

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/17/2024

Reviewed on 06/17/2024

1 Identification

- **Product identifier**
- **Trade name:** Cyclohexene, Purified
- **Article number:** TEN212S
- **CAS Number:**
110-83-8
- **EC number:**
203-807-8
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586
- **Information department:**
Technical Coordinator
Sherman Nelson shermann@aquasolutions.org
Technical Coordinator
Sherman Nelson shermann@aquasolutions.org
- **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666



2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flammable Liquids 2 H225 Highly flammable liquid and vapor.



GHS06 Skull and crossbones

Acute Toxicity - Dermal 3 H311 Toxic in contact with skin.



GHS07

Acute Toxicity - Oral 4 H302 Harmful if swallowed.

- **Label elements**
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS02



GHS06

- **Signal word** *Danger*

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/17/2024

Reviewed on 06/17/2024

Trade name: Cyclohexene, Purified

(Contd. of page 1)

· **Hazard statements**

Highly flammable liquid and vapor.

Harmful if swallowed.

Toxic in contact with skin.

· **Precautionary statements**

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

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Avoid release to the environment.

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

If swallowed: Immediately call a poison center/doctor.

Rinse mouth.

Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

Call a poison center/doctor if you feel unwell.

Specific measures (see on this label).

Wash contaminated clothing before reuse.

In case of fire: Use CO₂, sand, extinguishing powder to extinguish.

Collect spillage.

Store in a well-ventilated place. Keep cool.

Store locked up.

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

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 3

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 3

Fire = 3

Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

* 3 Composition/information on ingredients

· **Chemical characterization: Substances**

· **CAS No. Description**

CAS: 110-83-8 Cyclohexene

· **Identification number(s)**

· **EC number:** 203-807-8

US

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/17/2024

Reviewed on 06/17/2024

Trade name: Cyclohexene, Purified

(Contd. of page 2)

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Immediately call a doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**
- **PAC-1:** 900 ppm
- **PAC-2:** 1,700 ppm
- **PAC-3:** 10,000 ppm

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/17/2024

Reviewed on 06/17/2024

Trade name: Cyclohexene, Purified

(Contd. of page 3)

Protect against electrostatic charges.

- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
 - Keep receptacle tightly sealed.
 - Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

* 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.
- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

CAS: 110-83-8 Cyclohexene

PEL Long-term value: 1015 mg/m³, 300 ppm

REL Long-term value: 1015 mg/m³, 300 ppm

TLV Long-term value: 20 ppm

- **Additional information:** The lists that were valid during the creation were used as basis.

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 - Keep away from foodstuffs, beverages and feed.
 - Immediately remove all soiled and contaminated clothing.
 - Wash hands before breaks and at the end of work.
 - Store protective clothing separately.
 - Avoid contact with the eyes and skin.
- **Breathing equipment:** Not required.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

(Contd. on page 5)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/17/2024

Reviewed on 06/17/2024

Trade name: Cyclohexene, Purified

(Contd. of page 4)

· Eye protection:



Tightly sealed goggles

· Body protection: Protective work clothing

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

· Form:	Liquid
· Color:	Colorless
· Odor:	Characteristic
· Odor threshold:	Not determined.

· pH-value: Not determined.

· Change in condition

· Melting point/Melting range:	104 °C (219.2 °F)
· Boiling point/Boiling range:	83 °C (181.4 °F)

· Flash point: -12 °C (10.4 °F)

· Flammability (solid, gaseous): Highly flammable.

· Auto igniting: 250 °C (482 °F)

· Decomposition temperature: Not determined.

· Ignition temperature: Not determined.

· Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· Explosion limits:

· Lower:	1.3 Vol %
· Upper:	7.7 Vol %

· Vapor pressure at 20 °C (68 °F): 213 hPa (159.8 mm Hg)

· Density at 20 °C (68 °F): 0.811 g/cm³ (6.7678 lbs/gal)

· Relative density: Not determined.

· Vapor density: Not determined.

· Evaporation rate: Not determined.

· Solubility in / Miscibility with

Water at 20 °C (68 °F): 0.05 g/l

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

· Dynamic:	Not determined.
· Kinematic:	Not determined.

· Other information: No further relevant information available.

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/17/2024

Reviewed on 06/17/2024

Trade name: Cyclohexene, Purified

(Contd. of page 5)

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

Oral	LD50	500 mg/kg (ATE)
Dermal	LD50	300 mg/kg (ATE)

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)** Substance is not listed.
- **NTP (National Toxicology Program)** Substance is not listed.
- **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
- Water hazard class 2 (Assessment by list): hazardous for water
- Do not allow product to reach ground water, water course or sewage system.
- Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

US

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/17/2024

Reviewed on 06/17/2024





Trade name: Cyclohexene, Purified

(Contd. of page 6)

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
- **DOT, IMDG, IATA** UN2256
- **UN proper shipping name**
- **DOT** Cyclohexene
- **IMDG, IATA** CYCLOHEXENE
- **Transport hazard class(es)**
- **DOT**
- 
- **Class** 3 Flammable liquids
- **Label** 3
- **IMDG**
-  
- **Class** 3 Flammable liquids
- **Label** 3
- **IATA**
- 
- **Class** 3 Flammable liquids
- **Label** 3
- **Packing group**
- **DOT, IMDG, IATA** II
- **Environmental hazards:** Environmentally hazardous substance, liquid
- **Marine pollutant:** No
Symbol (fish and tree)
- **Special precautions for user** Warning: Flammable liquids
- **Hazard identification number (Kemler code):** 33
- **EMS Number:** F-E,S-D

(Contd. on page 8)

US

Safety Data Sheet

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Reviewed on 06/17/2024

Trade name: Cyclohexene, Purified

(Contd. of page 7)

· Stowage Category	E
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· UN "Model Regulation":	UN 2256 CYCLOHEXENE, 3, II

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.
- **Sara**
- **Section 355 (extremely hazardous substances):** Substance is not listed.
- **Section 313 (Specific toxic chemical listings):** Substance is not listed.
- **TSCA (Toxic Substances Control Act):** ACTIVE
- **Hazardous Air Pollutants** Substance is not listed.
- **Proposition 65**
- **Chemicals known to cause cancer:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for males:** Substance is not listed.
- **Chemicals known to cause developmental toxicity:** Substance is not listed.
- **Carcinogenic categories**
- **EPA (Environmental Protection Agency)** Substance is not listed.
- **TLV (Threshold Limit Value)** Substance is not listed.
- **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS02 GHS06

- **Signal word** Danger
- **Hazard statements**
Highly flammable liquid and vapor.
Harmful if swallowed.
Toxic in contact with skin.
- **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.

(Contd. on page 9)

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/17/2024

Reviewed on 06/17/2024

Trade name: Cyclohexene, Purified

(Contd. of page 8)

Use explosion-proof electrical/ventilating/lighting/equipment.
 Use only non-sparking tools.
 Take precautionary measures against static discharge.
 Wash thoroughly after handling.
 Do not eat, drink or smoke when using this product.
 Avoid release to the environment.
 Wear protective gloves/protective clothing/eye protection/face protection.
 If swallowed: Immediately call a poison center/doctor.
 Rinse mouth.
 Do NOT induce vomiting.
 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 Call a poison center/doctor if you feel unwell.
 Specific measures (see on this label).
 Wash contaminated clothing before reuse.
 In case of fire: Use CO₂, sand, extinguishing powder to extinguish.
 Collect spillage.
 Store in a well-ventilated place. Keep cool.
 Store locked up.
 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Environment protection department.
- **Contact:**
Date of Preparation / Last Revision:
- **Date of preparation / last revision**
Revision 0.1, 06/14/2024: Reviewed SDS for accuracy. MH/STN
Creation date for SDS 10-16-2014. STN
06/17/2024 / 1.0
- **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flammable Liquids 2: Flammable liquids – Category 2
Acute Toxicity - Oral 4: Acute toxicity – Category 4
Acute Toxicity - Dermal 3: Acute toxicity – Category 3
- *** Data compared to the previous version altered.**