on data from similar materials

Lemon oils:

Partition coefficient: n-octanol/water : log Pow: > 4

(+/-)-1-methyl-4-(1-methylvinyl)cyclohexene:

Partition coefficient: n-octanol/water : log Pow: 4.5

12.4 Mobility in soil

No data available

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.

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging : Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADN : UN 1263

ADR : UN 1263

RID : UN 1263

IMDG : UN 1263

IATA : UN 1263

14.2 UN proper shipping name

ADN : PAINT

ADR : PAINT

RID : PAINT

IMDG : PAINT

IATA : Paint

14.3 Transport hazard class(es)

ADN : 3

ADR : 3

RID : 3

IMDG : 3

IATA : 3

14.4 Packing group

ADN

Packing group	:	III
Classification Code	:	F1
Hazard Identification Number	:	30
Labels	:	3
Remarks	:	Special Provision 640E

ADR

Packing group	:	III
Classification Code	:	F1
Hazard Identification Number	:	30
Labels	:	3
Tunnel restriction code	:	(D/E)
Remarks	:	Special Provision 640E

RID

Packing group	:	III
Classification Code	:	F1
Hazard Identification Number	:	30
Labels	:	3
Remarks	:	Special Provision 640E

IMDG

Packing group	:	III
Labels	:	3
EmS Code	:	F-E, S-E

IATA (Cargo)

Packing instruction (cargo aircraft)	:	366
Packing instruction (LQ)	:	Y344
Packing group	:	III
Labels	:	Flammable Liquids

IATA (Passenger)

Packing instruction (passenger aircraft)	:	355
Packing instruction (LQ)	:	Y344
Packing group	:	III
Labels	:	Flammable Liquids

14.5 Environmental hazards

ADN
Environmentally hazardous : yes

ADR
Environmentally hazardous : yes

RID
Environmentally hazardous : yes

IMDG
Marine pollutant : yes

14.6 Special precautions for user

Not applicable

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

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mix-ture

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
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
Regulation (EC) No 850/2004 on persistent organic pol-lutants	:	Not applicable
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import	:	Not applicable

of dangerous chemicals

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
E1	ENVIRONMENTAL HAZARDS	100 t	200 t
P5c	FLAMMABLE LIQUIDS	5,000 t	50,000 t

Other regulations:

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.
Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Full text of H-Statements

H225	:	Highly flammable liquid and vapour.
H226	:	Flammable liquid and vapour.
H228	:	Flammable solid.
H302	:	Harmful if swallowed.
H304	:	May be fatal if swallowed and enters airways.
H312	:	Harmful in contact with skin.
H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H319	:	Causes serious eye irritation.
H332	:	Harmful if inhaled.
H335	:	May cause respiratory irritation.
H336	:	May cause drowsiness or dizziness.
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.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Acute	:	Acute aquatic toxicity
Aquatic Chronic	:	Chronic aquatic toxicity
Asp. Tox.	:	Aspiration hazard
Eye Irrit.	:	Eye irritation
Flam. Liq.	:	Flammable liquids
Flam. Sol.	:	Flammable solids
Repr.	:	Reproductive toxicity

Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single exposure

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (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 - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International 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 population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International 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) Effect 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 substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance 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:**
Flam. Liq. 3	H226	Based on product data or assessment
Skin Irrit. 2	H315	Calculation method
Eye Irrit. 2	H319	Calculation method
Skin Sens. 1	H317	Calculation method
Repr. 2	H361d	Calculation method
Aquatic Acute 1	H400	Calculation method
Aquatic Chronic 1	H410	Calculation method

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific

material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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