Oil of cloves ≥ 80%, natural rectified

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

1.1 Product identifier

Identification of the substance: Oil of cloves
Article number: 8662
Registration number (REACH): 01-2119971802-33-XXXX
EC number: 284-638-7
CAS number: 84961-50-2

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

Identified uses:
- laboratory chemical
- laboratory and analytical use

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
Telex: +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

<table>
<thead>
<tr>
<th>Name</th>
<th>Street</th>
<th>Postal code/city</th>
<th>Telephone</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Poisons Information Centre</td>
<td>Beaumont Road</td>
<td>Dublin 9</td>
<td>01 809 2166</td>
<td><a href="https://www.poisons.ie/">https://www.poisons.ie/</a></td>
</tr>
</tbody>
</table>

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

<table>
<thead>
<tr>
<th>Classification acc. to GHS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Section</strong></td>
</tr>
<tr>
<td>--------------</td>
</tr>
<tr>
<td>3.2</td>
</tr>
<tr>
<td>3.3</td>
</tr>
<tr>
<td>3.45</td>
</tr>
<tr>
<td>3.10</td>
</tr>
</tbody>
</table>
2.2 Label elements

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

**Signal word**  
Danger

**Pictograms**

GHS07, GHS08

**Hazard statements**

- H304: May be fatal if swallowed and enters airways
- H315: Causes skin irritation
- H317: May cause an allergic skin reaction
- H319: Causes serious eye irritation

**Precautionary statements**

**Precautionary statements - prevention**

- P270: Do not eat, drink or smoke when using this product.
- P280: Wear protective gloves/eye protection.

**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.

**Hazardous ingredients for labelling:** Eugenol, β-Caryophyllene

Labelling of packages where the contents do not exceed 125 ml

**Signal word:** Danger

**Symbol(s)**

- H304: May be fatal if swallowed and enters airways.
- H317: May cause an allergic skin reaction.
- P280: Wear protective gloves/eye protection.
- 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.

2.3 Other hazards

There is no additional information.

**SECTION 3: Composition/information on ingredients**

3.2 Mixtures

**Description of the mixture**

Composition/information on ingredients.
### Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU

---

**Oil of cloves ≥ 80%, natural rectified**

article number: 8662

---

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>Identifier</th>
<th>wt%</th>
<th>Classification acc. to 1272/2008/EC</th>
<th>Pictograms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eugenol</td>
<td>CAS No 97-53-0, EC No 202-589-1</td>
<td>80 – &lt; 95</td>
<td>Acute Tox. 4 / H302 Eye Irrit. 2 / H319 Skin Sens. 1 / H317</td>
<td>![Pictogram]</td>
</tr>
<tr>
<td>β-Caryophyllene</td>
<td>CAS No 87-44-5, EC No 201-746-1</td>
<td>5 – &lt; 15</td>
<td>Skin Sens. 1 / H317 Asp. Tox. 1 / H304</td>
<td>![Pictogram]</td>
</tr>
<tr>
<td>α-Humulene</td>
<td>CAS No 6753-98-6, EC No 229-816-7</td>
<td>1 – &lt; 10</td>
<td>Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 STOT SE 3 / H335</td>
<td>![Pictogram]</td>
</tr>
</tbody>
</table>

---

**Remarks**

For full text of Hazard- and EU Hazard-statements: 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. In case of skin reactions, 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. Do not induce vomiting. Aspiration hazard. Call a physician immediately.

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

Allergic reactions, Irritation, Aspiration hazard, Nausea, Spasms, Breathing difficulties, Loss of righting reflex, and ataxia

### 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 fire-fighting measures to the fire surroundings
water spray, foam, dry extinguishing powder, carbon dioxide (CO2)

Unsuitable extinguishing media
water jet

5.2 Special hazards arising from the substance or mixture
Combustible. Vapours may form explosive mixtures with air.

Hazardous combustion products
May produce toxic fumes of carbon monoxide if burning.

5.3 Advice for firefighters
Vapours are heavier than air. 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
Do not breathe vapour/spray. Avoid contact with skin and eyes. Provide adequate ventilation.

6.2 Environmental precautions
Keep away from drains, surface and ground water.

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 (e.g. 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
SECTION 7: Handling and storage

7.1 Precautions for safe handling
Provide adequate ventilation. Handle and open container with care.

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 in a cool place.

Incompatible substances or mixtures
Observe hints for combined storage.

Consideration of other advice
• Ventilation requirements
Use local and general ventilation.
• Specific designs for storage rooms or vessels
Recommended storage temperature: 15 – 25 °C.

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)
Data are not available. Data are not available.

Relevant DNELs/DMELs/PNECs and other threshold levels

• relevant DNELs of components of the mixture

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Endpoint</th>
<th>Threshold level</th>
<th>Protection goal, route of exposure</th>
<th>Used in</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eugenol</td>
<td>97-53-0</td>
<td>DNEL</td>
<td>21,2 mg/m³</td>
<td>human, inhalatory</td>
<td>worker (industry)</td>
<td>chronic - systemic effects</td>
</tr>
<tr>
<td>Eugenol</td>
<td>97-53-0</td>
<td>DNEL</td>
<td>6 mg/kg bw/day</td>
<td>human, dermal</td>
<td>worker (industry)</td>
<td>chronic - systemic effects</td>
</tr>
</tbody>
</table>

• relevant PNECs of components of the mixture

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Endpoint</th>
<th>Threshold level</th>
<th>Environmental compartment</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eugenol</td>
<td>97-53-0</td>
<td>PNEC</td>
<td>1,13 μg/l</td>
<td>freshwater</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>Eugenol</td>
<td>97-53-0</td>
<td>PNEC</td>
<td>0,113 μg/l</td>
<td>marine water</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>Eugenol</td>
<td>97-53-0</td>
<td>PNEC</td>
<td>0,081 mg/kg</td>
<td>freshwater sediment</td>
<td>short-term (single instance)</td>
</tr>
<tr>
<td>Eugenol</td>
<td>97-53-0</td>
<td>PNEC</td>
<td>0,008 mg/kg</td>
<td>marine sediment</td>
<td>short-term (single instance)</td>
</tr>
</tbody>
</table>
Safety data sheet
according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU

Oil of cloves ≥ 80%, natural rectified

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<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Endpoint</th>
<th>Threshold level</th>
<th>Environmental compartment</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eugenol</td>
<td>97-53-0</td>
<td>PNEC</td>
<td>0.015 mg/kg</td>
<td>soil</td>
<td>short-term (single instance)</td>
</tr>
</tbody>
</table>

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
NBR (Nitrile rubber)

• material thickness
0.3 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: ABEK (combined filters against gases and vapours, colour code: Brown/Grey/Yellow/Green).

Environmental exposure controls
Keep away from drains, surface and ground water.
### 9.1 Information on basic physical and chemical properties

**Appearance**
- **Physical state**: liquid (viscous)
- **Colour**: colourless - light brown
- **Odour**: characteristic
- **Odour threshold**: No data available

**Other physical and chemical parameters**
- **pH (value)**: This information is not available.
- **Melting point/freezing point**: -9 °C
- **Initial boiling point and boiling range**: 248 °C
- **Flash point**: 117 °C
- **Evaporation rate**: no data available
- **Flammability (solid, gas)**: not relevant (fluid)

**Explosive limits**
- **lower explosion limit (LEL)**: this information is not available
- **upper explosion limit (UEL)**: this information is not available
- **Explosion limits of dust clouds**: not relevant
- **Vapour pressure**: <0.1 hPa at 25 °C
- **Density**: 1.03 – 1.06 g/cm³ at 20 °C
- **Vapour density**: This information is not available.
- **Bulk density**: Not applicable
- **Relative density**: Information on this property is not available.

**Solubility(ies)**
- **Water solubility**: no data available

**Partition coefficient**
- **n-octanol/water (log KOW)**: This information is not available.
- **Auto-ignition temperature**: 380 °C
- **Decomposition temperature**: no data available
- **Viscosity**: not determined
- **Explosive properties**: Shall not be classified as explosive
- **Oxidising properties**: none

### 9.2 Other information

- **Refractive index**: 1.528 – 1.537 (20 °C)
- **Temperature class (EU, acc. to ATEX)**: T2 (Maximum permissible surface temperature on the equipment: 300°C)
SECTION 10: Stability and reactivity

10.1 Reactivity
In case of warming: Vapours can 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
Keep away from heat.

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 toxicological effects
Acute toxicity
Shall not be classified as acutely toxic.

• Acute toxicity of components of the mixture

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Exposure route</th>
<th>ATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eugenol</td>
<td>97-53-0</td>
<td>oral</td>
<td>1.930 mg/kg</td>
</tr>
</tbody>
</table>

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. May cause sensitization by skin contact.

Summary of evaluation of the CMR properties
Shall not be classified as germ cell mutagenic, carcinogenic nor 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
May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics
Oil of cloves ≥ 80%, natural rectified

**If swallowed**
nausea, vomiting, Spasms, aspiration hazard

**If in eyes**
Causes serious eye irritation

**If inhaled**
Irritation to respiratory tract, breathing difficulties

**If on skin**
causes skin irritation, a skin sensitizer

**Other information**
None

### SECTION 12: Ecological information

#### 12.1 Toxicity
acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

**Aquatic toxicity (acute)**

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eugenol</td>
<td>97-53-0</td>
<td>EC50</td>
<td>1,05 mg/l</td>
<td>daphnia magna</td>
<td>48 h</td>
</tr>
<tr>
<td>Eugenol</td>
<td>97-53-0</td>
<td>ErC50</td>
<td>24 mg/l</td>
<td>algae</td>
<td>72 h</td>
</tr>
<tr>
<td>β-Caryophyllene</td>
<td>87-44-5</td>
<td>EC50</td>
<td>&gt;0,17 mg/l</td>
<td>daphnia magna</td>
<td>48 h</td>
</tr>
<tr>
<td>β-Caryophyllene</td>
<td>87-44-5</td>
<td>ErC50</td>
<td>&gt;0,033 mg/l</td>
<td>algae</td>
<td>72 h</td>
</tr>
</tbody>
</table>

#### 12.2 Process of degradability
Data are not available.

**Degradability of components of the mixture**

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Process</th>
<th>Degradation rate</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eugenol</td>
<td>97-53-0</td>
<td>biotic/abiotic</td>
<td>82 %</td>
<td>28 d</td>
</tr>
<tr>
<td>Eugenol</td>
<td>97-53-0</td>
<td>oxygen depletion</td>
<td>50 %</td>
<td>7 d</td>
</tr>
<tr>
<td>β-Caryophyllene</td>
<td>87-44-5</td>
<td>oxygen depletion</td>
<td>10 %</td>
<td>28 d</td>
</tr>
</tbody>
</table>

#### 12.3 Bioaccumulative potential
Data are not available.

**Bioaccumulative potential of components of the mixture**

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>BCF</th>
<th>Log KOW</th>
<th>BOD5/COD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eugenol</td>
<td>97-53-0</td>
<td></td>
<td>1,83 (pH value: 5,5, 30 °C)</td>
<td></td>
</tr>
<tr>
<td>β-Caryophyllene</td>
<td>87-44-5</td>
<td></td>
<td>6,23 (pH value: 7, 25 °C)</td>
<td></td>
</tr>
</tbody>
</table>
Safety data sheet
according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU

Oil of cloves ≥ 80%, natural rectified
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12.4 Mobility in soil
Data are not available.

12.5 Results of PBT and vPvB assessment
Data are not available.

12.6 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.

Sewage disposal-relevant information
Do not empty into drains.

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.

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.

SECTION 14: Transport information

14.1 UN number
(not subject to transport regulations)

14.2 UN proper shipping name
not relevant

14.3 Transport hazard class(es)
not relevant
Class -

14.4 Packing group
not relevant not assigned to a packing group

14.5 Environmental hazards
none (non-environmentally hazardous acc. to the dangerous goods regulations)

14.6 Special precautions for user
There is no additional information.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code
The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations
• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)
Not subject to ADR, RID and ADN.
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)

- **Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)**
  None of the ingredients are listed.

- **Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)**
  None of the ingredients are listed.

  None of the ingredients are listed.

- **Restrictions according to REACH, Annex XVII**

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Wt%</th>
<th>Type of registration</th>
<th>Conditions of restriction</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil of cloves</td>
<td></td>
<td>100</td>
<td>1907/2006/EC annex XVII</td>
<td>R3</td>
<td>3</td>
</tr>
</tbody>
</table>

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 R65 or 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 Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
(a) Lamp oils, labelled with R65 or 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 R65 or 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 may lead to life threatening lung damage’;
(c) lamp oils and grill lighters, labelled with R65 or H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.
6. No later than 1 June 2014, the Commission shall request the European Chemicals Agency to prepare a dossier, in accordance with Article 69 of the present Regulation with a view to ban, if appropriate, grill lighter fluids and fuel for decorative lamps, labelled R65 or H304, intended for supply to the general public.
7. Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with R65 or H304, shall by 1 December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled R65 or H304 to the competent authority in the Member State concerned. Member States shall make those data available to the Commission.

- **Restrictions according to REACH, Title VIII**
  None.

- **List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list**
  None of the ingredients are listed.
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• **Seveso Directive**

2012/18/EU (Seveso III)

<table>
<thead>
<tr>
<th>No</th>
<th>Dangerous substance/hazard categories</th>
<th>Qualifying quantity (tonnes) for the application of lower and upper-tier requirements</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>not assigned</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

• **Directive 75/324/EEC relating to aerosol dispensers**

Filling batch


- **VOC content**
  - 89.91 %
  - 953 g/l

**Directive on industrial emissions (VOCs, 2010/75/EU)**

- **VOC content**
  - 10 %
  - 106 g/l

**Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II**

None of the ingredients are listed.

**Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)**

None of the ingredients are listed.

**Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)**

None of the ingredients are listed.

**Regulation 98/2013/EU on the marketing and use of explosives precursors**

None of the ingredients are listed.

**Regulation 111/2005/EC laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

None of the ingredients are listed.

**National inventories**

<table>
<thead>
<tr>
<th>Country</th>
<th>National inventories</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU</td>
<td>AICS</td>
<td>not all ingredients are listed</td>
</tr>
<tr>
<td>CA</td>
<td>DSL</td>
<td>not all ingredients are listed</td>
</tr>
<tr>
<td>CA</td>
<td>NDSL</td>
<td>not all ingredients are listed</td>
</tr>
<tr>
<td>CN</td>
<td>IECSC</td>
<td>not all ingredients are listed</td>
</tr>
<tr>
<td>EU</td>
<td>ECSI</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>EU</td>
<td>REACH Reg.</td>
<td>not all ingredients are listed</td>
</tr>
<tr>
<td>JP</td>
<td>CSCL-ENCS</td>
<td>all ingredients are listed</td>
</tr>
<tr>
<td>JP</td>
<td>ISHA-ENCS</td>
<td>not all ingredients are listed</td>
</tr>
<tr>
<td>KR</td>
<td>KECI</td>
<td>not all ingredients are listed</td>
</tr>
</tbody>
</table>
## 15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

### Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbrev.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox.</td>
<td>acute toxicity</td>
</tr>
<tr>
<td>ADN</td>
<td>Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)</td>
</tr>
<tr>
<td>ADR</td>
<td>Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)</td>
</tr>
<tr>
<td>Asp. Tox.</td>
<td>aspiration hazard</td>
</tr>
<tr>
<td>ATE</td>
<td>Acute Toxicity Estimate</td>
</tr>
<tr>
<td>BCF</td>
<td>bioconcentration factor</td>
</tr>
<tr>
<td>BOD</td>
<td>Biochemical Oxygen Demand</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)</td>
</tr>
<tr>
<td>CLP</td>
<td>Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures</td>
</tr>
<tr>
<td>CMR</td>
<td>Carcinogenic, Mutagenic or toxic for Reproduction</td>
</tr>
<tr>
<td>COD</td>
<td>chemical oxygen demand</td>
</tr>
<tr>
<td>DGR</td>
<td>Dangerous Goods Regulations (see IATA/DGR)</td>
</tr>
<tr>
<td>DMEL</td>
<td>Derived Minimal Effect Level</td>
</tr>
<tr>
<td>DNEL</td>
<td>Derived No-Effect Level</td>
</tr>
<tr>
<td>EC50</td>
<td>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</td>
</tr>
</tbody>
</table>
## Oil of cloves ≥ 80%, natural rectified

**article number:** 8662

### Key literature references and sources for data
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC No</td>
<td>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)</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Commercial Chemical Substances</td>
</tr>
<tr>
<td>ELINCS</td>
<td>European List of Notified Chemical Substances</td>
</tr>
<tr>
<td>ErC50</td>
<td>( \equiv ) 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</td>
</tr>
<tr>
<td>Eye Dam.</td>
<td>seriously damaging to the eye</td>
</tr>
<tr>
<td>Eye Irrit.</td>
<td>irritant to the eye</td>
</tr>
<tr>
<td>GHS</td>
<td>&quot;Globally Harmonized System of Classification and Labelling of Chemicals&quot; developed by the United Nations</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>IATA/DGR</td>
<td>Dangerous Goods Regulations (DGR) for the air transport (IATA)</td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods Code</td>
</tr>
<tr>
<td>index No</td>
<td>the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008</td>
</tr>
<tr>
<td>log KOW</td>
<td>n-octanol/water</td>
</tr>
<tr>
<td>MARPOL</td>
<td>International Convention for the Prevention of Pollution from Ships (abbr. of &quot;Marine Pollutant&quot;)</td>
</tr>
<tr>
<td>NLP</td>
<td>No-Longer Polymer</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent, Bioaccumulative and Toxic</td>
</tr>
<tr>
<td>PNEC</td>
<td>Predicted No-Effect Concentration</td>
</tr>
<tr>
<td>REACH</td>
<td>Registration, Evaluation, Authorisation and Restriction of Chemicals</td>
</tr>
<tr>
<td>RID</td>
<td>Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)</td>
</tr>
<tr>
<td>Skin Corr.</td>
<td>corrosive to skin</td>
</tr>
<tr>
<td>Skin Irrit.</td>
<td>irritant to skin</td>
</tr>
<tr>
<td>Skin Sens.</td>
<td>skin sensitisation</td>
</tr>
<tr>
<td>STOT SE</td>
<td>specific target organ toxicity - single exposure</td>
</tr>
<tr>
<td>SVHC</td>
<td>Substance of Very High Concern</td>
</tr>
<tr>
<td>VOC</td>
<td>Volatile Organic Compounds</td>
</tr>
<tr>
<td>vPvB</td>
<td>very Persistent and very Bioaccumulative</td>
</tr>
</tbody>
</table>
### List of relevant phrases (code and full text as stated in chapter 2 and 3)

<table>
<thead>
<tr>
<th>Code</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>H302</td>
<td>harmful if swallowed</td>
</tr>
<tr>
<td>H304</td>
<td>may be fatal if swallowed and enters airways</td>
</tr>
<tr>
<td>H315</td>
<td>causes skin irritation</td>
</tr>
<tr>
<td>H317</td>
<td>may cause an allergic skin reaction</td>
</tr>
<tr>
<td>H319</td>
<td>causes serious eye irritation</td>
</tr>
<tr>
<td>H335</td>
<td>may cause respiratory irritation</td>
</tr>
</tbody>
</table>

### Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.