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SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.2
Creation Date: July 15, 2019
Revision Date: August 08, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name Cyclohexane

1.2 Other means of identification

Product number CCEM500491
Other names -

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.
Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.
Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou
Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175
Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Flammable liquids, Category 2
Skin irritation, Category 2
Aspiration hazard, Category 1
Specific target organ toxicity – single exposure, Category 3
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour
H315 Causes skin irritation
H304 May be fatal if swallowed and enters airways
H336 May cause drowsiness or dizziness
H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 Keep container tightly closed. P240 Ground and bond container and receiving equipment. P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment. P242 Use non-sparking tools. P243 Take action to prevent static discharges. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... P264 Wash ... thoroughly after handling. P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment.
Response	P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower]. P370+P378 In case of fire: Use ... to extinguish. P302+P352 IF ON SKIN: Wash with plenty of water/... P321 Specific treatment (see ... on this label). P332+P317 If skin irritation occurs: Get medical help. P362+P364 Take off contaminated clothing and wash it before reuse. P301+P316 IF SWALLOWED: Get emergency medical help immediately. P331 Do NOT induce vomiting. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P319 Get medical help if you feel unwell. P391 Collect spillage.
Storage	P403+P235 Store in a well-ventilated place. Keep cool. P405 Store locked up. P403+P233 Store in a well-ventilated place. Keep container tightly closed.
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Cyclohexane	Cyclohexane	110-82-7	203-806-2	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

Rinse with plenty of water (remove contact lenses if easily possible).

Following ingestion

Rinse mouth. Do NOT induce vomiting. Refer immediately for medical attention.

4.2 Most important symptoms/effects, acute and delayed

Dizziness, with nausea and vomiting. Concentrated vapor may cause unconsciousness and collapse. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Aliphatic hydrocarbons and related compounds

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Use water spray to cool unopened containers.

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 128 [Flammable Liquids (Water-Immiscible)]: HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion hazard indoors, outdoors or in sewers. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water. Substance may be transported hot. For hybrid vehicles, ERG Guide 147 (lithium ion batteries) or ERG Guide 138 (sodium batteries) should also be consulted. If molten aluminum is involved, refer to ERG Guide 169. (ERG, 2016)

5.3 Special protective actions for fire-fighters

Use water spray, foam, powder, carbon dioxide. Water may be ineffective. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Consult an expert! Remove all ignition sources. Personal protection: self-contained breathing apparatus. Ventilation. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

6.2 Environmental precautions

Evacuate danger area! Consult an expert! Remove all ignition sources. Personal protection: self-contained breathing apparatus. Ventilation. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

6.3 Methods and materials for containment and cleaning up

1. Remove all ignition sources. 2. Ventilate area of spill or leak. 3. For small quantities, absorb on paper towels. Evaporate in safe place (such as fume hood). Allow sufficient time for evap vapors to completely clear hood ductwork. Burn the paper in suitable location away from combustible materials. 3. Large quantities can be collected & atomized in suitable combustion chamber. Combustion may be improved by mixing with more flammable liquid. Cyclohexane liquid should not be allowed to enter confined space, such as sewer, because of possibility of an explosion.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. Use non-sparking handtools. Prevent build-up of electrostatic charges (e.g., by grounding). Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof. Provision to contain effluent from fire extinguishing. Separated from strong oxidants. Store in an area without drain or sewer access.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. Store under inert gas.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 100 ppm as TWA.MAK: 700 mg/m3, 200 ppm; peak limitation category: II(4); pregnancy risk group: D.EU-OEL: 700 mg/m3, 200 ppm as TWA

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid.
Colour	No data reported.
Odour	Solvent odor; pungent when impure
Melting point/freezing point	6.5 °C. Remarks:At standard temperature and pressure.
Boiling point or initial boiling point and boiling range	80.7 °C. Remarks:At standard temperature and pressure.
Flammability	Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.
Lower and upper explosion limit/flammability limit	Flammable limits: Lower= 1.3% by volume; Upper= 8.0% by volume.
Flash point	-20 °C. Atm. press.:1 013.5 hPa.
Auto-ignition temperature	260 °C. Remarks:Atm pressure.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	dynamic viscosity (in mPa s) = 0.894. Temperature:25.0°C. Remarks:No further details reported. Temperature is assumed.
Solubility	Insoluble in water
Partition coefficient n-octanol/water	log Pow = 3.44. Temperature:25 °C.
Vapour pressure	124 hPa. Temperature:24 °C. Remarks:No further information provided.
Density and/or relative density	0.774 g/cm³. Temperature:25 °C.
Relative vapour density	2.9 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

1300 ppm [Based on 10% of the lower explosion limit for safety considerations even though the relevant toxicological data indicated that irreversible health efects or impairment of escape existed only at higher concentrations.]
Heating may cause violent combustion or explosion. Reacts with strong oxidants.

10.2 Chemical stability

Most solvents and reagents, as received from the manufacturer, had low levels of peroxides. After opening the container, peroxides were formed rapidly in many solvents.

10.3 Possibility of hazardous reactions

Dangerous fire hazard when exposed to heat or flame; can react with oxidizing materials.The vapour is heavier than air and may travel along the ground; distant ignition possible. As a result of flow, agitation, etc., electrostatic charges can be generated.Liquid nitrogen dioxide was fed into a nitration column containing hot CYCLOHEXANE, due to an error. An explosion resulted [MCA Case History 128(1962)] Incompatible with strong oxidizers.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Oxidizers.

10.6 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and fumes.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat (male/female) - > 5 000 mg/kg bw. Remarks:No mortalities.
- Inhalation: LC50 - rat (male/female) - > 32 880 mg/m³ air.
- Dermal: LD50 - rabbit (male/female) - > 2 000 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

EPA-I

Reproductive toxicity

no data available

STOT-single exposure

The substance is mildly irritating to the eyes, skin and respiratory tract. The substance may cause effects on the central nervous system. If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. Exposure could cause lowering of consciousness.

STOT-repeated exposure

Repeated or prolonged contact with skin may cause dryness and cracking and dermatitis.

Aspiration hazard

A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Pimephales promelas - 4.53 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 0.9 mg/L - 48 h.
- Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - 9.317 mg/L - 72 h.
- Toxicity to microorganisms: IC50 - Aerobic heterotroph culture - 29 mg/L - 15 h.

12.2 Persistence and degradability

AEROBIC: Cyclohexane is highly resistant to biodegradation and is catabolized chiefly by cooxidation(1,2). Thus, it does not support growth of the degrading organism themselves, but rather are metabolized during the course of the microorganisms growth on another, usually similar, substrate. Initial attack involves oxygenation and subsequent ring cleavage to simple, readily degradable acids(1). 10% degradation in 12 hours was reported using microorganisms isolated from a brackish creek in an area continuously exposed to oil(3). Only slight degradation of cyclohexane was noted in a screening test utilizing a benzene-acclimated activated sludge inoculum(4) and it was listed as degradation resistant according to the MITI test, a screening test of the Japanese Ministry of International Trade and Industry(5). Only one biodegradability test was reported in soil in which it was listed as nondegradable with only 0.3% mineralization occurring in 10 wk(6). When incubated at 23 deg C with natural flora in groundwater in the presence of other components of high octane gasoline, 45% degradation was reported after 8 days(7). Cyclohexane, added as a component of gasoline, underwent 45% biodegradation after 192 hrs using microorganisms isolated from groundwater contaminated by a gasoline pipeline break(8).

12.3 Bioaccumulative potential

Using carp (Cyprinus carpio) which were exposed over an 8-week period, the BCF of cyclohexane ranged from 31-102 at a concentration of 0.1 mg/L and 37-129 at a concentration of 0.01 mg/L(1). An experimental BCF of 158 has also been reported(2). According to a classification scheme(2), these BCF values suggest bioconcentration in aquatic organisms is moderate to high, provided the compound is not metabolized by the organism(SRC).

12.4 Mobility in soil

Based on measured sorption isotherms in a high-organic soil(1), the Koc of cyclohexane can be estimated to be about 350(SRC). Using a structure estimation method based on molecular connectivity indices(2), the Koc for cyclohexane can be estimated to be about 150(SRC). According to a classification scheme(3), these estimated Koc values suggest that cyclohexane is expected to have moderate mobility in soil(SRC).

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN1145 (For reference only, please check.)	IMDG: UN1145 (For reference only, please check.)	IATA: UN1145 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: CYCLOHEXANE (For reference only, please check.) IMDG: CYCLOHEXANE (For reference only, please check.) IATA: CYCLOHEXANE (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.) IMDG: 3 (For reference only, please check.) IATA: 3 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: II (For reference only, please check.) IMDG: II (For reference only, please check.) IATA: II (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: Yes IMDG: Yes IATA: Yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Cyclohexane	Cyclohexane	110-82-7	203-806-2
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date August 08, 2025

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

The odour warning when the exposure limit value is exceeded is insufficient.

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