

SAFETY DATA SHEET

Preparation Date: 09/17/2019

Revision date 09/17/2019

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: C1464
Product Name: CYCLOHEXENE

Other means of identification

Synonyms: Benzenetetrahydride
Benzene, tetrahydro-
Cyclohex-1-ene
Hexanaphthylene
Tetrahydrobenzene
1,2,3,4-Tetrahydrobenzene
Ciclohexeno (Spanish)
Cyclohexène (French)

CAS #: 110-83-8
RTECS # GW2500000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Chemical intermediate. Solvent. Stabilizer.
Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

Order Online At: <https://www.spectrumchemical.com>

Emergency telephone number Chemtrec 1-800-424-9300

Contact Person: Tom Tyner (USA - West Coast)

Contact Person: Ibad Tirmiz (USA - East Coast)

2. HAZARDS IDENTIFICATION

Classification

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

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2B
Specific target organ toxicity (single exposure)	Category 3
Aspiration toxicity	Category 1
Flammable liquids	Category 2

Label elements

Danger

Hazard statements

Harmful if swallowed

Causes skin irritation

Causes eye irritation

May cause respiratory irritation. May cause drowsiness or dizziness

May be fatal if swallowed and enters airways

Highly flammable liquid and vapor



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Not available

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

Wear protective gloves/protective clothing/eye protection/face protection

Avoid breathing mist or vapors

Use only outdoors or in a well-ventilated area

Keep away from heat/sparks/open flames/hot surfaces. — No smoking

Keep container tightly closed

Ground container and receiving equipment

Use explosion-proof equipment

Use only non-sparking tools

Take precautionary measures against static discharge

Keep cool

Precautionary Statements - Response

In case of fire: Use CO₂, dry chemical, or foam to extinguish.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

If skin irritation occurs: Get medical attention

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water

Wash contaminated clothing before reuse

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.

Rinse mouth

IF SWALLOWED: Immediately call a POISON CENTER or physician

Do NOT induce vomiting

Precautionary Statements - Storage

Store locked up

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

Precautionary Statements - Disposal

Dispose of contents and container to an approved waste disposal plant in accordance with local, regional, national and international regulations as applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight-%
Cyclohexene	110-83-8	100

4. FIRST AID MEASURES

First aid measures

- General Advice:** National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222. First aider needs to protect himself. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Skin Contact:** Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention if irritation develops. If skin irritation persists, call a physician.
- Eye Contact:** Flush eyes with water for 15 minutes. Get medical attention.
- Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
- Ingestion:** Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

Most important symptoms and effects, both acute and delayed

- Symptoms**
- Causes skin irritation
 - Causes eye irritation
 - May cause respiratory irritation
 - May cause drowsiness or dizziness
 - Dyspnea (Shortness of breath and difficulty breathing)
 - Coughing and wheezing
 - Ingestion may cause gastrointestinal irritation, nausea, vomiting, and diarrhea
 - Salivation
 - Headache
 - May cause metabolic acidosis
 - May affect behavior/central nervous system (somnolence, tremor)

Indication of any immediate medical attention and special treatment needed

- Notes to Physician:** Treat symptomatically.

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

- Suitable Extinguishing Media:** Dry chemical. Water spray. Alcohol-resistant foam. Carbon dioxide (CO₂).
- Unsuitable Extinguishing Media:** Do not use a solid (straight) water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

- Hazardous combustion products** Carbon monoxide. Carbon dioxide (CO₂).

Specific hazards

Extremely flammable. May be ignited by heat, sparks or flames. Container explosion may occur under fire conditions or when heated. Vapor may travel considerable distance to source of ignition and flash back. Vapors may form explosive mixtures with air. Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks). Fire may produce irritating, corrosive and/or toxic gases.

Special Protective Actions for Firefighters**Specific Methods:**

Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out.

Special Protective Equipment for Firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures****Personal Precautions:**

Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. In case of large spill, water spray or vapor suppressing foam may be used to reduce vapors, but may not prevent ignition in closed spaces.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up**Methods for containment**

Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth). In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up

Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Use only non-sparking tools. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE**Precautions for safe handling****Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials.

Safe Handling Advice:

Wear personal protective equipment. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Keep away from heat and sources of ignition. Store in a segregated and approved area. Store away from incompatible materials.

Incompatible Materials:

Strong oxidizing agents
Acids

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters**National occupational exposure limits****United States**

Component	CAS No	OSHA	NIOSH	ACGIH	AIHA WEEL
Cyclohexene	110-83-8	300 ppm TWA 1015 mg/m ³ TWA	300 ppm TWA 1015 mg/m ³ TWA	300 ppm TWA	None

Canada

Component	CAS No	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Cyclohexene	110-83-8	300 ppm TWA 1010 mg/m ³ TWA	300 ppm TWA	None	None

Australia and Mexico

Component	CAS No	Australia	Mexico
Cyclohexene	110-83-8	300 ppm TWA 1010 mg/m ³ TWA	300 ppm TWA

Appropriate engineering controls**Engineering measures to reduce exposure:**

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Individual protection measures, such as personal protective equipment**Personal Protective Equipment**

- Eye protection:** Goggles or Safety glasses with side-shields.
- Skin and body protection:** Chemical resistant apron
Long sleeved clothing
Gloves
- Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid	Appearance: Clear.	Color: Colorless.
Odor: Sweet.	Taste No information available.	Formula C6H10
Molecular/Formula weight (g/mole): 82.15	Flammability (solid, gas) no data available	Flashpoint (°C/°F): -12 °C/11 °F; <-7 °C/< 20 °F
Flash Point Tested according to: Closed cup	Autoignition Temperature (°C/°F): 244 °C.471 °F	Lower Explosion Limit (%): 1-1.3%
Upper Explosion Limit (%): 5-7.7%	Melting point/range(°C/°F): -103.5 °C/-154.3	Decomposition temperature(°C/°F): No information available
Boiling point/range(°C/°F): 83 °C/181.4 °F	Bulk density: No information available	Density (g/cm3): No information available
Specific gravity: 0.8110	pH No information available	Vapor pressure @ 20°C (kPa): 11.87 kPa @ 25 °C
Evaporation rate: No information available	Vapor density: 2.8	VOC content (g/L): No information available
Odor threshold (ppm): 41	Partition coefficient (n-octanol/water): 2.86-2.99	Viscosity: No information available
Miscibility: Miscible with Petroleum Ether Miscible with Benzene Miscible with Carbon tetrachloride Miscible with Ether Miscible with Acetone	Solubility: Insoluble in water	

10. STABILITY AND REACTIVITY

Reactivity

No information available

Chemical stability

Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Heat. Ignition sources. Incompatible materials.

Incompatible Materials: Strong oxidizing agents
Acids

Hazardous decomposition products: Carbon monoxide. Carbon dioxide.

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:

Ingestion. Skin. Inhalation.

Acute Toxicity

The following values are calculated based on chapter 3.1 of the GHS document
Component Information

Cyclohexene	
CAS No	110-83-8

LD50/oral/rat = 2400 µL/kg = 1300 mg/kg Oral LD50 Rat

LD50/oral/mouse = > 3200 ul/kg (RTECS)
2300 mg/kg (RTECS)

LD50/dermal/rabbit = 1231 mg/kg Dermal LD50 Rabbit

LD50/dermal/rat = > 200 mg/kg Dermal LD50 Rat

LC50/inhalation/rat = >6370 ppm 4 h = > 21.6 mg/L Inhalation LC50 Rat

LC50/inhalation/mouse = No information available

Other LD50 or LC50 information = > 20 ml/kg dermal LD50 [Guinea Pig]

Product Information

LD50/oral/rat =

Value - Acute Toxicity = 1300 mg/kg

LD50/oral/mouse =

Value - Acute Tox = 2300 mg/kg

LD50/dermal/rabbit

Value - Acute Toxicity = 1231 mg/kg

LD50/dermal/rat

VALUE - Acute Tox = > 200 mg/kg

LC50/inhalation/rat

VALUE-Vapor = > 6370 ppm 4h

VALUE-Gas = No information available

VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse

VALUE-Vapor = No information available

VALUE - Gas = No information available

VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Causes skin irritation.

Eye Contact: Causes eye irritation.

Inhalation

May cause irritation of respiratory tract. It may affect behavior/central nervous system (ataxia, general anesthetic, drowsiness). Inhalation of high concentrations of vapors may cause dizziness or suffocation. It may affect behavior/central nervous system (tremors). Can cause dyspnea (shortness of breath and difficulty breathing). Symptoms may include coughing and wheezing.

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause salivation. Aspiration hazard if swallowed. Aspiration into the lungs can cause chemical pneumonitis. May affect respiration (difficult or labored breathing resulting in shortness of breath). May cause metabolic acidosis. May affect behavior/central nervous system (somnolence, ataxia).

Aspiration hazard May be fatal if swallowed and enters airways.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity Prolonged or repeated ingestion may affect the kidneys. Prolonged or repeated inhalation may affect metabolism (weight loss). Prolonged or repeated inhalation may cause loss of appetite. Prolonged or repeated skin contact may cause dermatitis and defatting, dryness, and cracking of the skin.

Sensitization: No information available.

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic.

Component	CAS No	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Cyclohexene	110-83-8	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

ACGIH (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)

NTP (National Toxicology Program)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

Reproductive toxicity No data is available

Reproductive Effects: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure respiratory system.

STOT - repeated exposure No information available.

Target Organs: Central nervous system. Skin. Eyes. Respiratory system.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: Aquatic environment.

Cyclohexene - 110-83-8

Fish

EC50 4.7 mg/l 96 h *Poecilia reticulata* (guppy)
LC50 12.4 mg/l 96 h *Poecilia reticulata* (guppy)
LC50 10.6 mg/l 48 h *Poecilia reticulata* (guppy)
LC50 8.7 mg/l 72 h *Poecilia reticulata* (guppy)

Crustacea
 LC50 7.1 mg/l 96 h Poecilia reticulata (guppy)
 LC50 5.8 mg/l 96 h Oryzias latipes
 EC50 720 mg/l 24 h Daphnia magna
 EC50 5300 ug/l 48 h Daphnia magna
 EC50 2.1 mg/l 48 h Daphnia magna

Persistence and degradability: Not inherently biodegradable

Bioaccumulative potential: No information available.

Mobility in soil No information available

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Component	CAS No	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Cyclohexene	110-83-8	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN2256
Proper Shipping Name: Cyclohexene
Hazard Class 3
Subsidiary Class No information available
Packing group: II
Emergency Response Guide Number 130
Marine Pollutant No data available
DOT RQ (lbs): No information available
Special Provisions IB2, T4, TP1
Symbol(s): No information available
Description: UN2256, Cyclohexene, 3, II

TDG (Canada)

UN-No: UN2256
Proper Shipping Name: Cyclohexene
Hazard Class 3
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant No Information available
Description: UN2256, Cyclohexene, 3, II

ADR

UN Number UN2256
Proper Shipping Name: Cyclohexene
Transport hazard class(es) 3

Packing group II
Subsidiary Risk: No information available
Description: UN2256, Cyclohexene, 3, II

IMDG

UN-No: UN2256
Proper Shipping Name: Cyclohexene
Hazard Class: 3
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant No information available
EMS: F-E
Description UN2256, Cyclohexene, 3, II

RID

UN Number UN2256
Proper Shipping Name: Cyclohexene
Transport hazard class(es) 3
Subsidiary Risk: 3
Packing group II
Description: UN2256, Cyclohexene, 3, II

ICAO (air)

UN-No: UN2256
Proper Shipping Name: Cyclohexene
Hazard Class 3
Subsidiary Risk: No information available
Packing Group: II
Description: UN2256, Cyclohexene, 3, II

IATA

UN Number UN2256
Proper Shipping Name: Cyclohexene
Transport hazard class(es) 3
Subsidiary Risk: No information available
Packing group II
Precautionary Statements - Response 3H
Special Provisions No information available
Description: UN2256, Cyclohexene, 3, II

15. REGULATORY INFORMATION

International Inventories

Component	CAS No	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	China IECSC	Australia (AICS)	EINECS-No.
Cyclohexene	110-83-8	PresentACTIVE	Present KE-33445	Present	Present (3)-2234	Present	Present	Present 203-807-8

U.S. Regulations

Cyclohexene

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: 0572
Pennsylvania RTK: Present
Minnesota - Hazardous Substance List: Present
California Directors List of Hazardous Substances: Present

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Component	CAS No	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Cyclohexene	110-83-8	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Component	CAS No	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Cyclohexene	110-83-8	None	None	None	None	None

U.S. TSCA

Component	CAS No	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Cyclohexene	110-83-8	Not Applicable	01/26/199406/30/1998

Canada

WHMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information:

Component
Cyclohexene
110-83-8 (100)

WHMIS 2015 Hazard Classification
Flammable liquids - Category 2: H225 Highly flammable liquid and vapour.; Acute toxicity - Oral - Category 4: H302 Harmful if swallowed.; Aspiration hazard - Category 1: H304 May be fatal if swallowed and enters airways.

Canada Hazardous Products Regulation This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

DSL/NDSL

Component	CAS No	Canada (DSL)	Canada (NDSL)
Cyclohexene	110-83-8	Present	Not Listed

Component	CAS No	CEPA Schedule I - Toxic Substances
Cyclohexene	110-83-8	Not listed
Component	CAS No	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Cyclohexene	110-83-8	Not listed

EU Classification

EU GHS - SV - CLP 1272/2008

Component	CAS No	EU GHS - SV - CLP (1272/2008)
Cyclohexene	110-83-8	

EU - CLP (1272/2008)

R-phrase(s)

R11 - Highly flammable
R22 - Harmful if swallowed
R36/38 - Irritating to eyes and skin

S -phrase(s)

S 9 - Keep container in a well-ventilated place.
S16 - Keep away from sources of ignition - No smoking
S33 - Take precautionary measures against static discharges
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

Component	CAS No	Classification	Concentration Limits:	Safety Phrases
Cyclohexene	110-83-8		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

F - Highly flammable
Xn - Harmful



16. OTHER INFORMATION

Preparation Date: 09/17/2019
Revision date 09/17/2019
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet