1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers
Product name: (R)-(−)-Carvone
Product Number: 124931
Brand: Aldrich
CAS-No.: 6485-40-1

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet
Company: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052

1.4 Emergency telephone number
Emergency Phone #: (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements
Pictogram

Signal word

Warning

Hazard statement(s)
H302 Harmful if swallowed.

Precautionary statement(s)
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P330 Rinse mouth.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Synonyms: p-Mentha-6,8-dien-2-one
(-)-Carvone
(R)-5-Isopropenyl-2-methyl-2-cyclohexenone
Carvol

Formula : C_{10}H_{14}O
Molecular Weight : 150.22 g/mol
CAS-No. : 6485-40-1
EC-No. : 229-352-5

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-p-Mentha-1(6),8-dien-2-one</td>
<td>Acute Tox. 4; H302</td>
<td>-</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

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.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

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

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 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.
6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Normal measures for preventive fire protection.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully
resealed and kept upright to prevent leakage.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of
workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate
government standards such as NIOSH (US) or EN 166(EU).

Skin 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.

Full contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 480 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 30 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method:
EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the
supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an
industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It
should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to
the concentration and amount of the dangerous substance at the specific workplace.

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).

**Control of environmental exposure**
Do not let product enter drains.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1 Information on basic physical and chemical properties

- **a) Appearance** Form: liquid
- **b) Odour** no data available
- **c) Odour Threshold** no data available
- **d) pH** no data available
- **e) Melting point/freezing point** no data available
- **f) Initial boiling point and boiling range** 227 - 230 °C (441 - 446 °F) - lit.
- **g) Flash point** 94 °C (201 °F) - closed cup
- **h) Evaporation rate** no data available
- **i) Flammability (solid, gas)** no data available
- **j) Upper/lower flammability or explosive limits** no data available
- **k) Vapour pressure** 0.5 hPa (0.4 mmHg) at 20 °C (68 °F)
- **l) Vapour density** 5.19 - (Air = 1.0)
- **m) Relative density** 0.959 g/cm³ at 25 °C (77 °F)
- **n) Water solubility** no data available
- **o) Partition coefficient: n-octanol/water** no data available
- **p) Auto-ignition temperature** no data available
- **q) Decomposition temperature** no data available
- **r) Viscosity** no data available
- **s) Explosive properties** no data available
- **t) Oxidizing properties** no data available

#### 9.2 Other safety information

Relative vapour density 5.19 - (Air = 1.0)

### 10. STABILITY AND REACTIVITY

#### 10.1 Reactivity
no data available

#### 10.2 Chemical stability
Stable under recommended storage conditions.

#### 10.3 Possibility of hazardous reactions
no data available

#### 10.4 Conditions to avoid
no data available
10.5 **Incompatible materials**
Strong oxidizing agents

10.6 **Hazardous decomposition products**
Other decomposition products - no data available
In the event of fire: see section 5

11. **TOXICOLOGICAL INFORMATION**

11.1 **Information on toxicological effects**

**Acute toxicity**
LD50 Oral - guinea pig - 766 mg/kg
LD50 Oral - rat - 1,640 mg/kg
Inhalation: no data available
Dermal: no data available
LD50 Intravenous - mouse - 56 mg/kg

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

**Respiratory or skin sensitisation**
no data available

**Germ cell mutagenicity**
no data available

**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**
no data available

**Specific target organ toxicity - repeated exposure**
no data available

**Aspiration hazard**
no data available

**Additional Information**
RTECS: OS8650000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. **ECOLOGICAL INFORMATION**

12.1 **Toxicity**
no data available
12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

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
Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

<table>
<thead>
<tr>
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<th>Revision Date</th>
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New Jersey Right To Know Components

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</tr>
</tbody>
</table>

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

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.       Acute toxicity
H302             Harmful if swallowed.

HMIS Rating
Health hazard:   1
Chronic Health Hazard:
Flammability:    1
Physical Hazard: 0

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

Further information
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Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.2       Revision Date: 07/01/2014       Print Date: 06/12/2015