

IN CASE OF TRANSPORTATION EMERGENCY CONTACT:

**CHEMTREC:(800) 424-9300**

-----  
ALL OTHER INQUIRIES:  
(770) 904-7042 // [www.ciscochem.com](http://www.ciscochem.com)  
266 Rue Cezzan Lavonia, GA 30553



## 1. IDENTIFICATION

PRODUCT NAME: CYCLOHEXANE

SYNONYMS: Hexahydrobenzene; Benzene hexahydride; Hexamethylene.

RECOMMENDED USE: LABORATORY CHEMICALS

CHEMICAL FORMULA: C6 H12

CHEMICAL NAME: HYDROCARBONS, ALICYCLIC

## 2. HAZARDS IDENTIFICATION

### CLASSIFICATION

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=3 REACTIVITY=0

WHMIS CLASSIFICATION: B

EC CLASSIFICATION (ASSIGNED):

F Highly Flammable

EMERGENCY OVERVIEW: Color: colorless

Physical Form: liquid

Odor: faint odor, sweet odor

Major Health Hazards: respiratory tract irritation, skin irritation, central nervous system depression

Physical Hazards: Flammable liquid and vapor. Vapor may cause flash fire.

POTENTIAL HEALTH EFFECTS:

INHALATION:

Short Term Exposure: irritation, nausea, vomiting, headache, symptoms of drunkenness, convulsions, coma

Long Term Exposure: diarrhea

SKIN CONTACT:

Short Term Exposure: irritation

Long Term Exposure: same as effects reported in short term exposure

EYE CONTACT:

Short Term Exposure: irritation, tearing

Long Term Exposure: same as effects reported in short term exposure

**INGESTION:**

Short Term Exposure: same as effects reported in other routes of exposure, symptoms of drunkenness

Long Term Exposure: no information is available

**CARCINOGEN STATUS: OSHA: N**

**NTP: N**

**IARC: N**

### 3. COMPOSITION

COMPONENT	CAS - NO	WEIGHT %
Cyclohexane	110-82-7	>95%

EC NUMBER (EINECS): 203-806-2

EC INDEX NUMBER: 601-017-00-1

### 4. FIRST AID MEASURES

**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

**Skin Contact**

Wash off immediately with soap and plenty of water for at least 15 minutes. Obtain medical attention.

**Inhalation**

Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Aspiration into lungs can produce severe lung damage. Get medical attention immediately if symptoms occur.

**Ingestion**

Do not induce vomiting. Aspiration hazard. Call a physician or Poison Control Center immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side.

**Most important symptoms/effects**

Breathing difficulties. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

**Notes to Physician**

Treat symptomatically

### 5. FIRE FIGHTING MEASURES

**FIRE AND EXPLOSION HAZARDS:**

Severe fire hazard. Moderate explosion hazard. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Vapor/air mixtures are explosive.

**EXTINGUISHING MEDIA:**

regular dry chemical, carbon dioxide, water, regular foam

Large fires: Use regular foam or flood with fine water spray.

**FIRE FIGHTING:**

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor

nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Water may be ineffective.

FLASH POINT:  
-4 F (-20 C) (CC)

LOWER FLAMMABLE LIMIT:  
1.3%

UPPER FLAMMABLE LIMIT:  
8.4%

AUTOIGNITION:  
473 F (245 C)

FLAMMABILITY CLASS (OSHA):  
IB

## 6. ACCIDENTAL RELEASE MEASURES

**AIR RELEASE:**  
Reduce vapors with water spray. Stay upwind and keep out of low areas.

**SOIL RELEASE:**  
Trap spilled material at bottom in deep water pockets, excavated holding areas or within sand bag barriers. Dike for later disposal. Absorb with sand or other non-combustible material. Collect with absorbent into suitable container.

**WATER RELEASE:**  
Cover with absorbent sheets, spill-control pads or pillows. Neutralize. Collect with absorbent into suitable container. Remove trapped material with suction hoses. Collect spilled material using mechanical equipment.

**OCCUPATIONAL RELEASE:**  
Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry. Reportable Quantity (RQ): Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

## 7. HANDLING AND STORAGE

Handling Wear personal protective equipment. Ensure adequate ventilation. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Take precautionary measures against static discharges.

Storage: Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

EXPOSURE LIMITS:  
CYCLOHEXANE:

300 ppm (1050 mg/m3) OSHA TWA  
300 ppm (1050 mg/m3) ACGIH TWA  
300 ppm (1050 mg/m3) NIOSH recommended TWA 10 hour(s)

**VENTILATION:** Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Ensure compliance with applicable exposure limits.

**EYE PROTECTION:** Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**CLOTHING:** Wear appropriate chemical resistant clothing.

**GLOVES:** Wear appropriate chemical resistant gloves.

**RESPIRATOR:** The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

1300 ppm

Any supplied-air respirator.

Any powered, air-purifying respirator with organic vapor cartridge(s).

Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s).

Any air-purifying respirator with a full facepiece and an organic vapor canister.

Any self-contained breathing apparatus with a full facepiece.

Any supplied-air respirator with a full facepiece.

Escape -

Any air-purifying respirator with a full facepiece and an organic vapor canister.

Any appropriate escape-type, self-contained breathing apparatus.

For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

Any self-contained breathing apparatus with a full facepiece.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**PHYSICAL STATE:** liquid

**COLOR:** colorless

**ODOR:** faint odor, sweet odor

**MOLECULAR WEIGHT:** 84.18

**MOLECULAR FORMULA:** C-H<sub>2</sub>-(C-H<sub>2</sub>)<sub>4</sub>-C-H<sub>2</sub>

**BOILING POINT:** 178 F (81 C)

**FREEZING POINT:** 45 F (7 C)

**VAPOR PRESSURE:** 95 mmHg @ 20 C

**VAPOR DENSITY (air=1):** 2.90

**SPECIFIC GRAVITY (water=1):** 0.779

**WATER SOLUBILITY:** <0.01%

**PH:** Not available

**VOLATILITY:** 100%

ODOR THRESHOLD: 0.41 ppm

EVAPORATION RATE: Not available

VISCOSITY: 0.914 cP @ 22 C

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

SOLVENT SOLUBILITY:

Soluble: methanol, ethanol, ether, acetone, benzene, ligroin, carbon tetrachloride

## 10. STABILITY AND REACTIVITY

REACTIVITY:

Stable at normal temperatures and pressure.

CONDITIONS TO AVOID:

Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Keep out of water supplies and sewers.

INCOMPATIBILITIES:

oxidizing materials, combustible materials

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: oxides of carbon. Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)

POLYMERIZATION:

Will not polymerize.

Hazardous Reactions

None under normal processing

## 11. TOXICOLOGICAL INFORMATION

CYCLOHEXANE: IRRITATION DATA:

1548 mg/2 day(s)-intermittent skin-rabbit

TOXICITY DATA:

70 gm/m<sup>3</sup> inhalation-mammal LC<sub>50</sub>; 12705 mg/kg oral-rat LD<sub>50</sub>

LOCAL EFFECTS:

Irritant: inhalation, skin

ACUTE TOXICITY LEVEL:

Moderately Toxic: inhalation Slightly Toxic: ingestion

TARGET ORGANS:

central nervous system

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

kidney disorders, liver disorders, respiratory disorders, skin disorders and allergies

MUTAGENIC DATA:

Available.

Symptoms/Effects, both acute and delayed

Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of high vapor concentrations

may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

**ADDITIONAL DATA:**

Alcohol may enhance the toxic effects.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component : Cyclohexane

Freshwater Algae : EC50 >500 mg/L/72h

Freshwater Fish : 48.87 - 68.76 mg/L LC50 96 h 24.99 - 44.69 mg/L LC50 96 h 23.03 - 42.07 mg/L LC50 96 h 3.96 - 5.18 mg/L LC50 96 h

Microtox : EC50 = 85.5 mg/L 5 min EC50 = 93 mg/L 10 min

Water Flea : EC50 = 400.0 mg/L/48h

Persistence and Degradability : Persistence is unlikely based on information available

Bioaccumulation/ Accumulation : No information available

Mobility : Will likely be mobile in the environment due to its volatility.

Component	log Pow
Cyclohexane	3.44

## 13. DISPOSAL CONSIDERATIONS

**Waste Disposal Methods**

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Wastes
Cyclohexane - 110-82-7	U056	-

## 14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101. SHIPPING NAME-UN NUMBER; HAZARD CLASS; PACKING GROUP; LABEL:  
Cyclohexane-UN1145; 3; II; Flammable liquid

DOT UN-No : UN 1145

Proper Shipping Name : Cyclohexane

Hazard Class : 3

Packing Group : II

TDG UN-No : UN 1145

Proper Shipping Name : Cyclohexane

Hazard Class : 3

Packing Group : II

IATA UN-No : UN 1145

Proper Shipping Name : Cyclohexane

Hazard Class : 3

Packing Group : II

IMDG/IMO UN-No : UN 1145

Proper Shipping Name : Cyclohexane

Hazard Class : 3

## 15. REGULATORY INFORMATION

U.S. REGULATIONS:

TSCA INVENTORY STATUS: Y

TSCA 12(b) EXPORT NOTIFICATION: Y

Cyclohexane

CAS NUMBER: 110-82-7

SECTION 4

CERCLA SECTION 103 (40CFR302.4): Y

Cyclohexane: 1000 LBS RQ

SARA SECTION 302 (40CFR355.30): N

SARA SECTION 304 (40CFR355.40): N

SARA SECTION 313 (40CFR372.65): Y

Cyclohexane

SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40CFR370.21):

ACUTE: Y

CHRONIC: N

FIRE: Y

REACTIVE: N SUDDEN RELEASE: N

OSHA PROCESS SAFETY (29CFR1910.119): N

STATE REGULATIONS:

California Proposition 65: N

EUROPEAN REGULATIONS:

EC NUMBER (EINECS): 203-806-2

EC RISK AND SAFETY PHRASES:

R11	Highly flammable
S2	Keep out of reach of children
S9	Keep container in a well ventilated place
S16	Keep away from sources of ignition - No smoking
S33	Take precautionary measures against static discharges

## 16. OTHER INFORMATION

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

Date Created: 6/2/2015

Date Updated: 6/2/2015