

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 CO₂, 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

CO₂, 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 STEL: 50 ppm Skin	(Vacated) TWA: 25 ppm (Vacated) TWA: 100 mg/m ³ Skin TWA: 50 ppm TWA: 200 mg/m ³	IDLH: 700 ppm TWA: 25 ppm TWA: 100 mg/m ³
Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Cyclohexanone 108-94-1 (>95)	TWA: 25 ppm TWA: 100 mg/m ³ Skin	TWA: 50 ppm TWA: 200 mg/m ³ STEL: 100 ppm STEL: 400 mg/m ³	TWA: 20 ppm STEL: 50 ppm 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

Physical State	Liquid.
Appearance	Colorless.
Odor	Mint-like.
Odor Thresh	0.12 ppm
pH	Not applicable.
Melting Point/Range	-47 °C / -52.6 °F
Boiling Point/Range	155 °C / 311 °F @ 760 mmHg
Flash Point	43 °C / 109 °F Closed Cup
Evaporation Rate	No information available..
Flammability (solid, gas)	Not applicable.
Flammability or explosive limit	
	Upper : 9.4% v/v
	Lower : 1.10% v/v
Vapor Pressure	4.5 mbar @ 20 °C
Vapor Density	3.4
Density	0.947
Solubility	No information available.
Partition coefficient; n-octanol/water	No data available.
Autoignition Temp	520 °C / 968 °F
Decomposition Temp	No information available.
Viscosity	2.2 mPas @ 20°C
Molecular Formula	C6H10O
Molecular Weight	98.14
VOC Content(%)	Not oxidizing.
Oxidizing properties	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 2)

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: LC50>500mg/L 48h	EC50 = 18.5 mg/L 5 min EC50 = 21.3 mg/L 10 min 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.