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

1.1 Product identifiers
Product name : Cyclohexanone
CAS-No. : 108-94-1

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses : Laboratory chemicals, Industrial & for professional use only.

1.3 Details of the supplier of the safety data sheet
Company : Central Drug House (P) Ltd
7/28 Vardaan House
New Delhi-10002
INDIA
Telephone : +91 11 49404040
Email : care@cdhfinechemical.com

1.4 Emergency telephone number
Emergency Phone # : +91 11 49404040 (9:00am - 6:00 pm) [Office hours]

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
- Flammable liquids (Category 3), H226
- Acute toxicity, Oral (Category 4), H302
- Acute toxicity, Inhalation (Category 4), H332
- Acute toxicity, Dermal (Category 4), H312
- Skin irritation (Category 2), H315
- Serious eye damage (Category 1), H318

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

Classification according to EU Directives 67/548/EEC or 1999/45/EC
R10
Xn Harmful
R20/21/22
Xi Irritant
R38, R41

For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements
Labelling according Regulation (EC) No 1272/2008
Pictogram
Signal word: Danger

Hazard statement(s)

H226: Flammable liquid and vapour.
H302 + H312 + H332: Harmful if swallowed, in contact with skin or if inhaled
H315: Causes skin irritation.
H318: Causes serious eye damage.

Precautionary statement(s)

P280: Wear protective gloves/ eye protection/ face protection.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Supplemental Hazard Statements: none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula: C6H10O
Molecular weight: 98.15 g/mol
CAS-No.: 108-94-1
EC-No.: 203-631-1
Index-No.: 606-010-00-7

Hazardous ingredients according to Regulation (EC) No 1272/2008

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexanone</td>
<td>Flam. Liq. 3; Acute Tox. 4;</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>Skin Irrit. 2; Eye Dam. 1;</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>H226, H302 + H312 + H332, H315, H318</td>
<td></td>
</tr>
</tbody>
</table>

Hazardous ingredients according to Directive 1999/45/EC

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexanone</td>
<td>Xn, R10 - R20/21/22 - R38 -</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>R41</td>
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<tr>
<td>Index-No.</td>
<td>606-010-00-7</td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

SECTION 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.

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
Do NOT induce vomiting. 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

SECTION 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 firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

SECTION 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. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 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. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. 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. Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated
SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters

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
Tightly fitting safety goggles. Faceshield (8-inch minimum). 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.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing,. 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
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance
   Form: clear, liquid
   Colour: colourless

b) Odour
   No data available

c) Odour Threshold
   No data available

d) pH
   No data available

e) Melting point/freezing point
   Melting point/range: -47 °C - lit.

f) Initial boiling point and boiling range
   155 °C - lit.

g) Flash point
   44 °C - closed cup

h) Evaporation rate
   No data available

i) Flammability (solid, gas)
   No data available

j) Upper/lower flammability or explosive limits
   Upper explosion limit: 9,4 %(V)
   Lower explosion limit: 1,1 %(V)

k) Vapour pressure
   4,5 hPa at 20 °C
   13,3 hPa at 38,7 °C
l) Vapour density 3.39 - (Air = 1.0)
m) Relative density 0.947 g/cm³ at 25 °C
n) Water solubility 86 g/l at 20 °C
o) Partition coefficient: n-octanol/water log Pow: 0.81
p) Auto-ignition temperature 420 °C at 1.013 hPa
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
   Surface tension 35.05 mN/m at 20 °C
   Relative vapour density 3.39 - (Air = 1.0)

SECTION 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
   Heat, flames and sparks.

10.5 Incompatible materials
   Oxidizing agents, Plastics

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects
   Acute toxicity
      LD50 Oral - Rat - 1.534 mg/kg
      LC50 Inhalation - Rat - 4 h - > 6.2 mg/l
      LD50 Dermal - Rabbit - 794 - 3.160 mg/kg
   Skin corrosion/irritation
      Skin - Rabbit
      Result: Irritating to skin.
      (OECD Test Guideline 404)
   Serious eye damage/eye irritation
      Eyes - Rabbit
      Result: Risk of serious damage to eyes. - 24 h
   Respiratory or skin sensitisation
      No data available
   Germ cell mutagenicity
      Not mutagenic in Ames Test.
Ames test
S. typhimurium
Result: negative

Human
fibroblast
Result: Laboratory experiments have shown mutagenic effects.

Carcinogenicity
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.
IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Cyclohexanone)

Reproductive toxicity
Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure
No data available
Acute inhalation toxicity - Breathing difficulties

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GW 1050000
Prolonged or repeated exposure to skin causes defatting and dermatitis., Cough, Shortness of breath, Headache, Nausea, Vomiting, Incoordination., Inhalation of high concentrations may cause:, Central nervous system depression, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity
Toxicity to daphnia and EC50 - Daphnia magna (Water flea) - 820 mg/l - 24 h
other aquatic invertebrates

12.2 Persistence and degradability
Biodegradability Result: 90 - 100 % - Readily biodegradable.

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.
Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 1915
IMDG: 1915
IATA: 1915

14.2 UN proper shipping name
ADR/RID: CYCLOHEXANONE
IMDG: CYCLOHEXANONE
IATA: Cyclohexanone

14.3 Transport hazard class(es)
ADR/RID: 3
IMDG: 3
IATA: 3

14.4 Packaging group
ADR/RID: III
IMDG: III
IATA: III

14.5 Environmental hazards
ADR/RID: no
IMDG Marine pollutant: no
IATA: no

14.6 Special precautions for user
No data available

SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
No data available

15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out

SECTION 16: Other information

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

Acute Tox. Acute toxicity
Eye Dam. Serious eye damage
Flam. Liq. Flammable liquids
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H302 + H312 + Harmful if swallowed, in contact with skin or if inhaled
H332
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H318 Causes serious eye damage.

Full text of R-phrases referred to under sections 2 and 3

Xn Harmful
R10 Flammable.
R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.
R38 Irritating to skin.
R41 Risk of serious damage to eyes.
Further information
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. Central Drug House (P) Ltd and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.cdhfinechemical.com for additional terms and conditions of sale.