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MATERIAL SAFETY DATA SHEET

CYCLOHEXANE 99.9% HPLC **MSDS CAS: 110-82-7**

Section 1: Chemical Product and Company Identification

Section 1: Chemical Product

Product Name: CYCLOHEXANE HPLC

CAS#: 110-82-7

Synonym: Benzene, hexahydro-; Hexahydrobenzene;
Hexamethylene; Hexanaphthene

Chemical Name: Cyclohexane HPLC

Chemical Formula: C₆-H₁₂

Brand: OXFORD

Details Of The Supplier Of The Safety Data Sheet :

Company identification: OXFORD LAB FINE CHEM LLP
Unit. No. 12, 1st Floor, Neminath Industrial Estate No. 6,
Navghar, Vasai (East). Palghar - 401 210.
Mumbai, Maharashtra, INDIA.
Tel: 91-250-2390989
Tel/Fax: 91-250-2390032

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Cyclohexane HPLC	110-82-7	100

Toxicological Data on Ingredients: Cyclohexane: ORAL (LD50): Acute: 12705 mg/kg [Rat]. 813 mg/kg [Mouse]. DERMAL (LD): Acute: >18000 mg/kg [Rabbit].

Section 3: Hazards Identification

Potential Acute Health Effects:

Slightly hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.

The substance may be toxic to kidneys, liver, cardiovascular system, 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. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. 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. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

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. Seek medical attention.

Section 4: First Aid Measures (Continued)

Ingestion:

If swallowed, do NOT induce vomiting. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Aspiration hazard if swallowed- can enter lungs and cause damage. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 245°C (473°F)

Flash Points: CLOSED CUP: -18°C (-0.4°F). (Seta flash)

Flammable Limits: LOWER: 1.3% UPPER: 8.4%

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

Fire Hazards in Presence of Various Substances:

Highly 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, insoluble in water.

SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use water spray or fog.

Special Remarks on Fire Hazards:

Vapor may travel considerable distance to source of ignition and flash back.

Special Remarks on Explosion Hazards:

When mixed hot with liquid dinitrogen tetroxide an explosion can result.

Section 6: Accidental Release Measures

Small Spill:

Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Flammable liquid, insoluble in water. 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 get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. 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. 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. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.

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.

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Section 8: Exposure Controls/Personal Protection (Continued)

Exposure Limits:

TWA: 300 (ppm) from ACGIH (TLV) [United States] TWA: 300 (ppm) from OSHA (PEL) [United States]
TWA: 1050 (mg/m³) from OSHA (PEL) [United States] TWA: 100 STEL: 300 (ppm) [United Kingdom (UK)]
TWA: 350 STEL: 1050 (mg/m³) [United Kingdom (UK)] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor	: Chloroform-like odor; solvent odor; mild sweet odor
Taste	: Not available.
Molecular Weight	: 84.16 g/mole
Color	: Clear Colorless.
pH (1% soln/water)	: Not available.
Boiling Point	: 80.7°C (177.3°F)
Melting Point	: 6.47°C (43.6°F)
Critical Temperature	: 280.4°C (536.7°F)
Specific Gravity	: 0.7781 (Water = 1)
Vapor Pressure	: 12.9 kPa (@ 20°C)
Vapor Density	: 2.98 (Air = 1)
Volatility	: Not available.
Odor Threshold	: 25 ppm
Water/Oil Dist. Coeff.	: The product is more soluble in oil; log (oil/water) = 3.4
Ionicity (in Water)	: Not available.
Dispersion Properties	: See solubility in water, methanol.
Solubility	: Soluble in methanol. Insoluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Section 10: Stability and Reactivity Data (Continued)

Conditions of Instability: Heat, ignition sources, incompatible materials.

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Not considered to be corrosive for metals and glass.

Special Remarks on Reactivity: Not available.

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:

Acute oral toxicity (LD50): 813 mg/kg [Mouse].

Chronic Effects on Humans:

May cause damage to the following organs: kidneys, liver, cardiovascular system, central nervous system (CNS).

Other Toxic Effects on Humans:

Slightly hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals:

Lowest Published Lethal Dose: LCL [Mouse] - Route: Inhalation; Dose: 70000 mg/m³/2H LCL [Rabbit] - 89600 mg/m³/1H

Special Remarks on Chronic Effects on Humans:

Human: passes the placental barrier, detected in maternal milk. May affect genetic material (mutagenic).

Section 11: Toxicological Information (Continued)

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: **Skin:** It may cause skin irritation. It may be absorbed through the skin. **Eyes:** It may cause eye irritation. **Inhalation:** It may cause respiratory tract (nose, throat) irritation. Exposure to high concentrations of vapor may cause nausea, increased respiration rate. It may also affect behavior/central nervous system (dizziness, lethargy, somnolence, lightheadedness, seizures/convulsions, and weakness, loss of coordination and judgment, trembling, drowsiness).

Unconsciousness and death may occur at high exposures. In experimental animals there is a narrow margin between doses causing narcosis, loss of reflexes and death. Generalized vascular damage/collapse and degenerative changes were seen in the heart, lung, liver kidneys and brain of experimental animals exposed to lethal concentrations by inhalation or ingestion.

Ingestion: May cause gastrointestinal irritation and diarrhea. May affect behavior/central nervous system with symptoms similar that that of inhalation. May cause liver and kidney damage. Aspiration of cyclohexane into the lungs may cause chemical pneumonitis. **Chronic Potential Health Effects:** **Skin:** Prolonged or repeated skin contact may cause drying, cracking and chapping of exposed areas. **Ingestion and Ingestion:** Prolonged or repeated inhalation or ingestion may cause liver and kidney damage. It may also affect behavior/central nervous system with symptoms similar to that of acute ingestion or inhalation.

Section 12: Ecological Information

Ecotoxicity: Not available.

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 product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

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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

Land transport (ADR-RID)

Proper shipping name: CYCLOHEXANE

UN N°: 1145

H.I. nr: 33

ADR - Class: 3

Labelling - Transport: 3 : Flammable liquid.

ADR - Group: II

Sea transport (IMDG) [English only]

Proper shipping name: CYCLOHEXANE

UN N°: 1145

IMO-IMDG - Class or division: 3 : Flammable liquid.

IMO-IMDG - Packing group: II

Air transport (ICAO-IATA) [English only]

Proper shipping name: CYCLOHEXANE

UN N°: 1145

IATA - Class or division: 3 : Flammable liquid.

IATA - Packing group: II

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Section 15: Other Regulatory Information

Federal and State Regulations:

Connecticut hazardous material survey.: Cyclohexane Illinois toxic substances disclosure to employee act: Cyclohexane Illinois chemical safety act: Cyclohexane New York release reporting list: Cyclohexane Rhode Island RTK hazardous substances: Cyclohexane Pennsylvania RTK: Cyclohexane Minnesota: Cyclohexane Massachusetts RTK: Cyclohexane Massachusetts spill list: Cyclohexane New Jersey: Cyclohexane New Jersey spill list: Cyclohexane Louisiana spill reporting: Cyclohexane TSCA 8(b) inventory: Cyclohexane SARA 313 toxic chemical notification and release reporting: Cyclohexane CERCLA: Hazardous substances.: Cyclohexane: 1000 lbs. (453.6 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-2: Flammable liquid with a flash point lower than 37.8°C (100°F).

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 3

Reactivity: 0

Personal Protection: H

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

Health: 1

Flammability: 3

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.

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Section 16 - Additional Information

References: Not available.

Other Special Considerations: Not available.

Disclaimer:

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