

Safety Data Sheet

acc. to OSHA HCS

Printing date 04/13/2017

Reviewed on 04/13/2017

1 Identification

- **Product identifier**
- **Trade name:** Cyclohexanol
- **Article number:** THE209
- **CAS Number:**
108-93-0
- **EC number:**
203-630-6
- **Index number:**
603-009-00-3
- **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 sherman@aquasolutions.org
- **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666



2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

Flam. Liq. 4 H227 Combustible liquid.

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



GHS07

- **Signal word** Warning
- **Hazard statements**
Combustible liquid.
Harmful if swallowed or if inhaled.
Causes skin irritation.
Causes serious eye irritation.

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*May cause respiratory irritation.***· Precautionary statements***Keep away from flames and hot surfaces. – No smoking.**Avoid breathing dust/fume/gas/mist/vapors/spray**Wear protective gloves / eye protection / face protection.**Wear protective gloves / eye protection / face protection.**Wash thoroughly after handling.**Do not eat, drink or smoke when using this product.**Use only outdoors or in a well-ventilated area.**If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.**Continue rinsing.**Specific treatment (see on this label).**IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.**IF INHALED: Remove person to fresh air and keep comfortable for breathing.**If eye irritation persists: Get medical advice/attention.**Rinse mouth.**In case of fire: Use for extinction: CO₂, powder or water spray.**IF ON SKIN: Wash with plenty of water.**If skin irritation occurs: Get medical advice/attention.**Take off contaminated clothing and wash it before reuse.**Store locked up.**Store in a well-ventilated place. Keep container tightly closed.**Store in a well-ventilated place. Keep cool.**Dispose of contents/container in accordance with local/regional/national/international regulations.***· Classification system:****· NFPA ratings (scale 0 - 4)**

Health = 2

Fire = 2

Reactivity = 0

· HMIS-ratings (scale 0 - 4)

Health = 2

Fire = 2

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**

108-93-0 Cyclohexanol

· Identification number(s)**· EC number:** 203-630-6**· Index number:** 603-009-00-3

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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.

- **After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. 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. If symptoms persist, 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.

- **Special hazards arising from the substance or mixture** No further relevant information available.

- **Advice for firefighters**

- **Protective equipment:** Mouth respiratory protective device.

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 item 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:** 150 ppm

- **PAC-2:** 580 ppm

- **PAC-3:** 3,500 ppm

7 Handling and storage

- **Handling:**

- **Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

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- Prevent formation of aerosols.
- Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.
- Conditions for safe storage, including any incompatibilities**
- Storage:**
- Requirements to be met by storerooms and receptacles:** No special requirements.
- Information about storage in one common storage facility:** Not required.
- Further information about storage conditions:** Keep receptacle tightly sealed.
- 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 item 7.
- Control parameters**

Components with limit values that require monitoring at the workplace:

CAS: 108-93-0 Cyclohexanol

PEL	Long-term value: 200 mg/m ³ , 50 ppm
REL	Long-term value: 200 mg/m ³ , 50 ppm
	Skin
TLV	Long-term value: 206 mg/m ³ , 50 ppm
	Skin

Ingredients with biological limit values:

CAS: 108-93-0 Cyclohexanol

BEI	-
	LD50 Intraperitoneal: urine
	Time: end of shift at end of workweek
	LD50: 1,2-Cyclohexanediol with hydrolysis (nonquantitative, nonspecific)
	-
	LD50 Intraperitoneal: urine
	Time: end of shift
	LD50: Cyclohexanol with hydrolysis (nonquantitative, nonspecific)

- 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.
 - Avoid contact with the eyes and skin.
- Breathing equipment:**
 - In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

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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.

· **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 (40 g/l) at 20 °C (68 °F):** 6.5

· **Change in condition**

Melting point/Melting range:	25.1 °C (77 °F)
Boiling point/Boiling range:	160 °C (320 °F)

· **Flash point:** 68 °C (154 °F)

· **Flammability (solid, gaseous):** Not applicable.

· **Ignition temperature:** 290 °C (554 °F)

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Not determined.

· **Danger of explosion:** Not determined.

· **Explosion limits:**

Lower:	2 Vol %
Upper:	11.2 Vol %

· **Vapor pressure at 20 °C (68 °F):** 1.3 hPa (1 mm Hg)

· **Density at 20 °C (68 °F):** 0.94 g/cm³ (7.844 lbs/gal)

· **Relative density** Not determined.

· **Vapor density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**

Water at 20 °C (68 °F): 36 g/l

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- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
 - Dynamic at 25 °C (77 °F):** 4.6 mPas
 - Kinematic:** Not determined.
- **Other information** No further relevant information available.

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	1400 mg/kg (rat)
Dermal	LD50	>1000 mg/kg (rabbit)
Inhalative	LC50/4 h	11 mg/l (ATE)
Irritation of skin	Skin Corrosion/Irritation	Skin Irritation (rabbit)
	Germ cell mutagenicity	leukocyte cytog (Human)

- **Primary irritant effect:**
 - **on the skin:** Irritant to skin and mucous membranes.
 - **on the eye:** 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 1 (Assessment by list): slightly hazardous for water

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- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- Results of PBT and vPvB assessment**
- PBT:** Not applicable.
- vPvB:** Not applicable.
- Other adverse effects** No further relevant information available.

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 | NA1993 |
| · IMDG, IATA | Not regulated |
| · UN proper shipping name | |
| · DOT | COMBUSTIBLE LIQUID, N.O.S (Cyclohexanol) |
| · IMDG, IATA | Not regulated |
| · Transport hazard class(es) | |
| · DOT, IMDG, IATA | |
| · Class | Not regulated |
| · Packing group | |
| · DOT | III |
| · IMDG, IATA | Not regulated |
| · Environmental hazards: | Not applicable. |
| · Special precautions for user | Not applicable. |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · UN "Model Regulation": | Not regulated |

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture**
- Sara**
- Section 355 (extremely hazardous substances):** Substance is not listed.
- Section 313 (Specific toxic chemical listings):** Substance is listed.
- TSCA (Toxic Substances Control Act):** Substance is 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.

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- **Chemicals known to cause developmental toxicity:** Substance is not listed.
- **Carcinogenic categories**
- **EPA (Environmental Protection Agency)** Substance is not listed.
- **TLV (Threshold Limit Value established by ACGIH)** 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**



GHS07

- **Signal word** Warning
- **Hazard statements**
 - Combustible liquid.
 - Harmful if swallowed or if inhaled.
 - Causes skin irritation.
 - Causes serious eye irritation.
 - May cause respiratory irritation.
- **Precautionary statements**
 - Keep away from flames and hot surfaces. – No smoking.
 - Avoid breathing dust/fume/gas/mist/vapors/spray
 - Wear protective gloves / eye protection / face protection.
 - Wear protective gloves / eye protection / face protection.
 - Wash thoroughly after handling.
 - Do not eat, drink or smoke when using this product.
 - Use only outdoors or in a well-ventilated area.
 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - Specific treatment (see on this label).
 - IF SWALLOWED:** Call a POISON CENTER/doctor if you feel unwell.
 - IF INHALED:** Remove person to fresh air and keep comfortable for breathing.
 - If eye irritation persists: Get medical advice/attention.
 - Rinse mouth.
 - In case of fire: Use for extinction: CO₂, powder or water spray.
 - IF ON SKIN:** Wash with plenty of water.
 - If skin irritation occurs: Get medical advice/attention.
 - Take off contaminated clothing and wash it before reuse.
 - Store locked up.
 - Store in a well-ventilated place. Keep container tightly closed.
 - Store in a well-ventilated place. Keep cool.
 - 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**
- Revision 0.0 04-13-2017: Creation date for SDS. STN

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Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

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

BEI: Biological Exposure Limit

Flam. Liq. 4: Flammable liquids – Category 4

Acute Tox. 4: Acute toxicity – Category 4

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

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