1. PRODUCT AND COMPANY IDENTIFICATION

Product name: (S)-(+)‐Carvone
Product Number: 435759
Brand: Aldrich
Company: Sigma‐Aldrich
Company Address: 3050 Spruce Street, SAINT LOUIS MO 63103 USA
Telephone: +1 800‐325‐5832
Fax: +1 800‐325‐5052
Emergency Phone #: (314) 776‐6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
No known OSHA hazards

GHS Label elements, including precautionary statements

Pictogram: none
Signal word: Warning
Hazard statement(s)
  H313: May be harmful in contact with skin.
  H316: Causes mild skin irritation.
Precautionary statement(s): none

HMIS Classification
  Health hazard: 0
  Flammability: 1
  Physical hazards: 0

NFPA Rating
  Health hazard: 0
  Fire: 1
  Reactivity Hazard: 0

Potential Health Effects

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Skin: May be harmful if absorbed through skin. May cause skin irritation.
Eyes: May cause eye irritation.
Ingestion: May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms:
  (S)-5-Isopropenyl-2-methyl-2-cyclohexenone
  p-Mentha-6,8-dien-2-one

Formula: \( C_{10}H_{14}O \)
Molecular Weight: 150.22 g/mol
4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

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

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

Environmental precautions
Do not let product enter drains.

Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Normal measures for preventive fire protection.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
**Hand protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Eye protection**
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**
Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td>liquid, clear</td>
</tr>
<tr>
<td>Colour</td>
<td>light yellow</td>
</tr>
<tr>
<td><strong>Safety data</strong></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>no data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>no data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>96 - 98 °C (200 - 208 °F) at 13 hPa (10 mmHg) - lit.</td>
</tr>
<tr>
<td>Flash point</td>
<td>98 °C (208 °F) - closed cup</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>no data available</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>no data available</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>no data available</td>
</tr>
<tr>
<td>Density</td>
<td>0.96 g/cm³ at 25 °C (77 °F)</td>
</tr>
<tr>
<td>Water solubility</td>
<td>no data available</td>
</tr>
</tbody>
</table>

**10. STABILITY AND REACTIVITY**

**Chemical stability**
Stable under recommended storage conditions.

**Conditions to avoid**
Avoid moisture.

**Materials to avoid**
Strong oxidizing agents, Strong reducing agents

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides

**11. TOXICOLOGICAL INFORMATION**

**Acute toxicity**
LD50 Dermal - rabbit - 3,840 mg/kg
Remarks: Prolonged skin contact may cause skin irritation and/or dermatitis.

**Skin corrosion/irritation**
Skin - rabbit - Mild skin irritation - 24 h

**Serious eye damage/eye irritation**
no data available

**Respiratory or skin sensitization**
no data available

**Germ cell mutagenicity**
Genotoxicity in vitro - Hamster - ovary
Cytogenetic analysis
Genotoxicity in vitro - Hamster - ovary
Sister chromatid exchange

**Carcinogenicity**

**IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**ACGIH:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**
no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
no data available

**Aspiration hazard**
no data available

**Potential health effects**

<table>
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<th>Effect</th>
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**Additional Information**
RTECS: OS8670000

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12. **ECOLOGICAL INFORMATION**

**Toxicity**
no data available

**Persistence and degradability**
no data available

**Bioaccumulative potential**
no data available

**Mobility in soil**
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**
no data available

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13. **DISPOSAL CONSIDERATIONS**

**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company.
14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

OSHA Hazards
No known OSHA hazards

DSL Status
All components of this product are on the Canadian DSL list.

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right To Know Components

(S)-2-Methyl-5-(1-methylvinyl)cyclohex-2-en-1-one
CAS-No. 2244-16-8
Revision Date 1993-04-24

Pennsylvania Right To Know Components

(S)-2-Methyl-5-(1-methylvinyl)cyclohex-2-en-1-one
CAS-No. 2244-16-8
Revision Date 1993-04-24

New Jersey Right To Know Components

(S)-2-Methyl-5-(1-methylvinyl)cyclohex-2-en-1-one
CAS-No. 2244-16-8
Revision Date 1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information
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