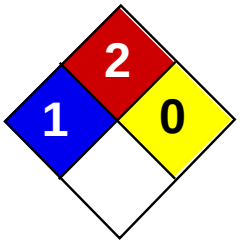

Safety Data Sheet
Cyclohexanone

Section 1: Chemical Product and Company Identification

Product Name: Cyclohexanone

Catalog Codes: 277

CAS#: 108-94-1

RTECS: GW1050000

TSCA: TSCA 8(b) inventory: Cyclohexanone

CI#: Not available.

Synonym: Cyclohexyl ketone; Anone; Hexanon; Ketohexamethylene; Pimelic ketone; Pimelin ketone; Sextone

Chemical Name: Cyclohexanone

Chemical Formula: C6H10O

Contact Information:

Email: info@drm-chem.com

Address: #7, Afshar javan Alley, Sohrevardi St ,Tehran, Iran

post code: 1551818111

Tehran Sales: +98 21 88177760

Order Online: Drm-chem.com

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Cyclohexanone	108-94-1	100

Toxicological Data on Ingredients: Cyclohexanone: ORAL (LD50): Acute: 1516 mg/kg [Rat]. 1400 mg/kg [Mouse]. DERMAL (LD50): Acute: 948 mg/kg [Rabbit].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, upper respiratory tract, skin, eyes, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact: Not available.

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

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

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

Flash Points: CLOSED CUP: 43.889°C (111°F). OPEN CUP: 46°C (114.8°F).

Flammable Limits: LOWER: 1.1% UPPER: 9.4%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards:
Cyclohexanone forms explosive reaction with nitric acid at 75 deg. C. Reaction of cyclohexanone with hydrogen peroxide + nitric acid forms an explosive peroxide. Vapors may form explosive mixtures with air.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:

Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with eyes. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, acids, alkalis.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 50 from OSHA (PEL) [United States] Inhalation TWA: 25 (ppm) from ACGIH (TLV) [United States] SKIN TWA: 100 (mg/m3) from NIOSH [United States] SKIN TWA: 25 (ppm) from NIOSH [United States] SKIN TWA: 100 (mg/m3) from OSHA (PEL) [United States] SKIN TWA: 200 (mg/m3) from OSHA (PEL) [United States] InhalationConsult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Oily liquid.)

Odor: Odor reminiscent of of peppermint and acetone

Taste: Not available.

Molecular Weight: 98.15g/mole

Color: Colorless.

pH (1% soln/water): Not available.

Boiling Point: 155.6°C (312.1°F) @ 760 mm Hg

Melting Point: -31°C (-23.8°F)

Critical Temperature: 356°C (672.8°F)

Specific Gravity: 0.9478 (Water = 1)

Vapor Pressure: 0.7 kPa (@ 26.7°C)

Vapor Density: 3.4 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.88 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 0.8

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:
Soluble in diethyl ether, acetone. Partially soluble in cold water, hot water. Solubility in water: 150 g/l @ 10 deg. C; 50 g/l @ 30 deg. C. Soluble in alcohol and other common organic solvents.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Incompatible with amines, nitric acid and other strong acids, strongt alkalies (bases) such as sodium hydroxide or potassium hydroxide, strong oxidizing agents (perchlorates, peroxides, permanganates, chlorates, nitrates, chlorine, bromine, fluorine) Cyclohexanone can react vigorously with strong oxidizing materials.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 1400 mg/kg [Mouse]. Acute dermal toxicity (LD50): 948 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 8000 4 hours [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, upper respiratory tract, skin, eyes, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals:
Lethal Dose/Conc 50% Kill: LD50 [Rat] - Route: Oral; Dose: 1620 ul/kg LD50 [Rabbit] - Route: Skin; Dose: 1 ml/kg

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects and birth defects(teratogenic). May affect genetic material (mutagenic)

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes Skin irritation. Can be absorbed through the skin with possible systemic effects. Harmful if absorbed through skin. Eyes: Causes eye irritation. Contact produces irritation, tearing, and burning pain. It may

cause transient corneal injury. Inhalation: It causes respiratory tract (nose, throat) irritation at airborne concentrations of 50 ppm; and 75 ppm causes marked irritation; and 125 ppm causes significant irritation. Vapors also cause eye irritation or conjunctivitis. Inhalation of vapors or mist can affect respiration, behavior/central nervous system and cause central nervous system depression with nausea, headache, lightheadedness,ataxia, somnolence, weakness, dizziness, loss of coordination. It may cause kidney and liver damage. Ingestion: May be harmful if swallowed. It causes gastrointestional tract irriation with abdominla pain, nausea, vomiting, and diarrhea. It may cause liver and kidney damage. It may affect behavior/central nervous system and cause central nervous system depression characterized by excitement followed by headache, dizziness, drowsiness, nausea and other symptoms similar to inhalation. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. Chronic Potential Health Effects: Skin: It can have a deffating effect on the skin. Long term exposure to high concentration of vapors may cause clouding of the eyes. Ingestion or Inhalation: Prolonged or repeated ingestion or inhalation may affect respiration and behavior/central nervous system with symptoms similar to that of acute inhalation. It may also cause kidney damage and affect metabolism (weight loss)

Section 12: Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 527 mg/l 96 hours [Fish (Fathead minnow (Pimephales promales))].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Cyclohexanone UNNA: 1915 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Cyclohexanone Illinois toxic substances disclosure to employee act: Cyclohexanone Illinois chemical safety act: Cyclohexanone New York release reporting list: Cyclohexanone Pennsylvania RTK: Cyclohexanone Minnesota: Cyclohexanone Massachusetts RTK: Cyclohexanone Massachusetts spill list: Cyclohexanone New Jersey: Cyclohexanone New Jersey spill list: Cyclohexanone Louisiana spill reporting: Cyclohexanone California Director's List of Hazardous Substances: Cyclohexanone TSCA 8(b) inventory: Cyclohexanone CERCLA: Hazardous substances.: Cyclohexanone: 5000 lbs. (2268 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R10- Flammable. R20- Harmful by inhalation. S25- Avoid contact with eyes.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 2

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available

Other Special Considerations: Not available

Created: 15/06/2024

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