

Section 1. Product and Company Identification

Product Name Cyclohexanone
CAS Number 108-94-1

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Section 2. Hazards Identification

Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

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

GHS Label Elements

Pictograms:



Signal word: DANGER

Hazard and precautionary statements

Hazard Statements

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

Precautionary Statements

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.



- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P261 Avoid breathing dust/fume/gas/mist/vapors/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.
- P280 Wear protective gloves/ eye protection/ face protection.
- P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
- P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- P304 + P340 + P312 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.
- P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
- P332 + P313 If skin irritation occurs: Get medical advice/ attention.
- P362 Take off contaminated clothing and wash before reuse.
- P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
- P403 + P235 Store in a well-ventilated place. Keep cool.
- P501 Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS: None

Section 3. Composition / Information on Ingredients

Common Name Cyclohexanone
Formula C₆H₁₀O
CAS Number 108-94-1

COMPONENT	CAS NUMBER	CONCENTRATION
Cyclohexanone	108-94-1	99 – 100% wt.

Section 4. First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get immediate medical attention.

Skin: In the case of skin contact, flood the splashed surface with large quantities of soap and running water for at least 15 minutes. Removed and launder contaminated clothing before reuse. Get medical attention.

Ingestion: If the chemical has been confined to the mouth, give large quantities of water as a mouthwash. Ensure that the mouthwash is not swallowed. If the chemical has been swallowed, give large amounts of water to dilute it in the stomach. Never give fluids if the victim is unconscious or having convulsions. Get medical attention.



Inhalation: Remove from exposure to fresh air. If not breathing or if breathing is difficult, oxygen should be administered by qualified personnel. Consult doctor.

Notes to Physician: In small ingestion the major concern is aspiration and gastrointestinal decontamination is not recommended. With larger ingestion there is potential for systemic toxicity from gastrointestinal absorption and decontamination is suggested, keeping in mind that aspiration is still a concern.

Section 5. Firefighting Measures

Flashpoint (Closed Cup): 43.9°C (111°F)

Flammable Limits: 1.1 to 9.4

Auto-ignition Temperature: 420°C (788°F)

Extinguishing Media: Dry chemical, foam, carbon dioxide or other dry chemical extinguishing media. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors.

Explosion Hazards: Above the flash point, vapor-air mixtures are explosive within flammable limits noted above. Vapors can flow along surfaces to ignition sources and flash back. Contact with strong oxidizers may cause fire. Sealed containers may rupture when heated. Sensitive to static discharge.

Firefighting Equipment: In the event of a fire, wear full protective clothing and NIOSH approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode.

Section 6. Accidental Release Measures

General Procedures: Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective clothing as specified in the Personal Protection Section. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e.g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures.

Release Notes: US regulations (CERCLA) require reporting spills and releases to soil, water, and air in excess of reporting quantities.

Section 7. Handling and Storage

General Procedures: Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and ground for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquids); observe all warnings and precautions listed for the product.



Section 8. Exposure Controls / Personal Protection

Exposure Guidelines

OSHA Hazardous Components (29 CFR1910.1200) - Exposure Limits

Chemical Name		OSHA PEL		ACGIH TLV		Supplier OEL	
		ppm	mg/m ³	ppm	mg/m ³	ppm	mg/m ³
Cyclohexanone	TWA	50	2000	20	50	NL	NL
	STEL					NL	NL

NL = Not listed

Engineering Controls: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Personal Protective Equipment

Eyes and Face: Use chemical safety goggles and/or full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work areas.

Respiratory: If the exposure limit is exceeded and engineering controls are not feasible, a half-face organic vapor respirator may be worn for up to ten times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece organic vapor respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full face piece positive pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Protective Clothing: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Section 9. Physical and Chemical Properties

Flash Point (TAG CC): 43.9°C

Boiling Point: 155°C

Auto Ignition: 420°C

Solubility in Water (10°C/50°F): 15% in water

Specific Gravity: 0.9

Odor: Acetone and peppermint.

Appearance: Clear, colorless to slightly yellow, oily liquid.

Percent Volatile: 100

Vapor Pressure (26°C/79°F): 5 mmHg

Vapor Density: 3.4 (Air=1)



Boiling Point: 155°C (311°F)
Melting Point: -31°C (-24°F)
Flashpoint (Closed Cup): 43.9°C (111°F)
Solubility in Water: Slight
Evaporation Rate: 0.29 (n-Butyl Acetate=1)
Specific Gravity (25°C/4°C): 0.900 to 0.94
Molecular Weight: 98.14

Section 10. Stability and Reactivity

Stability: Stable under ordinary conditions of use and storage.
Polymerization: Will not occur.
Conditions to Avoid: Avoid heat, flames, ignition sources and incompatibles.
Hazardous Decomposition Products: Carbon monoxide and unidentified organic compounds may be formed during combustion.
Incompatible Materials: Strong oxidizing agents. May cause spontaneous ignition and violent reactions. May attack plastics, resins, and rubber.

Section 11. Toxicological Information

ACUTE

Chemical Name: Cyclohexanone
Oral LD50 (Rat): 1620 mg/kg (Rat)
Dermal LD50 (Rabbit): 1 mL/kg (Rabbit)
Inhalation LC50 (Rat): 8000 ppm/4 hours (Rat)
Eye Effects: Cyclohexanone: Eye Rabbit (Standard Draize): 20 mg, severe
Skin Effects: Cyclohexanone: Skin Rabbit (Open Draize): 500 mg, mild

Carcinogenicity

IARC: Category 3
NTP: Known: No Anticipated: No
General Comments: Investigated as a tumorigen, mutagen, and reproductive effector.

Section 12. Ecological Information

Environmental Data: When released into the soil, this material is expected to readily biodegrade. When released into the soil, this material is expected to quickly evaporate. When released into the soil, this material is expected to leach into ground water. When released into water, this material may evaporate to a moderate extent. When released into water, this material may biodegrade to a moderate extent. This material has an estimated bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to have a half-life between 1 and 10 days.



Aquatic Toxicity (Acute)

96-Hour LC50: > 100 mg/l (Fish)

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

DOT (Department Of Transportation)

Proper Shipping Name: Cyclohexanone

Primary Hazard Class/Division: 3

Un/Na Number: UN1915

Packing Group: III

Label: Flammable liquid

Section 15. Regulatory Information

United States Hazard Classification: Flammable liquid

SARA Title III (Superfund Amendments and Reauthorization Act)

311/312 Hazard Categories: This product should be reported as an immediate (acute) health hazard, delayed (chronic) health hazard, and a fire hazard.

Fire: Yes

Pressure Generating: No

Reactivity: No

Acute: Yes

Chronic: Yes

313 Reportable Ingredients: To the best of our knowledge, this product is not listed as a toxic chemical under Section 313 of SARA Title III.

302/304 Emergency Planning

Emergency Plan: To the best of our knowledge, this product is not listed as an extremely hazardous substance.

CERCLA (Comprehensive Response, Compensation, and Liability Act)

Chemical Name: Cyclohexanone

Percentage: 99 - 100% wt.

CERCLA RQ: 5,000 lbs.

TSCA (Toxic Substance Control Act)

Chemical Name: Cyclohexanone

CAS: 108-94-1



RCRA Status: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

General Comments: The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Section 16. Other Information

Disclaimer: 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.

REVISION DATE: 6/19/2015

