

Name: Cyclohexanone

Synonym: Ketoexamethylene; Pimelic ketone

CAS:108-94-1

### Section 1 - Chemical Product

MSDS Name:Cyclohexanone

Synonym:Ketoexamethylene; Pimelic ketone

### Section 2 - COMPOSITION, INFORMATION ON INGREDIENTS

CAS#	Chemical Name	emds	EINECS#
108-94-1	Cyclohexanone	>98	203-631-1

Hazard Symbols: XN  
Risk Phrases: 10 20

### Section 3 - HAZARDS IDENTIFICATION

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

Skin:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Get medical aid immediately. Wash clothing before reuse.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician:

Cyclohexanol in urine can be useful in diagnosis.

### Section 4 - FIRST AID MEASURES

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

Skin:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Get medical aid immediately. Wash clothing before reuse.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician:

Cyclohexanol in urine can be useful in diagnosis.

### Section 5 - FIRE FIGHTING MEASURES

#### General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Flammable liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

#### Extinguishing Media:

Water may be ineffective. For large fires, use water spray, fog or alcohol-resistant foam. Do NOT use straight streams of water. For small fires, use carbon dioxide, dry chemical, dry sand, or alcohol-resistant foam.

### **Section 6 - ACCIDENTAL RELEASE MEASURES**

General Information: Use proper personal protective equipment as indicated in Section 8.

#### Spills/Leaks:

Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Remove all sources of ignition.

Provide ventilation. Use only non-sparking tools and equipment.

### **Section 7 - HANDLING and STORAGE**

#### Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation.

Keep away from heat, sparks and flame. Avoid breathing vapor or mist.

#### Storage:

Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Flammables-area.

### **Section 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION**

#### Engineering Controls:

Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits CAS# 108-94-1: United Kingdom, WEL - TWA: 10 ppm TWA United Kingdom, WEL - STEL: 20 ppm STEL United States OSHA: 50 ppm TWA; 200 mg/m<sup>3</sup> TWA Belgium - TWA: 10 ppm VLE; 40.8 mg/m<sup>3</sup> VLE Belgium - STEL: 20 ppm VLE; 81.6 mg/m<sup>3</sup> VLE France - VME: 25 ppm VME; 100 mg/m<sup>3</sup> VME Germany: 20 ppm TWA; 80 mg/m<sup>3</sup> TWA Germany: Skin absorber Japan: 25 ppm OEL; 100 mg/m<sup>3</sup> OEL Malaysia: 25 ppm TWA; 199 mg/m<sup>3</sup> TWA Netherlands: 12.5 ppm STEL; 50 mg/m<sup>3</sup> STEL Russia: 10 mg/m<sup>3</sup> TWA Spain: 10 ppm VLA-ED; 41 mg/m<sup>3</sup> VLA-ED Spain: 20 ppm VLA-EC; 82 mg/m<sup>3</sup> VLA-EC Personal Protective Equipment Eyes: Wear chemical splash goggles.

#### Skin:

Wear appropriate protective gloves to prevent skin exposure.

#### Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

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.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Color: clear, colorless to pale yellow

Odor: Acetone or peppermint odor

pH: Not applicable.

Vapor Pressure: 4.33 mm Hg @ 25 deg C

Viscosity: Not available.

Boiling Point: 155 deg C @ 760 mm Hg

Freezing/Melting Point: -47 deg C

Autoignition Temperature: 420 deg C ( 788.00 deg F)

Flash Point: 44 deg C ( 111.20 deg F)

Explosion Limits, lower: 1.10 vol %

Explosion Limits, upper: 9.4 vol %

Decomposition Temperature:

Solubility in water: Slightly soluble.

Specific Gravity/Density: .9478 @ 20C

Molecular Formula: C<sub>6</sub>H<sub>10</sub>O

Molecular Weight: 98.14

## Section 10 - STABILITY AND REACTIVITY

Chemical Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

Ignition sources, excess heat, confined spaces.

Incompatibilities with Other Materials:

Strong oxidizing agents, strong acids, amines, nitric acid, alkalis.

Hazardous Decomposition Products:

Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Will not occur.

## Section 11 - TOXICOLOGICAL INFORMATION

RTECS#:

CAS# 108-94-1: GW1050000 LD50/LC50:

CAS# 108-94-1: Draize test, rabbit, eye: 20 mg Severe; Draize test, rabbit, eye: 250 ug/24H Severe; Inhalation, mouse: LC50 = 2375 mg/m<sup>3</sup>; Inhalation, rat: LC50 = 8000 ppm/4H; Inhalation, rat: LC50 = 19000 mg/m<sup>3</sup>; Oral, mouse: LD50 = 1400 mg/kg; Oral, rat: LD50 = 1620 uL/kg; Oral, rat: LD50 = 1800 mg/kg; Skin, rabbit: LD50 = 1 mL/kg.

Carcinogenicity:

Cyclohexanone - ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to Other:

See actual entry in RTECS for complete information.

## Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity:

Fish: Rainbow trout: LC50 = 90.0 mg/L; 96 Hr.; 320.0 mg/L CaCO<sub>3</sub>Fish: Rainbow trout: LC50 = 44.0 mg/L; 96 Hr.; 20.0 mg/L CaCO<sub>3</sub>Fish: Fathead Minnow: LC50 = 527.0 mg/L; 96 Hr.; Flow-through, 24-26 degrees C, pH 7.5 Water flea Daphnia: EC50 = 820.0 mg/L; 48 Hr.; Unspecified Algae: EC50 = 20.0 mg/L; 96 Hr.; Unspecified Bacteria: Phytobacterium phosphoreum: EC50 = 18.7 mg/L; 5 minutes; Microtox Test

## Section 13 - DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with federal, state, and local regulations.

## Section 14 - TRANSPORT INFORMATION

IATA

Shipping Name: CYCLOHEXANONE

Hazard Class: 3

UN Number: 1915

Packing Group: III

IMO

Shipping Name: CYCLOHEXANONE

Hazard Class: 3.3

UN Number: 1915

Packing Group: III

RID/ADR

Shipping Name: CYCLOHEXANONE

Hazard Class: 3

UN Number: 1915

Packing group: III

USA RQ: CAS# 108-94-1: 5000 lb final RQ; 2270 kg final RQ

## Section 15 - REGULATORY INFORMATION

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN

Risk Phrases:

R 10 Flammable.

R 20 Harmful by inhalation.

Safety Phrases:

S 25 Avoid contact with eyes.

WGK (Water Danger/Protection)

CAS# 108-94-1: 1

Canada

CAS# 108-94-1 is listed on Canada's DSL List.

CAS# 108-94-1 is listed on Canada's Ingredient Disclosure List.

US FEDERAL

TSCA

CAS# 108-94-1 is listed on the TSCA inventory.