

Cyclohexane

SECTION 1. IDENTIFICATION

Product Identifier	Cyclohexane
Other Means of Identification	Benzenehexahydride, Hexamethylene
Product Code(s)	CY4110, CY4120, CY4150
Product Family	Organic solution
Recommended Use	Industrial.
Restrictions on Use	None known.
Supplier Identifier	Alphachem Limited, 2485 Milltower Court, Mississauga, Ontario, L5N 5Z6, (905) 821-2995
Emergency Phone No.	Infotrac, 1-800-535-5053, 24 Hours
SDS No.	1476

SECTION 2. HAZARD IDENTIFICATION

Classified according to Canada's Hazardous Products Regulations (WHMIS 2015) and the US Hazard Communication Standard (HCS 2012).

Classification

Flammable liquid - Category 2; Skin irritation - Category 2; Specific target organ toxicity (single exposure) - Category 3; Aspiration hazard - Category 1

Label Elements



Signal Word:
Danger

Hazard Statement(s):

Highly flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause drowsiness or dizziness.

Precautionary Statement(s):

Prevention:
Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Keep container tightly closed.
Ground and bond container and receiving equipment.
Use explosion-proof electrical, ventilating, and lighting equipment.
Use only non-sparking tools.

Take precautionary measures against static discharge.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Wash hands and skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

Response:

IF SWALLOWED: Immediately call a POISON CENTRE or doctor.

Do NOT induce vomiting.

IF ON SKIN: Wash with plenty of water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Call a POISON CENTRE or doctor if you feel unwell.

Storage:

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Disposal:

Dispose of contents and container in accordance with local, regional, national and international regulations.

Other Hazards

Toxic to aquatic life.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance:

Chemical Name	CAS No.	%	Other Identifiers	Other Names
Cyclohexane	110-82-7	> 99	Benzenehexahydride, Hexamethylene>99	

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Remove source of exposure or move to fresh air. Seek immediate medical attention.

Skin Contact

Immediately wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 15-20 minutes.

Immediately call a Poison Centre or doctor.

Eye Contact

Rinse the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes, while holding the eyelid(s) open.

Contact physician immediately.

Ingestion

Rinse mouth with water. Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Immediately call a Poison Centre or doctor.

First-aid Comments

Provide general supportive measures (comfort, warmth, rest). All first aid procedures should be periodically reviewed by a doctor familiar with the material and its condition of use in the workplace.

Most Important Symptoms and Effects, Acute and Delayed

If in eyes: may cause moderate to severe irritation. If inhaled: can harm the nervous system. Symptoms may include headache, nausea, dizziness, drowsiness and confusion.

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Immediate Medical Attention and Special Treatment

Special Instructions

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

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog.

Unsuitable Extinguishing Media

Water may be ineffective for extinguishing a fire because it may not cool cyclohexane below its flash point.

Specific Hazards Arising from the Product

Highly flammable liquid and vapour. Can ignite at room temperature. Releases vapour that can form explosive mixture with air. May travel a considerable distance to a source of ignition and flash back to a leak or open container. Can accumulate static charge by flow, splashing or agitation. Liquid can float on water and may travel to distant locations and/or spread fire. Closed containers may rupture violently when heated releasing contents.

In a fire, the following hazardous materials may be generated: very toxic carbon monoxide, carbon dioxide; toxic, flammable aldehydes.

Special Protective Equipment and Precautions for Fire-fighters

Evacuate area. Fight fire from a safe distance or a protected location. Approach fire from upwind to avoid hazardous vapours or gases. Stop leak before attempting to put out the fire. Product could form an explosive mixture and reignite. Use water spray to flush spills away from ignition sources. For a massive fire, immediately evacuate the area and use unmanned hose holder or monitor nozzles. Dike and recover contaminated water for appropriate disposal. Fire-fighters may enter the area if positive pressure SCBA and full Bunker Gear is worn.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Evacuate downwind locations. Use the personal protective equipment recommended in Section 8 of this safety data sheet. Do not touch damaged containers or spilled product unless wearing appropriate protective equipment. Increase ventilation to area or move leaking container to a well-ventilated and secure area. Eliminate all ignition sources. Use grounded, explosion-proof equipment. Remove or isolate incompatible materials as well as other hazardous materials. Notify government occupational health and safety and environmental authorities.

Environmental Precautions

Do not allow into any sewer, on the ground or into any waterway. If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas.

Methods and Materials for Containment and Cleaning Up

Stop or reduce leak if safe to do so. Contain spill with earth, sand, or absorbent material which does not react with spilled material.

Small spills or leaks: contain and soak up spill with absorbent that does not react with spilled product. Place used absorbent into suitable, covered, labelled containers for disposal.

Large spills or leaks: contact emergency services and manufacturer/supplier for advice.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Wear personal protective equipment to avoid direct contact with this chemical. Only use where there is adequate ventilation. Eliminate heat and ignition sources such as sparks, open flames, hot surfaces and static discharge. Post "No Smoking" signs. Electrically bond and ground equipment. Ground clips must contact bare metal. Keep smallest practical amount in work area. Prevent accidental contact with incompatible chemicals. Never return unused or contaminated product to its original container. Keep containers tightly closed when not in use or empty.

Conditions for Safe Storage

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Store in an area that is: cool, dry, well-ventilated, out of direct sunlight and away from heat and ignition sources, separate from incompatible materials (see Section 10: Stability and Reactivity). Protect from conditions listed in Conditions to Avoid in Section 10 (Stability and Reactivity). Store in a closed container.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Chemical Name	ACGIH TLV®		OSHA PEL		AIHA WEEL	
	TWA	STEL	TWA	Ceiling	8-hr TWA	TWA
Cyclohexane	100 ppm		300 ppm			

Appropriate Engineering Controls

Use local exhaust ventilation and enclosure, if necessary, to control amount in the air. Use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored. Exhaust directly to the outside, taking any necessary precautions for environmental protection.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots.

Suitable materials are: nitrile rubber, Viton®, Viton®/butyl rubber, Silver Shield®, Frontline® 500, Tychem® F, Tychem® ThermoPro, Tychem® BR/LV, Tychem® TK, Tychem® Reflector, Zytron® 300, Zytron® 500.

The following materials should NOT be used: butyl rubber, natural rubber, neoprene rubber, polyvinyl chloride.

Respiratory Protection

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

Basic Physical and Chemical Properties

Appearance	Clear colourless liquid.
Odour	Pungent
Odour Threshold	0.52 - 784 ppm (detection)
pH	Not applicable
Melting Point/Freezing Point	6.5 °C (43.7 °F) (melting); 6.5 °C (43.7 °F) (freezing)
Initial Boiling Point/Range	80.7 °C (177.3 °F)
Flash Point	-20 °C (-4 °F) (closed cup)
Evaporation Rate	5.60 (n-butyl acetate = 1)
Flammability (solid, gas)	Not applicable
Upper/Lower Flammability or Explosive Limit	8.0 - 8.4% (upper); 1.3% (lower)
Vapour Pressure	10.27 kPa (77.03 mm Hg) at 20 °C
Vapour Density (air = 1)	2.90 (calculated)
Relative Density (water = 1)	0.78 at 20 °C
Solubility	Practically insoluble in water; Soluble in all proportions in alcohols (e.g. ethanol).
Partition Coefficient, n-Octanol/Water (Log Kow)	3.44
Auto-ignition Temperature	245 - 260 °C (473 - 500 °F)
Decomposition Temperature	Not available

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Viscosity	1.26 mm ² /s at 20 °C (calculated) (kinematic); 0.98 mPa.s at 20 °C (dynamic)
Other Information	
Physical State	Liquid
Molecular Weight	84.16

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions of use.

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

None reported.

Conditions to Avoid

Open flames, sparks, static discharge, heat and other ignition sources.

Incompatible Materials

Strong oxidizing agents (e.g. perchloric acid).

Hazardous Decomposition Products

Very toxic carbon monoxide, carbon dioxide; very toxic, flammable aldehydes.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Inhalation; skin contact; eye contact; ingestion.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Cyclohexane	> 9500 ppm (rat)	6200 mg/kg (rat)	> 2000 mg/kg (rabbit)

Skin Corrosion/Irritation

Animal tests show moderate or severe irritation.

Serious Eye Damage/Irritation

Animal tests show very mild irritation.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

Causes depression of the central nervous system. Symptoms may include headache, nausea, dizziness, drowsiness and confusion.

Ingestion

Causes irritation of the mouth, throat and stomach. Symptoms may include nausea, vomiting, stomach cramps and diarrhea.

Aspiration Hazard

May be drawn into the lungs (aspirated) if swallowed or vomited.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

No information was located.

Respiratory and/or Skin Sensitization

Not known to be a skin sensitizer. No information was located for respiratory sensitization.

Carcinogenicity

Chemical Name	IARC	ACGIH®	NTP	OSHA
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Cyclohexane	Not Listed	Not designated	Not Listed	Not Listed
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Reproductive Toxicity

Development of Offspring

Not known to harm the unborn child.

Sexual Function and Fertility

Not known to cause effects on sexual function or fertility.

Effects on or via Lactation

No information was located.

Germ Cell Mutagenicity

Not known to be a mutagen.

Interactive Effects

No information was located.

SECTION 12. ECOLOGICAL INFORMATION

This section is not required by WHMIS. This section is not required by OSHA HCS 2012.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

Bury in a licensed landfill or burn in an approved incinerator according to federal, provincial/state, and local regulations.

SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
US DOT	UN1145	CYCLOHEXANE	3	II
Canadian TDG	UN1145	CYCLOHEXANE	3	II

Special Precautions Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

Listed on the DSL.

USA

Toxic Substances Control Act (TSCA) Section 8(b)

Listed on the TSCA Inventory.

SECTION 16. OTHER INFORMATION

NFPA Rating	Health - 1	Flammability - 3	Instability - 0
SDS Prepared By	Alphachem Limited		
Phone No.	(905)-821-2995		
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References

CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS).

Disclaimer

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