

SILVER FERN CHEMICAL



Safety Data Sheet

Cyclohexane

SECTION 1: IDENTIFICATION

Product Name: Cyclohexane

CAS Number: 110-82-7

Chemical Name: Cyclohexane

Synonyms: Benzene hexahydride; Hexahydrobenzene; Hexanaphthene

Uses: Laboratory chemicals, Manufacture of substances, Distribution of substance, Use as an intermediate, Formulation & (re)packing of substances and mixtures, Uses in Coatings, Use in Cleaning Agents, Blowing agents, Use as a fuel, Laboratory activities.

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SECTION 2: HAZARD IDENTIFICATION

Danger



Classification of substances of mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):

Flammable liquids (Category 2), H225
Skin irritation (Category 2), H315

Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
 Aspiration hazard (Category 1), H304
 Acute aquatic toxicity (Category 1), H400

GHS Label elements:

Hazard statement(s)

H225 Highly flammable liquid and vapour.
 H304 May be fatal if swallowed and enters airways.
 H315 Causes skin irritation.
 H336 May cause drowsiness or dizziness
 H400 Very toxic to aquatic life.

Precautionary statement(s)

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/ vapours/ spray.
 P264 Wash skin thoroughly after handling.
 P271 Use only outdoors or in a well-ventilated area.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/ eye protection/ face protection.
 P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
 P303 + P361 + P533 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
 P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell
 P331 Do NOT induce vomiting.
 P332 + P313 If skin irritation occurs: Get medical advice/ attention.
 P362 Take off contaminated clothing and wash before reuse.
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction
 P391 Collect spillage.
 P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P403 + P235 Store in a well-ventilated place. Keep cool.
 P405 Store locked up.
 P501 Dispose of contents/ container to an approved waste disposal plant.
 Aquatic Acute Acute aquatic toxicity
 Asp. Tox. Aspiration hazard
 Flam. Liq. Flammable liquids
 H225 Highly flammable liquid and vapour.
 H304 May be fatal if swallowed and enters airways.
 H315 Causes skin irritation.
 H336 May cause drowsiness or dizziness.
 H400 Very toxic to aquatic life.
 Skin Irrit. Skin irritation
 STOT SE Specific target organ toxicity - single exposure

Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

CAS #	Content (W/W)	Ingredients
110-82-7	<=100%	Cyclohexane

Formula : C_6H_{12}

Molecular weight : 84.16 g/mol

SECTION 4: FIRST AID MEASURES

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician

In case of skin contact: Wash off with soap and plenty of water. Consult a physician

In case of eye contact: Flush eyes with water as a precaution.

If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Most important symptoms and effects, both acute and delayed: The most important known symptoms and effects are described in the labelling

Indication of any immediate medical attention and special treatment needed: No data available

Protection of first-aiders: Use personal protective equipment.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point: -17.99 °C (-0.38 °F) - closed cup

Lower/Upper explosion limit: Upper explosion limit: 9 %(V)/ Lower explosion limit: 1 %(V)

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture: No data available

Advice for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Further Information: Use water spray to cool unopened containers

SECTION 6: ACCIDENTAL RELEASE MEASURES

Containment and Clean-up procedures: Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided

SECTION 7: HANDLING AND STORAGE

Handling: Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge

Storage: Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters:

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Cyclohexane	110-82-7	TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment		
		TWA	300.000000 ppm 1,050.000000 mg/m ³	USA. NIOSH Recommended Exposure Limits
		TWA	300.000000 ppm 1,050.000000 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Containments
		The value in mg/m ³ is approximate		

Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal Protective Equipment (PPE)

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.

If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 35 min

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 35 min

Eye protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Body protection: Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace

Control of environmental exposure: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Form: liquid Colour: colourless
Odor	no data available
Odor Threshold	no data available
pH	no data available
Melting point/range	4 - 7 °C (39 - 45 °F) - lit
Initial boiling point and boiling range	80.7 °C (177.3 °F) - lit.
Flash point	-17.99 °C (-0.38 °F) - closed cup
Evaporation rate	no data available
Flammability (solid, gas)	no data available
Upper/lower flammability or explosive limits	Upper explosion limit: 9 %(V)/ Lower explosion limit: 1 %(V)
Vapor pressure	225.0 hPa (168.8 mmHg) at 37.7 °C (99.9 °F) 102.7 hPa (77.0 mmHg) at 20.0 °C (68.0 °F)
Vapor density	no data available
Water solubility	no data available
Partition Coefficient: n-octanol/water	log Pow: 3.44
Auto-ignition temperature	260.0 °C (500.0 °F)
Decomposition temperature:	no data available
Viscosity:	no data available
Explosive properties:	no data available
Oxidizing properties:	no data available

SECTION 10: STABILITY AND REACTIVITY

Conditions to avoid: Heat, flames and sparks

Substances to avoid: Strong oxidizing agents

Hazardous reactions: Vapours may form explosive mixture with air.

Decomposition products: Other decomposition products - No data available

Chemical stability : Stable under recommended storage conditions

Reactivity: No data available

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity:

LD50 Oral - Rat - 12,705 mg/kg

LC50 Inhalation - Rat - 4 h - 34,000 mg/l
(OECD Test Guideline 403)

LD50 Dermal - Rabbit - > 2,000 mg/kg

No data available

Skin corrosion/irritation:

Skin - Rabbit

Result: No skin irritation

Serious eye damage/eye irritation:

Eyes - Rabbit

Result: Mild eye irritation

Respiratory or skin sensitization:

No data available

Germ cell mutagenicity:

No data available

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: No data available

Specific target organ toxicity - single exposure: No data available

Specific target organ toxicity - repeated exposure: No data available

Aspiration hazard: May be fatal if swallowed and enters airways

Additional Information:
RTECS: GU6300000

Central nervous system depression, Drowsiness, Irritability, Dizziness, Gastrointestinal disturbance, Lung irritation, chest pain, pulmonary edema

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 4.53 mg/l - 96h (OECD Test Guide 203)
Toxicity to daphnia and Other invertebra	Immobilization EC50 - Daphnia magna (Water flea) - 0.9 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata (green algae) - 3.4 mg/l - 72 h (OECD Test Guideline 201)

Biodegradability: Readily biodegradable

Bioaccumulative Potential: No data available

Mobility in soil: No data available

Results of PBT and vPvB assessment: PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life

SECTION 13: DISPOSAL CONSIDERATIONS

Waste disposal of substance: Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material

Container disposal: Dispose of as unused product

SECTION 14: TRANSPORT INFORMATION

DOT (US)

UN number: 1145	Class: 3	Packing group: II
Proper shipping name:	Cyclohexane	
Reportable Quantity (RQ):	1000 lbs	

Poison Inhalation Hazard: No

IMDG

UN number: 1145	Class: 3	Packing group: II EMS-No: F-E, S-D
Proper shipping name:	CYCLOHEXANE	
Marine pollutant:yes		

IATA

UN number: 1145	Class: 3	Packing group: II
Proper shipping name:	Cyclohexane	

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15: REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

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SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

Cyclohexane	CAS-No. 110-82-7	Revision Date 2007-07-01
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New Jersey Right To Know Components

Cyclohexane	CAS-No. 110-82-7	Revision Date 2007-07-01
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California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: OTHER INFORMATION

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

DISCLAIMER OF RESPONSIBILITY

The information on this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this SDS information may not be applicable.

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