

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU



Oil of cinnamon , natural

article number: **A432**

Version: **2.0 en**

Replaces version of: 2021-04-09

Version: (1)

date of compilation: 2021-04-09

Revision: 2024-09-21

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

1.1 Product identifier

Identification of the substance

Oil of cinnamon , natural

Article number

A432

Registration number (REACH)

not relevant (mixture)

Unique formula identifier (UFI)

88G3-E04P-8009-YFG0

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

Relevant identified uses:

Laboratory and analytical use
Laboratory chemical

Uses advised against:

Do not use for private purposes (household).
Food, drink and animal feedingstuffs.

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co. KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0

Telefax: +49 (0) 721 - 56 06 149

e-mail: sicherheit@carlroth.de

Website: www.carlroth.de

Competent person responsible for the safety data sheet: Department Health, Safety and Environment

e-mail (competent person):

sicherheit@carlroth.de

1.4 Emergency telephone number

Name	Street	Postal code/city	Telephone	Website
National Poisons Information Centre Beaumont Hospital	Beaumont Road	Dublin 9	+353 1 809 2166	https://www.poisons.ie/

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Section	Hazard class	Cat-egory	Hazard class and category	Hazard statement
3.1D	Acute toxicity (dermal)	4	Acute Tox. 4	H312
3.2	Skin corrosion/irritation	2	Skin Irrit. 2	H315
3.3	Serious eye damage/eye irritation	2	Eye Irrit. 2	H319
3.4S	Skin sensitisation	1	Skin Sens. 1	H317

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Section	Hazard class	Cat-egory	Hazard class and category	Hazard statement
4.1C	Hazardous to the aquatic environment - chronic hazard	3	Aquatic Chronic 3	H412

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

Spillage and fire water can cause pollution of watercourses.

2.2 Label elements

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

Signal word

Warning

Pictograms

GHS07



Hazard statements

H312	Harmful in contact with skin
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H412	Harmful to aquatic life with long lasting effects

Precautionary statements

Precautionary statements - prevention

P280	Wear protective gloves/eye protection
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Precautionary statements - response

P302+P352	IF ON SKIN: Wash with plenty of water
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P333+P313	If skin irritation or rash occurs: Get medical advice/attention

Hazardous ingredients for labelling:

Cinnamaldehyde, Eugenol, DL- α -Pinene, β -Caryophyllene, Linalool, Coumarin, DL-Limonene

Labelling of packages where the contents do not exceed 125 ml

Signal word: **Warning**

Hazard pictogram(s):



H317	May cause an allergic skin reaction.
H412	Harmful to aquatic life with long lasting effects.
P280	Wear protective gloves/eye protection.
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
contains:	Cinnamaldehyde, Eugenol, DL- α -Pinene, β -Caryophyllene, Linalool, Coumarin, DL-Limonene

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Labelling of packages where the contents do not exceed 10 ml

Signal word: Not required
Hazard pictogram(s): Not required
Hazard statements: Not required
Precautionary statements: Not required

2.3 Other hazards

This material is combustible, but will not ignite readily.

Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance at a concentration of $\geq 0,1\%$.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

SECTION 3: Composition/information on ingredients

3.1 Substances

not relevant (mixture)

3.2 Mixtures

Description of the mixture

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes
Cinnamaldehyde	CAS No 104-55-2 EC No 203-213-9 Index No 606-155-00-6 REACH Reg. No 01-2119935242- 45-xxxx 01-2119950687- 24-xxxx	50 – < 75	Acute Tox. 4 / H312 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Skin Sens. 1A / H317 Aquatic Chronic 3 / H412		GHS-HC
Eugenol	CAS No 97-53-0 EC No 202-589-1	10 – < 25	Eye Irrit. 2 / H319 Skin Sens. 1B / H317		
β -Caryophyllene	CAS No 87-44-5 EC No 201-746-1 REACH Reg. No 01-2120745237- 53-xxxx	< 10	Skin Sens. 1 / H317 Asp. Tox. 1 / H304	 	
Linalool	CAS No 78-70-6 EC No 201-134-4 Index No 603-235-00-2 REACH Reg. No 01-2119474016- 42-xxxx	< 5	Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 Skin Sens. 1B / H317		GHS-HC











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Name of sub-stance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes
Benzoic acid benzyl ester	CAS No 120-51-4 EC No 204-402-9 Index No 607-085-00-9 REACH Reg. No 01-2119976371-33-xxxx	< 1	Acute Tox. 4 / H302 Aquatic Acute 1 / H400 Aquatic Chronic 2 / H411	 	GHS-HC
DL-Limonene	CAS No 138-86-3 EC No 205-341-0 Index No 601-029-00-7	< 1	Flam. Liq. 3 / H226 Skin Irrit. 2 / H315 Skin Sens. 1 / H317 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410	  	C GHS-HC
DL-α-Pinene	CAS No 80-56-8 EC No 201-291-9 REACH Reg. No 01-2119519223-49-xxxx	< 1	Flam. Liq. 3 / H226 Acute Tox. 4 / H302 Skin Irrit. 2 / H315 Skin Sens. 1A / H317 Asp. Tox. 1 / H304 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410	   	
Coumarin	CAS No 91-64-5 EC No 202-086-7	< 1	Acute Tox. 3 / H301 Skin Sens. 1 / H317 Aquatic Chronic 3 / H412		

Notes

C: Some organic substances may be marketed either in a specific isomeric form or as a mixture of several isomers. In this case the supplier must state on the label whether the substance is a specific isomer or a mixture of isomers.
GHS-HC: Harmonised classification (the classification of the substance corresponds to the entry in the list according to 1272/2008/EC, Annex VI)

Name of sub-stance	Identifier	Specific Conc. Limits	M-Factors	ATE	Exposure route
Cinnamaldehyde	CAS No 104-55-2 EC No 203-213-9 Index No 606-155-00-6	Skin Sens. 1A; H317: C ≥ 0,01 %	-	1.260 mg/kg	dermal
Benzoic acid benzyl ester	CAS No 120-51-4 EC No 204-402-9 Index No 607-085-00-9	-	-	500 mg/kg	oral
Coumarin	CAS No 91-64-5 EC No 202-086-7	-	-	293 mg/kg	oral
DL-α-Pinene	CAS No	-	-	1.000 mg/kg	oral

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Name of sub-stance	Identifier	Specific Conc. Limits	M-Factors	ATE	Exposure route
	80-56-8 EC No 201-291-9				

Remarks

For full text of abbreviations: see SECTION 16

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Rinse skin with water/shower. After contact with skin, wash immediately with plenty of water. In case of skin reactions, consult a physician. In case of skin irritation, consult a physician.

Following eye contact

Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. In case of eye irritation consult an ophthalmologist.

Following ingestion

Rinse mouth. Call a doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Vomiting, Irritation, Allergic reactions

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings!
water spray, dry extinguishing powder, BC-powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible.

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Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO₂), May produce toxic fumes of carbon monoxide if burning.

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Do not allow firefighting water to enter drains or water courses. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

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

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provision of sufficient ventilation.

Measures to prevent fire as well as aerosol and dust generation



Keep away from sources of ignition - No smoking.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed.

Incompatible substances or mixtures

Observe hints for combined storage. Incompatible materials: see section 10.

Consideration of other advice:

Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C

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7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

This information is not available.

Relevant DNELs of components

Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Eugenol	97-53-0	DNEL	21,2 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
Eugenol	97-53-0	DNEL	6 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Linalool	78-70-6	DNEL	2,8 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
Linalool	78-70-6	DNEL	16,5 mg/m ³	human, inhalatory	worker (industry)	acute - systemic effects
Linalool	78-70-6	DNEL	2,5 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Linalool	78-70-6	DNEL	5 mg/kg bw/day	human, dermal	worker (industry)	acute - systemic effects
Benzoic acid benzyl ester	120-51-4	DNEL	5,1 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
Benzoic acid benzyl ester	120-51-4	DNEL	102 mg/m ³	human, inhalatory	worker (industry)	acute - systemic effects
Benzoic acid benzyl ester	120-51-4	DNEL	2,6 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Coumarin	91-64-5	DNEL	6,78 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
Coumarin	91-64-5	DNEL	0,79 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
DL- α -Pinene	80-56-8	DNEL	3,8 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
DL- α -Pinene	80-56-8	DNEL	0,542 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Relevant PNECs of components

Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
Eugenol	97-53-0	PNEC	1,13 μ g/l	aquatic organisms	freshwater	short-term (single instance)
Eugenol	97-53-0	PNEC	0,113 μ g/l	aquatic organisms	marine water	short-term (single instance)
Eugenol	97-53-0	PNEC	0,081 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)

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Relevant PNECs of components						
Name of sub-stance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
Eugenol	97-53-0	PNEC	0,008 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Eugenol	97-53-0	PNEC	0,015 mg/kg	terrestrial organisms	soil	short-term (single instance)
Linalool	78-70-6	PNEC	0,2 mg/l	aquatic organisms	freshwater	short-term (single instance)
Linalool	78-70-6	PNEC	0,02 mg/l	aquatic organisms	marine water	short-term (single instance)
Linalool	78-70-6	PNEC	10 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Linalool	78-70-6	PNEC	2,22 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Linalool	78-70-6	PNEC	0,222 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Linalool	78-70-6	PNEC	0,327 mg/kg	terrestrial organisms	soil	short-term (single instance)
Benzoic acid benzyl ester	120-51-4	PNEC	0,017 mg/l	aquatic organisms	freshwater	short-term (single instance)
Benzoic acid benzyl ester	120-51-4	PNEC	0,002 mg/l	aquatic organisms	marine water	short-term (single instance)
Benzoic acid benzyl ester	120-51-4	PNEC	100 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Benzoic acid benzyl ester	120-51-4	PNEC	10,66 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Benzoic acid benzyl ester	120-51-4	PNEC	1,07 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Benzoic acid benzyl ester	120-51-4	PNEC	2,12 mg/kg	terrestrial organisms	soil	short-term (single instance)
Coumarin	91-64-5	PNEC	19 µg/l	aquatic organisms	freshwater	short-term (single instance)
Coumarin	91-64-5	PNEC	1,9 µg/l	aquatic organisms	marine water	short-term (single instance)
Coumarin	91-64-5	PNEC	6,4 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Coumarin	91-64-5	PNEC	0,15 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Coumarin	91-64-5	PNEC	0,015 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Coumarin	91-64-5	PNEC	0,018 mg/kg	terrestrial organisms	soil	short-term (single instance)
DL-α-Pinene	80-56-8	PNEC	0,606 µg/l	aquatic organisms	freshwater	short-term (single instance)
DL-α-Pinene	80-56-8	PNEC	0,061 µg/l	aquatic organisms	marine water	short-term (single instance)
DL-α-Pinene	80-56-8	PNEC	0,2 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
DL-α-Pinene	80-56-8	PNEC	157 µg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
DL-α-Pinene	80-56-8	PNEC	15,7 µg/kg	aquatic organisms	marine sediment	short-term (single instance)

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Relevant PNECs of components						
Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
				isms		instance)
DL- α -Pinene	80-56-8	PNEC	31,7 $\mu\text{g}/\text{kg}$	terrestrial organisms	soil	short-term (single instance)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection.

Skin protection



• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

Butyl caoutchouc (butyl rubber), Butyl caoutchouc (butyl rubber)

• material thickness

>0,3 mm 0,7 mm

• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: A (against organic gases and vapours with a boiling point of > 65 °C , colour code: Brown).

Environmental exposure controls

Keep away from drains, surface and ground water.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	clear - yellow - yellowish brown
Odour	characteristic
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	not determined
Flammability	this material is combustible, but will not ignite readily
Lower and upper explosion limit	not determined
Flash point	>63 °C
Auto-ignition temperature	not determined
Decomposition temperature	not relevant
pH (value)	not determined
Kinematic viscosity	not determined

Solubility(ies)

Water solubility	not determined
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Partition coefficient

Partition coefficient n-octanol/water (log value):	this information is not available
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Vapour pressure	not determined
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Density and/or relative density

Density	1,02 – 1,03 g/cm ³ at 20 °C
Relative vapour density	Information on this property is not available.

Particle characteristics	not relevant (liquid)
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Other safety parameters

Oxidising properties	none
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9.2 Other information

Information with regard to physical hazard classes:	hazard classes acc. to GHS (physical hazards): not relevant
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Other safety characteristics:

Refractive index	1,58 – 1,6 (20 °C)
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SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

If heated

Vapours may form explosive mixtures with air.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Violent reaction with: strong oxidiser

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

10.5 Incompatible materials

There is no additional information.

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

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

Test data are not available for the complete mixture.

Classification procedure

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

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

Acute toxicity

Harmful in contact with skin.

Acute toxicity estimate (ATE) of components

Name of substance	CAS No	Exposure route	ATE
Cinnamaldehyde	104-55-2	dermal	1.260 mg/kg
Benzoic acid benzyl ester	120-51-4	oral	500 mg/kg
Coumarin	91-64-5	oral	293 mg/kg
DL- α -Pinene	80-56-8	oral	1.000 mg/kg

Acute toxicity of components

Name of substance	CAS No	Exposure route	Endpoint	Value	Species
Cinnamaldehyde	104-55-2	oral	LD50	2.220 mg/kg	rat
Cinnamaldehyde	104-55-2	dermal	LD50	1.260 mg/kg	rabbit
Eugenol	97-53-0	oral	LD50	>2.000 mg/kg	rat
β -Caryophyllene	87-44-5	oral	LD50	>5.000 mg/kg	mouse
Linalool	78-70-6	oral	LD50	2.790 mg/kg	rat

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Acute toxicity of components					
Name of substance	CAS No	Exposure route	Endpoint	Value	Species
Linalool	78-70-6	dermal	LD50	5.610 mg/kg	rabbit
Benzoic acid benzyl ester	120-51-4	oral	LD50	>2.000 mg/kg	rat
Coumarin	91-64-5	oral	LD50	293 mg/kg	rat
Coumarin	91-64-5	dermal	LD50	293 mg/kg	rat
DL- α -Pinene	80-56-8	dermal	LD50	>2.000 mg/kg	rat
DL- α -Pinene	80-56-8	oral	LD50	3.700 mg/kg	rat
DL-Limonene	138-86-3	oral	LD50	5.300 mg/kg	rat

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

May cause an allergic skin reaction.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

Data are not available.

• If in eyes

Causes serious eye irritation

• If inhaled

Data are not available.

• If on skin

causes skin irritation, May produce an allergic reaction, pruritis, localised redness

• Other information

none

11.2 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

11.3 Information on other hazards

There is no additional information.

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SECTION 12: Ecological information

12.1 Toxicity

Harmful to aquatic life with long lasting effects.

Aquatic toxicity (acute) of components					
Name of sub-stance	CAS No	Endpoint	Value	Species	Exposure time
Cinnamaldehyde	104-55-2	LC50	2,35 mg/l	fish	96 h
Cinnamaldehyde	104-55-2	EC50	119,6 mg/l	aquatic invertebrates	48 h
Eugenol	97-53-0	LC50	13 mg/l	fish	96 h
Eugenol	97-53-0	EC50	1,05 mg/l	aquatic invertebrates	48 h
Eugenol	97-53-0	ErC50	24 mg/l	algae	72 h
β -Caryophyllene	87-44-5	EC50	>0,17 mg/l	daphnia magna	48 h
β -Caryophyllene	87-44-5	ErC50	>0,033 mg/l	algae	72 h
Linalool	78-70-6	LC50	27,8 mg/l	fish	96 h
Linalool	78-70-6	EC50	59 mg/l	aquatic invertebrates	48 h
Linalool	78-70-6	ErC50	156,7 mg/l	algae	96 h
Benzoic acid benzyl ester	120-51-4	LC50	0,29 mg/l	striped brill	96 h
Benzoic acid benzyl ester	120-51-4	EC50	3,09 mg/l	aquatic invertebrates	48 h
Benzoic acid benzyl ester	120-51-4	ErC50	0,475 mg/l	algae	72 h
Coumarin	91-64-5	LC50	2,94 mg/l	fish	96 h
Coumarin	91-64-5	EC50	8,012 mg/l	aquatic invertebrates	48 h
DL- α -Pinene	80-56-8	LC50	0,303 mg/l	fish	96 h
DL- α -Pinene	80-56-8	EC50	0,475 mg/l	aquatic invertebrates	48 h
DL-Limonene	138-86-3	EC50	17 mg/l	daphnia magna	48 h
DL-Limonene	138-86-3	LC50	80 mg/l	rainbow trout (Oncorhynchus mykiss)	96 h

Aquatic toxicity (chronic) of components					
Name of sub-stance	CAS No	Endpoint	Value	Species	Exposure time
Cinnamaldehyde	104-55-2	EC50	0,402 mg/l	aquatic invertebrates	21 d
Cinnamaldehyde	104-55-2	NOEC	15,16 mg/l	fish	28 d
Linalool	78-70-6	EC50	>100 mg/l	microorganisms	30 min
Benzoic acid benzyl ester	120-51-4	LC50	11 mg/l	aquatic invertebrates	24 h
Benzoic acid benzyl ester	120-51-4	EC50	>10.000 mg/l	microorganisms	3 h
Benzoic acid benzyl ester	120-51-4	NOEC	0,258 mg/l	aquatic invertebrates	21 d
Coumarin	91-64-5	NOEC	0,191 mg/l	fish	30 d

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Aquatic toxicity (chronic) of components

Name of sub-stance	CAS No	Endpoint	Value	Species	Exposure time
DL- α -Pinene	80-56-8	NOEC	2 mg/l	microorganisms	28 d

12.2 Persistence and degradability

2,581 mg/mg

Degradability of components

Name of substance	CAS No	Process	Degradation rate	Time	Method	Source
Cinnamaldehyde	104-55-2	biotic/abiotic	100 %	28 d		
Cinnamaldehyde	104-55-2	carbon dioxide generation	89 %	7 d		ECHA
Eugenol	97-53-0	biotic/abiotic	82 %	28 d		
Eugenol	97-53-0	oxygen depletion	50 %	7 d		ECHA
β -Caryophyllene	87-44-5	oxygen depletion	10 %	28 d		ECHA
Linalool	78-70-6	oxygen depletion	40,9 %	5 d		ECHA
Benzoic acid benzyl ester	120-51-4	biotic/abiotic	94 %	28 d		
Benzoic acid benzyl ester	120-51-4	oxygen depletion	94 %	28 d		ECHA
Coumarin	91-64-5	oxygen depletion	87 %	14 d		ECHA
DL- α -Pinene	80-56-8	oxygen depletion	68 %	28 d		ECHA

12.3 Bioaccumulative potential

Data are not available.

Bioaccumulative potential of components

Name of substance	CAS No	BCF	Log KOW	BOD5/COD
Cinnamaldehyde	104-55-2	8	2,107 (25 °C)	
Eugenol	97-53-0		1,83 (pH value: 5,5, 30 °C)	
β -Caryophyllene	87-44-5		6,23 (pH value: 7, 25 °C)	
Linalool	78-70-6		2,9 (pH value: 7, 20 °C)	
Benzoic acid benzyl ester	120-51-4	193,4	3,97 (25 °C)	
Coumarin	91-64-5		1,39 (pH value: 7, 25 °C)	
DL- α -Pinene	80-56-8		4,83	
DL-Limonene	138-86-3		4,57	

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance at a concentration of $\geq 0,1\%$.

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12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

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

Waste treatment of containers/packagings

Handle contaminated packages in the same way as the substance itself. Completely emptied packages can be recycled.

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

Properties of waste which render it hazardous

HP 4 irritant - skin irritation and eye damage

HP 6 acute toxicity

HP 13 sensitising

HP 14 ecotoxic

13.3 Remarks

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

SECTION 14: Transport information

- | | |
|--|---|
| 14.1 UN number or ID number | not subject to transport regulations |
| 14.2 UN proper shipping name | not assigned |
| 14.3 Transport hazard class(es) | none |
| 14.4 Packing group | not assigned |
| 14.5 Environmental hazards | non-environmentally hazardous acc. to the dangerous goods regulations |
| 14.6 Special precautions for user | There is no additional information. |
| 14.7 Maritime transport in bulk according to IMO instruments | The cargo is not intended to be carried in bulk. |
| 14.8 <u>Information for each of the UN Model Regulations</u> | |
| International Maritime Dangerous Goods Code (IMDG) - Additional information | |
| Not subject to IMDG. | |

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International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Not subject to ICAO-IATA.

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Restrictions according to REACH, Annex XVII

Dangerous substances with restrictions (REACH, Annex XVII)				
Name of substance	Name acc. to inventory	CAS No	Restriction	No
Oil of cinnamon	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC		R3	3
Cinnamaldehyde	substances in tattoo inks and permanent make-up		R75	75
DL-Limonene	flammable / pyrophoric		R40	40
DL-Limonene	substances in tattoo inks and permanent make-up		R75	75
Linalool	substances in tattoo inks and permanent make-up		R75	75
DL- α -Pinene	flammable / pyrophoric		R40	40

Legend

- R3 1. Shall not be used in:
- ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
 - tricks and jokes,
 - games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
2. Articles not complying with paragraph 1 shall not be placed on the market.
3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:
- can be used as fuel in decorative oil lamps for supply to the general public, and
 - present an aspiration hazard and are labelled with H304.
4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).
5. Without prejudice to the implementation of other Union provisions relating to the classification, labelling and packaging of substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
- (a) lamp oils, labelled with H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: "Keep lamps filled with this liquid out of the reach of children"; and, by 1 December 2010, "Just a sip of lamp oil – or even sucking the wick of lamps – may lead to life-threatening lung damage";
 - (b) grill lighter fluids, labelled with H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: "Just a sip of grill lighter fluid may lead to life threatening lung damage";
 - (c) lamps oils and grill lighters, labelled with H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.;
- R40 1. Shall not be used, as substance or as mixtures in aerosol dispensers where these aerosol dispensers are intended for supply to the general public for entertainment and decorative purposes such as the following:
- metallic glitter intended mainly for decoration,
 - artificial snow and frost,
 - 'whoopie' cushions,
 - silly string aerosols,
 - imitation excrement,
 - horns for parties,
 - decorative flakes and foams,
 - artificial cobwebs,
 - stink bombs.
2. Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with:
- 'For professional users only'.
3. By way of derogation, paragraphs 1 and 2 shall not apply to the aerosol dispensers referred to Article 8 (1a) of Council Directive 75/324/EEC (2).
4. The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirements indicated.
- R75 1. Shall not be placed on the market in mixtures for use for tattooing purposes, and mixtures containing any such substances shall not be used for tattooing purposes, after 4 January 2022 if the substance or substances in question is or

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Legend

are present in the following circumstances:

- (a) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as carcinogen category 1A, 1B or 2, or germ cell mutagen category 1A, 1B or 2, the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight;
 - (b) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as reproductive toxicant category 1A, 1B or 2, the substance is present in the mixture in a concentration equal to or greater than 0,001 % by weight;
 - (c) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as skin sensitiser category 1, 1A or 1B, the substance is present in the mixture in a concentration equal to or greater than 0,001 % by weight;
 - (d) in the case of a substance classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 as skin corrosive category 1, 1A, 1B or 1C or skin irritant category 2, or as serious eye damage category 1 or eye irritant category 2, the substance is present in the mixture in a concentration equal to or greater than:
 - (i) 0,1 % by weight, if the substance is used solely as a pH regulator;
 - (ii) 0,01 % by weight, in all other cases;
 - (e) in the case of a substance listed in Annex II to Regulation (EC) No 1223/2009 (*1), the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight;
 - (f) in the case of a substance for which a condition of one or more of the following kinds is specified in column g (Product type, Body parts) of the table in Annex IV to Regulation (EC) No 1223/2009, the substance is present in the mixture in a concentration equal to or greater than 0,00005 % by weight:
 - (i) "Rinse-off products";
 - (ii) "Not to be used in products applied on mucous membranes";
 - (iii) "Not to be used in eye products";
 - (g) in the case of a substance for which a condition is specified in column h (Maximum concentration in ready for use preparation) or column i (Other) of the table in Annex IV to Regulation (EC) No 1223/2009, the substance is present in the mixture in a concentration, or in some other way, that does not accord with the condition specified in that column;
 - (h) in the case of a substance listed in Appendix 13 to this Annex, the substance is present in the mixture in a concentration equal to or greater than the concentration limit specified for that substance in that Appendix.
2. For the purposes of this entry use of a mixture "for tattooing purposes" means injection or introduction of the mixture into a person's skin, mucous membrane or eyeball, by any process or procedure (including procedures commonly referred to as permanent make-up, cosmetic tattooing, micro-blading and micro-pigmentation), with the aim of making a mark or design on his or her body.
3. If a substance not listed in Appendix 13 falls within more than one of points (a) to (g) of paragraph 1, the strictest concentration limit laid down in the points in question shall apply to that substance. If a substance listed in Appendix 13 also falls within one or more of points (a) to (g) of paragraph 1, the concentration limit laid down in point (h) of paragraph 1 shall apply to that substance.
4. By way of derogation, paragraph 1 shall not apply to the following substances until 4 January 2023:
- (a) Pigment Blue 15:3 (CI 74160, EC No 205-685-1, CAS No 147-14-8);
 - (b) Pigment Green 7 (CI 74260, EC No 215-524-7, CAS No 1328-53-6).
5. If Part 3 of Annex VI to Regulation (EC) No 1272/2008 is amended after 4 January 2021 to classify or re-classify a substance such that the substance then becomes caught by point (a), (b), (c) or (d) of paragraph 1 of this entry, or such that it then falls within a different one of those points from the one within which it fell previously, and the date of application of that new or revised classification is after the date referred to in paragraph 1 or, as the case may be, paragraph 4 of this entry, that amendment shall, for the purposes of applying this entry to that substance, be treated as taking effect on the date of application of that new or revised classification.
6. If Annex II or Annex IV to Regulation (EC) No 1223/2009 is amended after 4 January 2021 to list or change the listing of a substance such that the substance then becomes caught by point (e), (f) or (g) of paragraph 1 of this entry, or such that it then falls within a different one of those points from the one within which it fell previously, and the amendment takes effect after the date referred to in paragraph 1 or, as the case may be, paragraph 4 of this entry, that amendment shall, for the purposes of applying this entry to that substance, be treated as taking effect from the date falling 18 months after entry into force of the act by which that amendment was made.
7. Suppliers placing a mixture on the market for use for tattooing purposes shall ensure that, after 4 January 2022, the mixture is marked with the following information:
- (a) the statement "Mixture for use in tattoos or permanent make-up";
 - (b) a reference number to uniquely identify the batch;
 - (c) the list of ingredients in accordance with the nomenclature established in the glossary of common ingredient names pursuant to Article 33 of Regulation (EC) No 1223/2009, or in the absence of a common ingredient name, the IUPAC name. In the absence of a common ingredient name or IUPAC name, the CAS and EC number. Ingredients shall be listed in descending order by weight or volume of the ingredients at the time of formulation. "Ingredient" means any substance added during the process of formulation and present in the mixture for use for tattooing purposes. Impurities shall not be regarded as ingredients. If the name of a substance, used as ingredient within the meaning of this entry, is already required to be stated on the label in accordance with Regulation (EC) No 1272/2008, that ingredient does not need to be marked in accordance with this Regulation;
 - (d) the additional statement "pH regulator" for substances falling under point (d)(i) of paragraph 1;
 - (e) the statement "Contains nickel. Can cause allergic reactions." if the mixture contains nickel below the concentration limit specified in Appendix 13;
 - (f) the statement "Contains chromium (VI). Can cause allergic reactions." if the mixture contains chromium (VI) below the concentration limit specified in Appendix 13;
 - (g) safety instructions for use insofar as they are not already required to be stated on the label by Regulation (EC) No 1272/2008.
- The information shall be clearly visible, easily legible and marked in a way that is indelible.
- The information shall be written in the official language(s) of the Member State(s) where the mixture is placed on the market, unless the Member State(s) concerned provide(s) otherwise.
- Where necessary because of the size of the package, the information listed in the first subparagraph, except for point (a), shall be included instead in the instructions for use.
- Before using a mixture for tattooing purposes, the person using the mixture shall provide the person undergoing the procedure with the information marked on the package or included in the instructions for use pursuant to this paragraph.
8. Mixtures that do not contain the statement "Mixture for use in tattoos or permanent make-up" shall not be used for tattooing purposes.
9. This entry does not apply to substances that are gases at temperature of 20 °C and pressure of 101,3 kPa, or generate a vapour pressure of more than 300 kPa at temperature of 50 °C, with the exception of formaldehyde (CAS No 50-

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00-0, EC No 200-001-8).

10. This entry does not apply to the placing on the market of a mixture for use for tattooing purposes, or to the use of a mixture for tattooing purposes, when placed on the market exclusively as a medical device or an accessory to a medical device, within the meaning of Regulation (EU) 2017/745, or when used exclusively as a medical device or an accessory to a medical device, within the same meaning. Where the placing on the market or use may not be exclusively as a medical device or an accessory to a medical device, the requirements of Regulation (EU) 2017/745 and of this Regulation shall apply cumulatively.

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

none of the ingredients are listed

Seveso Directive

2012/18/EU (Seveso III)			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
	not assigned		

Deco-Paint Directive

VOC content	25 %
VOC content	257,5 g/l

Industrial Emissions Directive (IED)

VOC content	5 %
VOC content	51,5 g/l

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

none of the ingredients are listed

Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

none of the ingredients are listed

Water Framework Directive (WFD)

List of pollutants (WFD)				
Name of substance	Name acc. to inventory	CAS No	Listed in	Remarks
Linalool	Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment		a)	

Legend

a) Indicative list of the main pollutants

Regulation on the marketing and use of explosives precursors

none of the ingredients are listed

Regulation on drug precursors

none of the ingredients are listed

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Regulation on substances that deplete the ozone layer (ODS)

none of the ingredients are listed

Regulation concerning the export and import of hazardous chemicals (PIC)

none of the ingredients are listed

Regulation on persistent organic pollutants (POP)

none of the ingredients are listed

Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

National inventories

Country	Inventory	Status
AU	AIIC	all ingredients are listed
CA	DSL	all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
JP	ISHA-ENCS	not all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	not all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	all ingredients are listed (ACTIVE)
VN	NCI	all ingredients are listed

Legend

AIIC	Australian Inventory of Industrial Chemicals
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)
KECI	Korea Existing Chemicals Inventory
NCI	National Chemical Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

15.2 Chemical safety assessment

According to REACH, Article 14 (1) a chemical safety assessment has been carried out for this substance or components of this mixture when the substance has been registered in quantities of 10 tonnes or more per year per registrant.

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SECTION 16: Other information

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
2.2	Hazardous ingredients for labelling: Cinnamaldehyde, Eugenol, DL- α -Pinene, β -Caryophyllene, Linalool, DL-Limonene	Hazardous ingredients for labelling: Cinnamaldehyde, Eugenol, DL- α -Pinene, β -Caryophyllene, Linalool, Coumarin, DL-Limonene	yes
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)	yes
2.2		Hazard pictogram(s):	yes
2.2		Hazard pictogram(s): change in the listing (table)	yes
2.2	contains: Cinnamaldehyde, Eugenol, DL- α -Pinene, β -Caryophyllene, Linalool, DL-Limonene	contains: Cinnamaldehyde, Eugenol, DL- α -Pinene, β -Caryophyllene, Linalool, Coumarin, DL-Limonene	yes
2.2		Labelling of packages where the contents do not exceed 10 ml	yes
2.2		Signal word: Not required	yes
2.2		Hazard pictogram(s): Not required	yes
2.2		Hazard statements: Not required	yes
2.2		Precautionary statements: Not required	yes
2.3	Results of PBT and vPvB assessment: This mixture does not contain any substances that are assessed to be a PBT or a vPvB.	Results of PBT and vPvB assessment: Does not contain a PBT-/vPvB-substance at a concentration of $\geq 0,1\%$.	yes
2.3		Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.	yes
14.8	Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - Additional information: not assigned		yes
15.1		Dangerous substances with restrictions (REACH, Annex XVII): change in the listing (table)	yes
15.1	List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list: None of the ingredients are listed. (Or Concentration of the substance in a mixture: $<0.1\%$ Mass concentration)	List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list: none of the ingredients are listed	yes
15.1	VOC content: 25 % 257,5 g/l	VOC content: 25 %	yes
15.1		VOC content: 257,5 g/l	yes
15.1		Regulation on persistent organic pollutants (POP): none of the ingredients are listed	yes
15.1		Other information: Directive 94/33/EC on the protection of young	yes

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
		people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.	
15.1		National inventories: change in the listing (table)	yes
15.2	Chemical Safety Assessment: Chemical safety assessments for substances in this mixture were not carried out.	Chemical safety assessment: According to REACH, Article 14 (1) a chemical safety assessment has been carried out for this substance or components of this mixture when the substance has been registered in quantities of 10 tonnes or more per year per registrant.	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
Acute Tox.	Acute toxicity
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
Aquatic Acute	Hazardous to the aquatic environment - acute hazard
Aquatic Chronic	Hazardous to the aquatic environment - chronic hazard
Asp. Tox.	Aspiration hazard
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BOD	Biochemical Oxygen Demand
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
COD	Chemical oxygen demand
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
ED	Endocrine disruptor
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
Flam. Liq.	Flammable liquid
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization

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Abbr.	Descriptions of used abbreviations
IMDG	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
log KOW	n-Octanol/water
NLP	No-Longer Polymer
NOEC	No Observed Effect Concentration
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
Skin Sens.	Skin sensitisation
SVHC	Substance of Very High Concern
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.

Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU.

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties. The classification is based on tested mixture.

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

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

Code	Text
H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
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.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

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Code	Text
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Disclaimer

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