

Safety Data Sheet

acc. to OSHA HCS

Printing date 07/03/2024

Reviewed on 07/03/2024

1 Identification

- **Product identifier**
- **Trade name:** Chlorine Gas
- **Article number:** C3560
- **CAS Number:**
7782-50-5
- **EC number:**
231-959-5
- **Index number:**
017-001-00-7
- **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
- **Emergency telephone number:**
Chemtec: 800-424-9300
Canutec: 613-996-6666



2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS03 Flame over circle

Oxidizing Gases 1

H270 May cause or intensify fire; oxidizer.



GHS04 Gas cylinder

Gases under Pressure - Compressed gas

H280 Contains gas under pressure; may explode if heated.



GHS06 Skull and crossbones

Acute Toxicity - Inhalation 2

H330 Fatal if inhaled.



GHS07

Skin Irritation 2

H315 Causes skin irritation.

Eye Irritation 2A

H319 Causes serious eye irritation.

Specific Target Organ Toxicity - Single Exposure 3 H335 May cause respiratory irritation.

- **Label elements**

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

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· **Hazard pictograms**· **Signal word** *Danger*· **Hazard statements**

May cause or intensify fire; oxidizer.
Contains gas under pressure; may explode if heated.
Fatal if inhaled.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.

· **Precautionary statements**

Keep/Store away from clothing/combustible materials.
Keep reduction valves/valves and fittings free from oil and grease.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.
[In case of inadequate ventilation] wear respiratory protection.
If on skin: Wash with plenty of water.
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.
Immediately call a poison center/doctor.
Specific treatment is urgent (see on this label).
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Take off contaminated clothing.
In case of fire: Stop leak if safe to do so.
Collect spillage.
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Protect from sunlight.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**· **NFPA ratings (scale 0 - 4)**

Health = 4
Fire = 3
Reactivity = 0

The substance possesses oxidizing properties.

· **HMIS-ratings (scale 0 - 4)**

Health = 2
Fire = 3
Reactivity = 0

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- **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: 7782-50-5 Chlorine Gas
- **Identification number(s)**
- **EC number:** 231-959-5
- **Index number:** 017-001-00-7

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Remove breathing apparatus only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:**
Supply fresh air or oxygen; call for doctor.
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:** If symptoms persist consult 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:** Use fire fighting measures that suit the environment.
- **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** Not required.
- **Environmental precautions:**
Inform authorities in case of gas release.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.

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- **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:** 0.50 ppm
- **PAC-2:** 2.0 ppm
- **PAC-3:** 20 ppm

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Only handle and refill product in closed systems.
- **Information about protection against explosions and fires:** 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 section 7.
- **Control parameters**

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

CAS: 7782-50-5 Chlorine Gas

PEL	Ceiling limit value: 3 mg/m ³ , 1 ppm
REL	Ceiling limit value: 1.45 mg/m ³ , 0.5 ppm *15-min
TLV	Short-term value: 0.4 ppm Long-term value: 0.1 ppm A4

- **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.

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· **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.

· **Eye protection:**

Safety glasses



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:	Yellow-green liquid
Odor:	Pungent
Odor threshold:	Not determined.

· **pH-value:** 20

· **Change in condition**

Melting point/Melting range:	-101 °C (-149.8 °F)
Boiling point/Boiling range:	-34 °C (-29.2 °F)

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Contact with combustible material may cause fire.

· **Decomposition temperature:** Not determined.

· **Ignition temperature:** Not determined.

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

· **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

· **Vapor pressure at 20 °C (68 °F):** 6,800 hPa (5.100 mm Hg)

· **Density at 20 °C (68 °F):** 0.00321 g/cm³ (0.02679 lbs/gal)

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· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with Water at 20 °C (68 °F):	0.7 g/l
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
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:**

Inhalative	LC50/4h	100 mg/l (ATE)
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- **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.

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- **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.

Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably reduced, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

- **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**

UN1017

- **UN proper shipping name**

- **DOT**

Chlorine

- **IMDG**

CHLORINE, MARINE POLLUTANT

- **IATA**

CHLORINE

- **Transport hazard class(es)**

- **DOT**



- **Class**

2.3 Gases

- **Label**

2.3, 5.1, 8

- **IMDG**



- **Class**

2.3 Gases

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· **Label** 2.3/5.1/8

· **IATA**



· **Class** 2.3 Gases
 · **Label** 2.3 (5.1, 8)

· **Packing group**
 · **DOT, IMDG, IATA** Not regulated

· **Environmental hazards:**
 · **Marine pollutant:** Yes (P)
 Symbol (fish and tree)

· **Special precautions for user** Warning: Gases
 · **Hazard identification number (Kemler code):** 265
 · **EMS Number:** F-C,S-U
 · **Stowage Category** D
 · **Stowage Code** SW2 Clear of living quarters.
 · **Segregation Code** SG6 Segregation as for class 5.1
 SG19 Stow "separated from" class 7

· **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: Forbidden
 On cargo aircraft only: Forbidden
 · **Hazardous substance:** 10 lbs, 4.54 kg
 · **Remarks:** Special marking with the symbol (fish and tree).

· **IMDG**
 · **Limited quantities (LQ)** 0
 · **Excepted quantities (EQ)** Code: E0
 Not permitted as Excepted Quantity

· **UN "Model Regulation":** UN 1017 CHLORINE, 2.3 (5.1+8)

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 listed.
- **Section 313 (Specific toxic chemical listings):** Substance is listed.
- **TSCA (Toxic Substances Control Act):** ACTIVE
- **Hazardous Air Pollutants** 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) A4**
- **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**



GHS03 GHS04 GHS06 GHS07

- **Signal word** Danger
- **Hazard statements**
 - May cause or intensify fire; oxidizer.
 - Contains gas under pressure; may explode if heated.
 - Fatal if inhaled.
 - Causes skin irritation.
 - Causes serious eye irritation.
 - May cause respiratory irritation.
- **Precautionary statements**
 - Keep/Store away from clothing/combustible materials.
 - Keep reduction valves/valves and fittings free from oil and grease.
 - Do not breathe dust/fume/gas/mist/vapors/spray.
 - Wash thoroughly after handling.
 - Use only outdoors or in a well-ventilated area.
 - Avoid release to the environment.
 - Wear protective gloves/protective clothing/eye protection/face protection.
 - [In case of inadequate ventilation] wear respiratory protection.
 - If on skin: Wash with plenty of water.
 - 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.
 - Immediately call a poison center/doctor.
 - Specific treatment is urgent (see on this label).
 - If skin irritation occurs: Get medical advice/attention.
 - If eye irritation persists: Get medical advice/attention.
 - Take off contaminated clothing.
 - In case of fire: Stop leak if safe to do so.
 - Collect spillage.
 - Store in a well-ventilated place. Keep container tightly closed.
 - Store locked up.
 - Protect from sunlight.
 - 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:**

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Date of Preparation / Last Revision:

· **Date of preparation / last revision**

Revision 1.2 07/03/2024: Reviewed SDS for accuracy. MH/STN

Creation date for SDS 10-15-2015. STN

07/03/2024 / 1.1

· **Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

P: Marine Pollutant

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

Oxidizing Gases 1: Oxidizing gases – Category 1

Gases under Pressure - Compressed gas: Gases under pressure – Compressed gas

Acute Toxicity - Inhalation 2: Acute toxicity – Category 2

Skin Irritation 2: Skin corrosion/irritation – Category 2

Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A

Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3

· *** Data compared to the previous version altered.**

US