

Safety Data Sheet


according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: April 01, 2020

1 Identification

- **Product identifier**
- **Trade name:** Cyclohexanone, ACS Grade
- **Product code:** CY4725
- **Recommended use and restriction on use**
- **Recommended use:** Laboratory chemicals
- **Restrictions on use:** No relevant information available.
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331 USA
Tel +1 (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com
- **Distributor:**
AquaPhoenix Scientific
860 Gitts Run Road,
Hanover, PA 17331
(717) 632-1291
- **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

- **Classification of the substance or mixture**
Flam. Liq. 3 H226 Flammable liquid and vapor.
Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 4 H312 Harmful in contact with skin.
Acute Tox. 4 H332 Harmful if inhaled.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Dam. 1 H318 Causes serious eye damage.
- **Label elements**
- **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:**


GHS02 GHS05 GHS07
- **Signal word:** Danger
- **Hazard statements:**
H226 Flammable liquid and vapor.
H302+H312+H332 Harmful if swallowed, in contact with skin or if inhaled.
H315 Causes skin irritation.

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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 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/protective clothing/eye protection/face protection.

P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 IF INHALED: Remove person to fresh air and keep 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.

P310 Immediately call a poison center/doctor.

P321 Specific treatment (see on this label).

P330 Rinse mouth.

P362+P364 Take off contaminated clothing and wash it before reuse.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P370+P378 In case of fire: Use for extinction: CO₂, powder or water spray.

P403+P235 Store in a well-ventilated place. Keep cool.




P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Substances**

· **Components:**

108-94-1	cyclohexanone	100%
	 Flam. Liq. 3, H226  Eye Dam. 1, H318  Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315	

4 First-aid measures

· **Description of first aid measures**

· **General information:**

Immediately remove any clothing soiled by the product.

Take affected persons out into the fresh air.

· **After inhalation:** Supply fresh air; consult doctor in case of complaints.

· **After skin contact:**

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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If skin irritation continues, consult a doctor.

· **After eye contact:**

Protect unharmed eye.

Remove contact lenses if worn.

Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:**

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; immediately call for medical help.

· **Most important symptoms and effects, both acute and delayed:**

Breathing difficulty

Coughing

Irritant to skin and mucous membranes.

Strong irritant with the danger of severe eye injury.

Gastric or intestinal disorders when ingested.

Nausea in case of ingestion.

· **Danger:**

Causes serious eye damage.

Harmful if swallowed, in contact with skin or if inhaled.

· **Indication of any immediate medical attention and special treatment needed:**

Medical supervision for at least 48 hours.

If necessary oxygen respiration treatment.

If medical advice is needed, have product container or label at hand.

5 Fire-fighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:**

Alcohol resistant foam

Water fog / haze

Carbon dioxide

Gaseous extinguishing agents

Fire-extinguishing powder

· **For safety reasons unsuitable extinguishing agents:** Water stream.

· **Special hazards arising from the substance or mixture**

Formation of toxic gases is possible during heating or in case of fire.

Flammable liquid and vapor.

· **Advice for firefighters**

· **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

· **Additional information:**

Eliminate all ignition sources if safe to do so.

Use large quantities of foam as it is partially destroyed by the product.

Cool endangered containers with water fog.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

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Ensure adequate ventilation.

Keep away from ignition sources.

Protect from heat.

For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.

- **Environmental precautions**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- **Methods and material for containment and cleaning up**

Absorb with non-combustible liquid-binding material (sand, diatomite, acid binders, universal binders).

Send for recovery or disposal in suitable receptacles.

- **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

- **Handling**

- **Precautions for safe handling:**

Prevent formation of aerosols.

Avoid splashes or spray in enclosed areas.

Use only in well ventilated areas.

- **Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

Flammable gas-air mixtures may be formed in empty containers/receptacles.

Flammable liquid and vapor.

- **Conditions for safe storage, including any incompatibilities**

- **Requirements to be met by storerooms and receptacles:**

Avoid storage near extreme heat, ignition sources or open flame.

- **Information about storage in one common storage facility:**

Store away from foodstuffs.

Store away from oxidizers, strong acids, strong bases.

Store away from reducing agents.

Store away from halogens.

- **Further information about storage conditions:**

Keep containers tightly sealed.

This product is hygroscopic.

Store in cool, dry conditions in well sealed receptacles.

- **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

108-94-1 cyclohexanone

PEL (USA)	Long-term value: 200 mg/m ³ , 50 ppm
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REL (USA)	Long-term value: 100 mg/m ³ , 25 ppm Skin
TLV (USA)	Long-term value: 50 mg/m ³ , 20 ppm Skin
EL (Canada)	Short-term value: 50 ppm Long-term value: 20 ppm Skin
EV (Canada)	Short-term value: 50 ppm Long-term value: 20 ppm Skin
LMPE (Mexico)	Short-term value: 50 ppm Long-term value: 20 ppm A3, PIEL

· **Ingredients with biological limit values:**

108-94-1 cyclohexanone

BEI (USA)	80 mg/L Medium: urine Time: end of shift at end of workweek Parameter: 1,2-Cyclohexanediol with hydrolysis (nonspecific, semi-quantitative)
	8 mg/L Medium: urine Time: end of shift Parameter: Cyclohexanol with hydrolysis (nonspecific, semi-quantitative)

· **Exposure controls**

· **General protective and hygienic measures:**

The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.

· **Engineering controls:** Provide adequate ventilation.

· **Breathing equipment:**

Use suitable respiratory protective device when high concentrations are present.
NIOSH or EN approved organic vapor respirator equipped with a dust/mist prefilter should be used.

· **Protection of hands:**



Protective gloves

· **Material of gloves**

Laminated film gloves.
PVA gloves
Butyl rubber, BR

· **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**

Nitrile rubber, NBR
Fluorocarbon rubber (Viton)

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· **Not suitable are gloves made of the following materials:**

Neoprene gloves
PVC gloves
Natural rubber, NR

· **Eye protection:**

Contact lenses should not be worn.



Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

· **Body protection:** Protective work clothing

· **Limitation and supervision of exposure into the environment**

No relevant information available.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **Appearance:**

Form: Liquid
Color: Colorless

· **Odor:** Characteristic

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Melting point/Melting range:** 26 °C (78.8 °F)

· **Boiling point/Boiling range:** 153-156 °C (307.4-248.8 °F)

· **Flash point:** 43-48 °C (109.4-54.4 °F)

· **Flammability (solid, gaseous):** Not applicable.

· **Auto-ignition temperature:** 420 °C (788 °F)

· **Decomposition temperature:** Not determined.

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· **Explosion limits**

Lower: 1.3 Vol %

Upper: 9.4 Vol %

· **Oxidizing properties:** Non-oxidizing.

· **Vapor pressure at 20 °C (68 °F):** 5 hPa (3.8 mm Hg)

· **Density at 20 °C (68 °F):** 0.95 g/cm³ (7.93 lbs/gal)

· **Relative density:** Not determined.

· **Vapor density:** Not determined.

· **Evaporation rate:** Not determined.

· **Solubility in / Miscibility with**

Water at 20 °C (68 °F): 80 g/l

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- | | |
|--|------------------------------------|
| · Partition coefficient (n-octanol/water) at 20 °C (68 °F): | 0.81 log POW |
| · Viscosity | |
| Dynamic: | Not determined. |
| Kinematic: | Not determined. |
| · Other information | No relevant information available. |

10 Stability and reactivity

- **Reactivity:** No relevant information available.
- **Chemical stability:** Stable under normal temperatures and pressures.
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions**
Flammable liquid and vapor.
Used empty containers may contain product gases which form explosive mixtures with air.
Can form explosive mixtures in air if heated above flash point and/or when sprayed or atomized.
Reacts with strong acids and alkali.
Reacts with halogens.
- **Conditions to avoid**
Keep ignition sources away - Do not smoke.
Store away from oxidizing agents.
- **Incompatible materials**
Oxidizing agents.
Strong acids and alkali.
Halogens.
- **Hazardous decomposition products**
Under fire conditions only:
Carbon monoxide and carbon dioxide

11 Toxicological information

- **Information on toxicological effects**
 - **Acute toxicity:**
Harmful if swallowed.
Harmful in contact with skin.
Harmful if inhaled.
 - **LD/LC50 values that are relevant for classification:**
- | 108-94-1 cyclohexanone | | |
|------------------------|---------|------------------|
| Oral | LD50 | 1535 mg/kg (rat) |
| Inhalative | LC50/4h | >6.2 mg/l (rat) |
- **Primary irritant effect:**
 - **On the skin:** Irritant to skin and mucous membranes.
 - **On the eye:** Strong irritant with the danger of severe eye injury.
 - **Sensitization:** Based on available data, the classification criteria are not met.

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· **IARC (International Agency for Research on Cancer):**

Substance is not listed.

· **NTP (National Toxicology Program):**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**

Substance is not listed.

· **Probable route(s) of exposure:**

Ingestion.

Inhalation.

Eye contact.

Skin contact.

· **Acute effects (acute toxicity, irritation and corrosivity):**

Causes serious eye damage.

Harmful if swallowed, in contact with skin or if inhaled.

Irritating to skin.

· **Repeated dose toxicity:** No relevant information available.

· **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.

· **Carcinogenicity:** Based on available data, the classification criteria are not met.

· **Reproductive toxicity:** Based on available data, the classification criteria are not met.

· **STOT-single exposure:** Based on available data, the classification criteria are not met.

· **STOT-repeated exposure:** Based on available data, the classification criteria are not met.

· **Aspiration hazard:** Based on available data, the classification criteria are not met.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity** No relevant information available.

· **Persistence and degradability** No relevant information available.

· **Bioaccumulative potential:** No relevant information available.

· **Mobility in soil:** No relevant information available.

· **Additional ecological information**

· **General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

· **Other adverse effects** No relevant information available.

13 Disposal considerations

· **Waste treatment methods**

· **Recommendation:**

The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

· **Uncleaned packagings**

· **Recommendation:** Disposal must be made according to official regulations.

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14 Transport information

· UN-Number	
· DOT, ADR/RID/ADN, IMDG, IATA	UN1915
· UN proper shipping name	
· DOT, IMDG, IATA	CYCLOHEXANONE
· ADR/RID/ADN	1915 CYCLOHEXANON
· Transport hazard class(es)	
· DOT	
	
· Class	3
· Label	3
· ADR/RID/ADN	
	
· Class	3 (F1)
· Label	3
· IMDG, IATA	
	
· Class	3
· Label	3
· Packing group	
· DOT, ADR/RID/ADN, IMDG, IATA	III
· Environmental hazards	Not applicable.
· Special precautions for user	Warning: Flammable liquids
· Hazard identification number (Kemler code):	30
· EMS Number:	3-07
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Hazardous substance:	5000 lbs, 2270 kg

15 Regulatory information

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· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **United States (USA)**

· **SARA**

· **Section 302 (extremely hazardous substances):**

Substance is not listed.

· **Section 313 (Specific toxic chemical listings):**

Substance is not listed.

· **TSCA (Toxic Substances Control Act)**

All ingredients are listed or exempt.

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

Substance is not listed.

· **Chemicals known to cause developmental toxicity for females:**

Substance is not listed.

· **Chemicals known to cause developmental toxicity for males:**

Substance is not listed.

· **Chemicals known to cause developmental toxicity:**

Substance is not listed.

· **EPA (Environmental Protection Agency):**

Substance is not listed.

· **IARC (International Agency for Research on Cancer):**

3

· **Canadian Domestic Substances List (DSL):**

All ingredients listed on DSL or NDSL.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

OSHA: Occupational Safety & Health Administration

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)

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Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor-internet/registry/substreg/home/overview/home.do)

Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)

Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6

Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.

Safety Data Sheets, Individual Manufacturers

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