1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Cyclohexanol
Product Number: 105899
Brand: Sigma-Aldrich
Company: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone: +18003255832
Fax: +18003255052
Emergency Phone #: (314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Combustible Liquid, Target Organ Effect, Harmful by ingestion., Harmful by skin absorption., Irritant

Target Organs
Liver, Kidney

GHS Label elements, including precautionary statements

Pictogram

<table>
<thead>
<tr>
<th>Signal word</th>
<th>Hazard statement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warning</td>
<td>H227</td>
</tr>
<tr>
<td></td>
<td>H302 + H312</td>
</tr>
<tr>
<td></td>
<td>H315</td>
</tr>
<tr>
<td></td>
<td>H319</td>
</tr>
<tr>
<td></td>
<td>H332</td>
</tr>
<tr>
<td></td>
<td>H371</td>
</tr>
<tr>
<td></td>
<td>H402</td>
</tr>
</tbody>
</table>

Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P309 + P311 IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
Specific measures (see supplemental first aid instructions on this label).

Rinse mouth.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

Take off contaminated clothing and wash before reuse.

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Store in a well-ventilated place. Keep cool.

Store locked up.

Dispose of contents/container to an approved waste disposal plant.

**HMIS Classification**

- **Health hazard:** 2
- **Chronic Health Hazard:** *
- **Flammability:** 2
- **Physical hazards:** 0

**NFPA Rating**

- **Health hazard:** 2
- **Fire:** 2
- **Reactivity Hazard:** 0

**Potential Health Effects**

- **Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.
- **Skin:** Harmful if absorbed through skin. Causes skin irritation.
- **Eyes:** Causes eye irritation.
- **Ingestion:** Harmful if swallowed.

---

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Formula</th>
<th>Molecular Weight</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>C₆H₁₂O</td>
<td>100.16 g/mol</td>
<td>108-93-0</td>
<td>203-630-6</td>
<td>603-009-00-3</td>
<td>-</td>
</tr>
</tbody>
</table>

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### 4. 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**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

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

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### 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.

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### 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
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexanol</td>
<td>108-93-0</td>
<td>TWA</td>
<td>50 ppm</td>
<td>2007-01-01</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Central Nervous System impairment Eye irritation Danger of cutaneous absorption</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>50 ppm</td>
<td>1989-01-19</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>200 mg/m3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin notation</td>
<td></td>
<td>TWA</td>
<td>50 ppm</td>
<td>1997-08-04</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>200 mg/m3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The value in mg/m3 is approximate.

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.

Eye protection
Face shield and safety glasses

Skin and body protection
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

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

Appearance
Form liquid

Safety data
pH 6.5 at 40 g/l at 20 °C (68 °F)
Melting point 20 - 22 °C (68 - 72 °F)
Boiling point 160 - 161 °C (320 - 322 °F)
Flash point 68 °C (154 °F) - closed cup
Ignition temperature 300 °C (572 °F)
Lower explosion limit 1.25 %(V)
Upper explosion limit 12.25 %(V)
Vapour pressure 1.31 hPa (0.98 mmHg) at 25 °C (77 °F)
Density 0.948 g/mL at 25 °C (77 °F)
Water solubility no data available
Partition coefficient: n-octanol/water log Pow: 1.25 at 25 °C (77 °F)
Relative vapour density 4.01

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Conditions to avoid
no data available

Materials to avoid
no data available

Hazardous decomposition products
no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity
LD50 Oral - rat - 1,400 mg/kg

LD50 Dermal - rabbit - > 1,000 mg/kg

Skin corrosion/irritation
Skin - rabbit - Skin irritation

Serious eye damage/eye irritation
Eyes - rabbit - Moderate eye irritation

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
Genotoxicity in vitro - Human - leukocyte
Cytogenetic analysis
Genotoxicity in vitro - Mammal - lymphocyte
DNA damage
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
Reproductive toxicity - rat - Subcutaneous

Reproductive toxicity - Gerbil - Subcutaneous

Specific target organ toxicity - single exposure (GHS)
May cause damage to organs.

Specific target organ toxicity - repeated exposure (GHS)
no data available

Aspiration hazard
no data available

Potential health effects

<table>
<thead>
<tr>
<th>Type</th>
<th>Effect Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>May be harmful if inhaled. Causes respiratory tract irritation.</td>
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<tr>
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<td>Harmful if absorbed through skin. Causes skin irritation.</td>
</tr>
<tr>
<td>Eyes</td>
<td>Causes eye irritation.</td>
</tr>
</tbody>
</table>

Signs and Symptoms of Exposure
prolonged or repeated exposure can cause: Headache, Nausea, Tremors, Incoordination,, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Vomiting. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information
RTECS: GV7875000

12. ECOLOGICAL INFORMATION

Toxicity

<table>
<thead>
<tr>
<th>Type</th>
<th>EC50/TC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to fish</td>
<td>LC50 - Pimephales promelas (fathead minnow) - 705 mg/l - 96 h</td>
</tr>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates.</td>
<td>EC50 - Daphnia magna (Water flea) - &gt; 500 mg/l - 48 h</td>
</tr>
<tr>
<td>Toxicity to algae</td>
<td>EC50 - Desmodesmus subspicatus (green algae) - 29.2 mg/l - 72 h</td>
</tr>
</tbody>
</table>

Persistence and degradability
Biodegradability

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available
Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
NA-Number: 1993 Class: CBL Packing group: III
Proper shipping name: Combustible liquid, n.o.s. (Cyclohexanol)
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

OSHA Hazards
Combustible Liquid, Target Organ Effect, Harmful by ingestion., Harmful by skin absorption., Irritant

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

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-93-0</td>
<td>1993-04-24</td>
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</table>

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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</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

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.