

## SAFETY DATA SHEET

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

#### 1.1 Product identifiers

Product name: Cyclohexanone  
CAS number: 108-94-1  
Synonyms: Ketohexamethylene; Pimelic ketone.

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

Identified Uses : Laboratory chemicals.

#### 1.3 Details of the supplier of the safety data sheet

Company : Lab Alley, LLC  
22111 Highway 71 West, Suite 601  
Spicewood, Texas 78669  
U.S.A.

Telephone : 512-668-9918  
Fax : 512-886-4008

#### 1.4 Emergency telephone

**Emergency Phone #** : US & Canada: 1-800-535-5053      INFOTRAC  
International 1-352-323-3500      INFOTRAC

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable Liquids (Category 3)  
Acute oral toxicity (Category 4)  
Acute dermal toxicity (Category 3)  
Acute inhalation toxicity - Vapors (Category 4)  
Skin Corrosion/irritation (Category 2)  
Serious eye damage/eye irritation (Category 1)  
Specific target organ toxicity - single exposure (Category 3)  
Target organs - Respiratory system, Central nervous system (CNS).  
Specific target organ toxicity - repeated exposure (Category 2)  
Target organs - Liver, Kidney

## 2.2 GHS Label elements, including precautionary statements

Pictogram:



Signal Word:

**Danger**

Hazard statement(s):

Flammable liquid and vapor. Harmful if swallowed. Toxic in contact with skin. Harmful if inhaled. Causes skin irritation. Causes serious eye damage. May cause respiratory irritation. May cause drowsiness or dizziness. May cause damage to organs through prolonged or repeated exposure.

Precautionary statement(s):

**Prevention** - Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust/fume/gas/mist/vapors/spray. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep cool. **Response** - Get medical attention/advice if you feel unwell. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. If skin irritation occurs: Get medical advice/attention. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction. Store in a well-ventilated place. Keep container tightly closed. Store locked up. Dispose of contents/container to an approved waste disposal plant.

### Hazards not otherwise classified

May form explosive peroxides.

## SECTION 3: Composition/information on ingredients

### 3.1 Components

| Ingredient    | CAS Number | Percent | Hazardous Chemical |
|---------------|------------|---------|--------------------|
| Cyclohexanone | 108-94-1   | >95     | Yes                |

## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

**General advice:**

Show this safety data sheet to the doctor in attendance.

**If inhaled:**

Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.

**In case of eye contact:**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

- In case of skin contact:** Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
- In case of ingestion:** Do not induce vomiting. Call a physician or Poison Control Center immediately.

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

Breathing difficulties. Causes eye burns. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

## 4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

# SECTION 5: Firefighting measures

## 5.1 Extinguishing media

### Suitable (and unsuitable) extinguishing media

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray. Water may be ineffective.

## 5.2 Specific hazards arising from the substance or mixture

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

## 5.3 Special protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## 5.4 Further information

None.

# SECTION 6: Accidental release measures

## 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes and inhalation of vapors.

## 6.2 Environmental precautions

Avoid release to the environment. See Section 12 for additional ecological information.

## 6.3 Methods and materials for containment and cleaning up

Remove all sources of ignition. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment.

## 6.4 Reference to other sections

For disposal see Section 13. Refer to section 8 of SDS for personal protection details.

# SECTION 7: Handling and storage

## 7.1 Precautions for safe handling

Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Do not ingest. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Take precautionary measures against static discharges. If peroxide formation is suspected, do not open or move container.

## Hygiene measures

Handle in accordance with good industrial hygiene and safety practice.

## 7.2 Conditions for safe storage, including any incompatibilities

### Storage conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. May form explosive peroxides on prolonged storage. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. Flammables area.

## SECTION 8. Exposure controls/personal protection

### 8.1 Occupational exposure limits

| Component                         | ACGIH TLV                                         | OSHA PEL                                                                                                           | NIOSH IDLH                                                 |
|-----------------------------------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| Cyclohexanone                     | TWA: 20 ppm<br>STEL: 50 ppm<br>Skin               | (Vacated) TWA: 25 ppm<br>(Vacated) TWA: 100 mg/m <sup>3</sup><br>Skin<br>TWA: 50 ppm<br>TWA: 200 mg/m <sup>3</sup> | IDLH: 700 ppm<br>TWA: 25 ppm<br>TWA: 100 mg/m <sup>3</sup> |
| Component                         | Quebec                                            | Mexico OEL (TWA)                                                                                                   | Ontario TWAEV                                              |
| Cyclohexanone<br>108-94-1 ( >95 ) | TWA: 25 ppm<br>TWA: 100 mg/m <sup>3</sup><br>Skin | TWA: 50 ppm<br>TWA: 200 mg/m <sup>3</sup><br>STEL: 100 ppm<br>STEL: 400 mg/m <sup>3</sup>                          | TWA: 20 ppm<br>STEL: 50 ppm<br>Skin                        |

#### Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

### 8.2 Exposure controls

#### Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

#### Personal protective equipment

##### Eye/face protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

##### Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

##### Respiratory protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

##### Control of environmental exposure

Avoid release to the environment. See Section 12 for additional ecological information.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

|                                               |                            |
|-----------------------------------------------|----------------------------|
| <b>Physical State</b>                         | Liquid.                    |
| <b>Appearance</b>                             | Colorless.                 |
| <b>Odor</b>                                   | Mint-like.                 |
| <b>Odor Thresh</b>                            | 0.12 ppm                   |
| <b>pH</b>                                     | Not applicable.            |
| <b>Melting Point/Range</b>                    | -47 °C / -52.6 °F          |
| <b>Boiling Point/Range</b>                    | 155 °C / 311 °F @ 760 mmHg |
| <b>Flash Point</b>                            | 43 °C / 109 °F Closed Cup  |
| <b>Evaporation Rate</b>                       | No information available.. |
| <b>Flammability (solid, gas)</b>              | Not applicable.            |
| <b>Flammability or explosive limit</b>        |                            |
|                                               | <b>Upper</b> : 9.4% v/v    |
|                                               | <b>Lower</b> : 1.10% v/v   |
| <b>Vapor Pressure</b>                         | 4.5 mbar @ 20 °C           |
| <b>Vapor Density</b>                          | 3.4                        |
| <b>Density</b>                                | 0.947                      |
| <b>Solubility</b>                             | No information available.  |
| <b>Partition coefficient; n-octanol/water</b> | No data available.         |
| <b>Autoignition Temp</b>                      | 520 °C / 968 °F            |
| <b>Decomposition Temp</b>                     | No information available.  |
| <b>Viscosity</b>                              | 2.2 mPas @ 20°C            |
| <b>Molecular Formula</b>                      | C6H10O                     |
| <b>Molecular Weight</b>                       | 98.14                      |
| <b>VOC Content(%)</b>                         | Not oxidizing.             |
| <b>Oxidizing properties</b>                   | Not oxidizing.             |

## 9.2 Other safety information

None.

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

None known, based on information available.

### 10.2 Chemical stability

Stable under normal conditions. May form explosive peroxides.

### 10.3 Possibility of hazardous reactions

None under normal processing. Hazardous polymerization does not occur.

### 10.4 Conditions to avoid

Incompatible products. Heat, flames and sparks. The presence of oxygen or prolonged standing in or exposure to direct sunlight may lead to formation of unstable peroxides, which may explode spontaneously or when heated.

### 10.5 Incompatible materials

Strong oxidizing agents, Strong acids.

### 10.6 Hazardous decomposition products

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

##### Product Information

##### Component Information

| Component     | LD50 Oral         | LD50 Dermal          | LC50 Inhalation      |
|---------------|-------------------|----------------------|----------------------|
| Cyclohexanone | 800 mg/kg ( Rat ) | 948 mg/kg ( Rabbit ) | 8000 ppm ( Rat ) 4 h |

#### Skin corrosion/irritation

Irritating to skin.

#### Serious eye damage/eye irritation

Causes eye burns.

#### Respiratory or skin sensitization

No information available.

#### Germ cell mutagenicity

No information available.

#### Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

*Cyclohexanone (CAS No. 108-94-1)*

##### IARC Monographs. Overall Evaluation of Carcinogenicity

Group 3

##### NTP Report on Carcinogens

Not listed.

##### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed

##### ACGIH

A3

##### MEXICO

Not listed.

#### Reproductive toxicity

Experiments have shown reproductive toxicity effects on laboratory animals.

#### Specific target organ toxicity - single exposure

Respiratory system Central nervous system (CNS)

#### Specific target organ toxicity - repeated exposure

Liver, Kidney.

#### Aspiration hazard

No information available.

#### Chronic effects

Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

### 11.2 Additional information

None.

## SECTION 12. Ecological information

### 12.1 Toxicity

**Ecotoxicity:** Do not empty into drains.

| Component     | Freshwater Algae    | Freshwater Fish                     | Microtox                                                                  | Water Flea           |
|---------------|---------------------|-------------------------------------|---------------------------------------------------------------------------|----------------------|
| Cyclohexanone | 20 mg/L EC50 = 96 h | Leusiscus idus:<br>LC50>500mg/L 48h | EC50 = 18.5 mg/L 5 min<br>EC50 = 21.3 mg/L 10 min<br>EC50 = 25 mg/L 5 min | 800 mg/L EC50 = 24 h |

### 12.2 Persistence and Degradability

Insoluble in water Persistence is unlikely based on information available.

### 12.3 Bioaccumulative Potential

No data available.

### 12.4 Mobility in Soil

Is not likely mobile in the environment due its low water solubility.

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Endocrine disrupting properties

No data available.

### 12.7 Other adverse effects

See actual entry in RTECS for complete information.

## SECTION 13. Disposal considerations

### 13.1 Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

| Component                | RCRA - U Series Wastes | RCRA - P Series Wastes |
|--------------------------|------------------------|------------------------|
| Cyclohexanone - 108-94-1 | U057                   | -                      |

## SECTION 14: Transport information

#### DOT

|                      |               |
|----------------------|---------------|
| UN-No                | UN1915        |
| Proper Shipping Name | CYCLOHEXANONE |
| Hazard Class         | 3             |
| Packing Group        | III           |

#### TDG

|                      |               |
|----------------------|---------------|
| UN-No                | UN1915        |
| Proper Shipping Name | CYCLOHEXANONE |
| Hazard Class         | 3             |
| Packing Group        | III           |

**IATA**

|                      |               |
|----------------------|---------------|
| UN-No                | UN1915        |
| Proper Shipping Name | CYCLOHEXANONE |
| Hazard Class         | 3             |
| Packing Group        | III           |

**IMDG/IMO**

|                      |               |
|----------------------|---------------|
| UN-No                | UN1915        |
| Proper Shipping Name | CYCLOHEXANONE |
| Hazard Class         | 3             |
| Packing Group        | III           |

**SECTION 15: Regulatory information****International Inventories**

| Component     | TSCA | DSL | NDSL | EINECS    | ELINCS | NLP | PICCS | ENCS | AICS | IECSC | KECL |
|---------------|------|-----|------|-----------|--------|-----|-------|------|------|-------|------|
| Cyclohexanone | X    | X   | -    | 203-631-1 | -      |     | X     | X    | X    | X     | X    |

**Legend:**

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

**U.S. Federal Regulations**

TSCA 12(b) Not applicable

SARA 313 Not applicable

**SARA 311/312 Hazardous Categorization**

|                                   |     |
|-----------------------------------|-----|
| Acute Health Hazard               | Yes |
| Chronic Health Hazard             | No  |
| Fire Hazard                       | Yes |
| Sudden Release of Pressure Hazard | No  |
| Reactive Hazard                   | No  |

Clean Water Act Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration  
Not applicable**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

| Component     | Hazardous Substances RQs | CERCLA EHS RQs |
|---------------|--------------------------|----------------|
| Cyclohexanone | 5000 lb                  | -              |

California Proposition 65 This product does not contain any Proposition 65 chemicals

**State Right-to-Know**



| Component     | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|---------------|---------------|------------|--------------|----------|--------------|
| Cyclohexanone | X             | X          | X            | X        | X            |

#### U.S. Department of Transportation

Reportable Quantity (RQ): N  
DOT Marine Pollutant N  
DOT Severe Marine Pollutant N

#### U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

#### Other International Regulations

Mexico - Grade No information available

#### Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class B3 Combustible liquid  
D1B Toxic materials  
D2B Toxic materials



### SECTION 16: Other information

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#### Disclaimer:

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.