

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/29/2017

Reviewed on 11/29/2017

1 Identification

- **Product identifier**
- **Trade name:** Cyclohexanone/Methylene Chloride 50/50 1:1
- **Article number:** LEI002
- **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**



GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.



GHS08 Health hazard

Carc. 1B H350 May cause cancer.
STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 4 H312 Harmful in contact with skin.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.
STOT SE 3 H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

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



GHS02



GHS07



GHS08

(Contd. on page 2)

-US-

Safety Data Sheet

acc. to OSHA HCS

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Reviewed on 11/29/2017

Trade name: Cyclohexanone/Methylene
Chloride 50/50 1:1

(Contd. of page 1)

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

Dichloromethane (Methylene Chloride)

Cyclohexanone 99.8%

· **Hazard statements**

Flammable liquid and vapor.

Harmful if swallowed or in contact with skin.

Causes skin irritation.

Causes serious eye irritation.

May cause cancer.

May cause respiratory irritation. May cause drowsiness or dizziness.

May cause damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

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

Ground/bond container and receiving equipment.

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

Use only non-sparking tools.

Take precautionary measures against static discharge.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

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

Use only outdoors or in a well-ventilated area.

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

If swallowed: Call a poison center/doctor if you feel unwell.

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

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.

IF exposed or concerned: Get medical advice/attention.

Get medical advice/attention if you feel unwell.

Specific treatment (see on this label).

Rinse mouth.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

In case of fire: Use for extinction: CO2, powder or water spray.

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

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 = 2

Fire = 2

Reactivity = 0

(Contd. on page 3)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/29/2017

Reviewed on 11/29/2017

Trade name: Cyclohexanone/Methylene Chloride 50/50 1:1

(Contd. of page 2)

· **HMIS-ratings (scale 0 - 4)**

HEALTH	2	Health = 2
FIRE	2	Fire = 2
REACTIVITY	0	Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization:** Mixtures
- **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 75-09-2	Dichloromethane (Methylene Chloride)	58.333%
CAS: 108-94-1	Cyclohexanone 99.8%	41.667%

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:** 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.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

US

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/29/2017

Reviewed on 11/29/2017

Trade name: Cyclohexanone/Methylene Chloride 50/50 1:1

(Contd. of page 3)

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Mount respiratory protective device.

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:**

CAS: 75-09-2	Dichloromethane (Methylene Chloride)	200 ppm
CAS: 108-94-1	Cyclohexanone 99.8%	60 ppm

- **PAC-2:**

CAS: 75-09-2	Dichloromethane (Methylene Chloride)	560 ppm
CAS: 108-94-1	Cyclohexanone 99.8%	830 ppm

- **PAC-3:**

CAS: 75-09-2	Dichloromethane (Methylene Chloride)	6,900 ppm
CAS: 108-94-1	Cyclohexanone 99.8%	5000* ppm

7 Handling and storage

- **Handling:**

- **Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

- **Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Keep respiratory protective device available.

- **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.

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/29/2017

Reviewed on 11/29/2017

**Trade name: Cyclohexanone/Methylene
Chloride 50/50 1:1**

(Contd. of page 4)

· **Control parameters**

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

CAS: 75-09-2 Dichloromethane (Methylene Chloride)

PEL Short-term value: 125 ppm
Long-term value: 25 ppm
see 29 CFR 1910.1052

REL See Pocket Guide App. A

TLV Long-term value: 174 mg/m³, 50 ppm
BEI

CAS: 108-94-1 Cyclohexanone 99.8%

PEL Long-term value: 200 mg/m³, 50 ppm

REL Long-term value: 100 mg/m³, 25 ppm
Skin

TLV Long-term value: 50 mg/m³, 20 ppm
Skin

· **Ingredients with biological limit values:**

CAS: 75-09-2 Dichloromethane (Methylene Chloride)

BEI 0.3 mg/L
LD50 Intraperitoneal: urine
Time: end of shift
LD50: Dichloromethane (semi-quantitative)

CAS: 108-94-1 Cyclohexanone 99.8%

BEI 80 mg/L
LD50 Intraperitoneal: urine
Time: end of shift at end of workweek
LD50: 1,2-Cyclohexanediol with hydrolysis (nonspecific, semi-quantitative)

8 mg/L
LD50 Intraperitoneal: urine
Time: end of shift
LD50: Cyclohexanol with hydrolysis (nonspecific, semi-quantitative)

· **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:**

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

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/29/2017

Reviewed on 11/29/2017

Trade name: Cyclohexanone/Methylene Chloride 50/50 1:1

(Contd. of page 5)

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. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **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: Clear

· **Odor:** Cyclohexane - Methylene Chloride

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 153 °C (307.4 °F)

· **Flash point:** 43 °C (109.4 °F)

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

· **Ignition temperature:** 420 °C (788 °F)

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

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

· **Explosion limits:**

Lower: 1.3 Vol %

Upper: 22 Vol %

· **Vapor pressure at 20 °C (68 °F):** 453 hPa (339.8 mm Hg)

· **Density at 20 °C (68 °F):** 1.14 g/cm³ (9.5133 lbs/gal)

· **Relative density** Not determined.

· **Vapor density** Not determined.

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/29/2017

Reviewed on 11/29/2017

Trade name: Cyclohexanone/Methylene
Chloride 50/50 1:1

(Contd. of page 6)

· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Not miscible or difficult to mix.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	100.0 %
VOC content:	41.67 %
	475.0 g/l / 3.96 lb/gal
· Solids content:	0.0 %
· 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:**

ATE (Acute Toxicity Estimate)

Oral	LD50	1,572 mg/kg (rat)
Dermal	LD50	>1,368 mg/kg

CAS: 75-09-2 Dichloromethane (Methylene Chloride)

Oral	LD50	1,600 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rat)
Inhalative	LC50/4 h	52,000 mg/l (rat)
Irritation of skin	Skin Corrosion/Irritation	(rabbit) (Draize)
Irritation of eyes	Eye damage/eye irritation	(rabbit)

CAS: 108-94-1 Cyclohexanone 99.8%

Oral	LD50	1,535 mg/kg (rat)
Dermal	LD50	948 mg/kg (rabbit)
Inhalative	LC50/4 h	8,000 mg/l (rat)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.

(Contd. on page 8)

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/29/2017

Reviewed on 11/29/2017

Trade name: Cyclohexanone/Methylene
Chloride 50/50 1:1

(Contd. of page 7)

- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful
Irritant
- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

CAS: 75-09-2	Dichloromethane (Methylene Chloride)	2A
CAS: 108-94-1	Cyclohexanone 99.8%	3

- **NTP (National Toxicology Program)**

CAS: 75-09-2	Dichloromethane (Methylene Chloride)	R
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- **OSHA-Ca (Occupational Safety & Health Administration)**

CAS: 75-09-2	Dichloromethane (Methylene Chloride)	
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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 (Self-assessment): 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.

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** UN1992

(Contd. on page 9)

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/29/2017

Reviewed on 11/29/2017

Trade name: Cyclohexanone/Methylene
Chloride 50/50 1:1

(Contd. of page 8)

· **UN proper shipping name**· **DOT**· **IMDG, IATA**

Flammable liquids, toxic, n.o.s. (Cyclohexanone, Dichloromethane)
FLAMMABLE LIQUID, TOXIC, N.O.S. (CYCLOHEXANONE,
DICHLOROMETHANE)

· **Transport hazard class(es)**· **DOT**· **Class**

3 Flammable liquids

· **Label**

3, 6.1

· **IMDG**· **Class**

3 Flammable liquids

· **Label**

3/6.1

· **IATA**· **Class**

3 Flammable liquids

· **Label**

3 (6.1)

· **Packing group**· **DOT, IMDG, IATA**

II

· **Environmental hazards:**· **Marine pollutant:**

No

· **Special precautions for user**

Warning: Flammable liquids

· **Danger code (Kemler):**

30

· **EMS Number:**

F-E,S-D

· **Stowage Category**

B

· **Stowage Code**

SW2 Clear of living quarters.

· **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: 60 L

On cargo aircraft only: 220 L

· **IMDG**· **Limited quantities (LQ)**

5L

(Contd. on page 10)

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/29/2017

Reviewed on 11/29/2017

Trade name: Cyclohexanone/Methylene Chloride 50/50 1:1

(Contd. of page 9)

· **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

· **UN "Model Regulation":**

UN 1992 FLAMMABLE LIQUIDS, TOXIC, N.O.S.
(CYCLOHEXANONE, DICHLOROMETHANE), 3 (6.1), II

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

CAS: 75-09-2 Dichloromethane (Methylene Chloride)

· **TSCA (Toxic Substances Control Act):**

Dichloromethane (Methylene Chloride)

Cyclohexanone 99.8%

· **Proposition 65**

· **Chemicals known to cause cancer:**

CAS: 75-09-2 Dichloromethane (Methylene Chloride)

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

CAS: 75-09-2 Dichloromethane (Methylene Chloride)

L

· **TLV (Threshold Limit Value established by ACGIH)**

CAS: 75-09-2 Dichloromethane (Methylene Chloride)

A3

CAS: 108-94-1 Cyclohexanone 99.8%

A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

CAS: 75-09-2 Dichloromethane (Methylene Chloride)

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02



GHS07



GHS08

· **Signal word** Danger

(Contd. on page 11)

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/29/2017

Reviewed on 11/29/2017

Trade name: Cyclohexanone/Methylene Chloride 50/50 1:1

(Contd. of page 10)

· **Hazard-determining components of labeling:**

Dichloromethane (Methylene Chloride)

Cyclohexanone 99.8%

· **Hazard statements**

Flammable liquid and vapor.

Harmful if swallowed or in contact with skin.

Causes skin irritation.

Causes serious eye irritation.

May cause cancer.

May cause respiratory irritation. May cause drowsiness or dizziness.

May cause damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

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

Ground/bond container and receiving equipment.

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

Use only non-sparking tools.

Take precautionary measures against static discharge.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

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

Use only outdoors or in a well-ventilated area.

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

If swallowed: Call a poison center/doctor if you feel unwell.

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

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.

IF exposed or concerned: Get medical advice/attention.

Get medical advice/attention if you feel unwell.

Specific treatment (see on this label).

Rinse mouth.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

In case of fire: Use for extinction: CO₂, powder or water spray.

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

Store in a well-ventilated place. Keep cool.

Store locked up.

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

· **National regulations:**

· **Additional classification according to Decree on Hazardous Materials:**

Carcinogenic hazardous material group III (dangerous).

· **Information about limitation of use:**

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.

Exceptions can be made by the authorities in certain cases.

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

US

(Contd. on page 12)

Safety Data Sheet

acc. to OSHA HCS

Printing date 11/29/2017

Reviewed on 11/29/2017

**Trade name: Cyclohexanone/Methylene
Chloride 50/50 1:1**

(Contd. of page 11)

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**

11-29-2017: review SDS for accuracy. STN

Revision 0.0, 04-29-2015: Creation date for SDS. STN

11/29/2017 / -

· **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

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

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. 3: Flammable liquids – Category 3

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

Carc. 1B: Carcinogenicity – Category 1B

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

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2