

## SECTION 1: IDENTIFICATION

### Product Identifier

**Product Form:** Substance, liquid (compressed gas)

**Product Name:** Chlorine

**CAS-No.:** 7782-50-5

### Intended Use of the Product

Pulp bleaching, water treatment, manufacture of plastics, organic and inorganic chlorides, refrigerants and pharmaceuticals.

### Name, Address, and Telephone of the Responsible Party

#### **Manufacturer**

CHEMTRADE LOGISTICS INC.

155 Gordon Baker Road

Suite 300

Toronto, Ontario M2H 3N5

For SDS Info: (416) 496-5856

[www.chemtradelogistics.com](http://www.chemtradelogistics.com)

### Emergency Telephone Number

**Emergency Number :**

Canada: CANUTEC +1-613-996-6666 / US: CHEMTREC +1-800-424-9300

INTERNATIONAL: +1-703-741-5970

Chemtrade Emergency Contact: (866) 416-4404

For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night

## SECTION 2: HAZARDS IDENTIFICATION

### Classification of the Substance or Mixture

#### **GHS Classification**

Ox. Gas 1 H270

Press. Gas (Liq.) H280

Acute Tox. 2 H330

Skin Irrit. 2 H315

Eye Irrit. 2 H319

STOT SE3 H335

Aquatic Acute 1 H400

Full text of hazard classes and H-statements : see section 16

### Label Elements

#### **GHS Labeling**

#### **Hazard Pictograms**



#### **Signal Word**

: Danger

#### **Hazard Statements**

: H270 - May cause or intensify fire; oxidizer.  
 H280 - Contains gas under pressure; may explode if heated.  
 H315 - Causes skin irritation.  
 H319 - Causes serious eye irritation.  
 H330 – Fatal if inhaled.  
 H335 – May cause respiratory irritation  
 H400 - Very toxic to aquatic life.

#### **Precautionary Statements**

: P220 - Keep away from clothing and other combustible materials.  
 P244 - Keep valves and fittings free from oil and grease.  
 P260 - Do not breathe gas.  
 P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.

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P271 - Use only outdoors or in a well-ventilated area.  
P273 - Avoid release to the environment.  
P280 - Wear protective gloves, protective clothing, and eye protection.  
P284 - [In case of inadequate ventilation] wear respiratory protection.  
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303+P352+P362+P363 - IF ON SKIN (or hair): Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse.  
P304+P340+P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician.  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P320 - Specific treatment is urgent (see section 4 on this SDS).  
P370+P376 - In case of fire: Stop leak if safe to do so.  
P391 - Collect spillage.  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.  
P405 - Store locked up.  
P410 - Protect from sunlight.  
P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

### Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. Contact with gas escaping the container can cause frostbite.

### Unknown acute toxicity

No data available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### Substance

Name	Product Identifier	%*	GHS Ingredient Classification
Chlorine	(CAS-No.) 7782-50-5	> 99	Ox. Gas 1, H270 Press. Gas (Liq.), H280 Acute Tox. 2 H330 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Acute 1, H400

Full text of H-phrases: see section 16

\*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

## SECTION 4: FIRST AID MEASURES

### Description of First-aid Measures

**General:** Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). If frostbite or freezing occurs, immediately flush with plenty of lukewarm water to GENTLY warm the affected area. Do not use hot water. Do not rub affected area. Get immediate medical attention.

**Inhalation:** First, take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate respiratory protective equipment, use the buddy system), then remove the exposed person to fresh air. Keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Immediately call a POISON CENTER or doctor/physician.

**Skin Contact:** Remove contaminated clothing. Immediately flush skin with plenty of water for at least 30 minutes. Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention. Wash contaminated clothing before reuse.

**Eye Contact:** Rinse cautiously with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

**Ingestion:** Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

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### **Most Important Symptoms and Effects Both Acute and Delayed**

**General:** May cause frostbite on contact with the liquid. Fatal if inhaled. Causes severe skin burns and eye damage.

**Inhalation:** Inhalation of this material can cause serious health effects in small amounts, leading to unconsciousness and death. Corrosive to the respiratory tract.

**Skin Contact:** Causes severe irritation which will progress to chemical burns. Contact with gas/liquid escaping the container can cause frostbite and freeze burns.

**Eye Contact:** Causes permanent damage to the cornea, iris, or conjunctiva. Contact with gas/liquid escaping the container can cause frostbite, freeze burns, and permanent eye damage.

**Ingestion:** Not considered a potential route of exposure, but contact with gas/liquid escaping the container can cause freeze burns and frostbite. May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

**Chronic Symptoms:** Repeated inhalation exposure may cause impairment of lung function and permanent lung damage.

### **Indication of Any Immediate Medical Attention and Special Treatment Needed**

Symptoms May be Delayed. If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

## **SECTION 5: FIRE-FIGHTING MEASURES**

### **Extinguishing Media**

**Suitable Extinguishing Media:** Use an extinguishing agent suitable for the surrounding fire. Dry chemical, foam, carbon dioxide.

**Unsuitable Extinguishing Media:** Direct water spray. Reacts with water. No water should be sprayed onto a leaking cylinder as spraying of water onto it promotes corrosion at the point of leakage as well as increasing the evaporation rate of chlorine.

### **Special Hazards Arising From the Substance or Mixture**

**Fire Hazard:** Contains an oxidizing material which may accelerate fire.

**Explosion Hazard:** Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries. Container may explode in heat of fire.

**Reactivity:** Oxidizer: increases the burning rate of combustible materials. May be corrosive to metals.

### **Advice for Firefighters**

**Precautionary Measures Fire:** Exercise caution when fighting any chemical fire.

**Firefighting Instructions:** Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Evacuate area. In case of fire or explosion, do not breathe fumes. Cylinder can burst violently when heated due to excess pressure build up. Fight fire remotely due to the risk of explosion.

**Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.

**Hazardous Combustion Products:** None known.

**Other Information:** Do not allow run-off from fire fighting to enter drains or water courses.

### **Reference to Other Sections**

Refer to Section 9 for flammability properties.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

### **Personal Precautions, Protective Equipment and Emergency Procedures**

**General Measures:** Keep away from combustible material. Do not get in eyes, on skin, or on clothing. Do not breathe gas.

#### **For Non-Emergency Personnel**

**Protective Equipment:** Use appropriate personal protective equipment (PPE).

**Emergency Procedures:** Evacuate unnecessary personnel.

#### **For Emergency Personnel**

For response to chlorine gas it is recommended to use as a minimum level "B" protection that is compatible to chlorine. For liquid spills it is recommended to utilize as a minimum enhanced level "B" (Enhanced Level "B" is the addition of a splash hood)/ Do not touch damaged containers or spilled materials unless wearing appropriate protective clothing. Responders can reference Chlorine Institute pamphlet #65 on PPE.

**Protective Equipment:** Equip cleanup crew with proper protection.

**Emergency Procedures:** Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Evacuate unnecessary personnel, isolate, and ventilate area.

### **Environmental Precautions**

Prevent entry to sewers and public waters. Avoid release to the environment.

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### **Methods and Materials for Containment and Cleaning Up**

**For Containment:** Stop leak, if possible without risk. As an immediate precautionary measure, isolate spill or leak area in all directions. Ventilate area.

**Methods for Cleaning Up:** Stop the source of the release, if safe to do so. Consider the use of water spray to disperse vapors. Isolate the area until gas has dispersed. Ventilate and gas test area before entering. Contact competent authorities after a spill.

### **Reference to Other Sections**

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

## **SECTION 7: HANDLING AND STORAGE**

### **Precautions for Safe Handling**

Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Keep away from combustible materials, clothing, organic material. - No smoking. Use only outdoors or in a well-ventilated area. Do not get in eyes, on skin, or on clothing. Do not breathe gas. Handle empty containers with care because they may still present a hazard.

**Additional Hazards When Processed:** May cause or intensify fire; oxidizer. Do not pressurize, cut, or weld containers. Ruptured cylinders may rocket. May release corrosive vapors.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures.

### **Conditions for Safe Storage, Including Any Incompatibilities**

**Technical Measures:** Comply with applicable regulations. Prevent build-up of electrostatic charges (e.g, by grounding). Proper grounding procedures to avoid static electricity should be followed.

**Storage Conditions:** Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from extremely high or low temperatures and incompatible materials. Store in original container or corrosive resistant and/or lined container. Protect from Sunlight. Keep reduction valves free from grease and oil. Empty containers retain product residue and can be hazardous. Do not reuse container. Use only chlorine-compatible lubricants. Use in a sealed system and/or a well-ventilated area. Observe good hygiene practices.

**Incompatible Materials:** Combustible materials. Organic compounds. Acetylene. Ether. Turpentine. Ammonia. Fuel Gas. Hydrogen. Finely divided metals.

### **Specific End Use(s)**

Pulp bleaching, water treatment, manufacture of plastics, organic and inorganic chlorides, refrigerants and pharmaceuticals.

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **Control Parameters**

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

<b>Chlorine (7782-50-5)</b>		
<b>Mexico</b>	OEL TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup>
<b>Mexico</b>	OEL TWA (ppm)	1 ppm
<b>Mexico</b>	OEL STEL (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
<b>Mexico</b>	OEL STEL (ppm)	3 ppm
<b>USA ACGIH</b>	ACGIH TWA (ppm)	0.5 ppm
<b>USA ACGIH</b>	ACGIH STEL (ppm)	1 ppm
<b>USA ACGIH</b>	ACGIH chemical category	Not Classifiable as a Human Carcinogen
<b>USA OSHA</b>	OSHA PEL (Ceiling) (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup>
<b>USA OSHA</b>	OSHA PEL (Ceiling) (ppm)	1 ppm
<b>USA NIOSH</b>	NIOSH REL (ceiling) (mg/m <sup>3</sup> )	1.45 mg/m <sup>3</sup>
<b>USA NIOSH</b>	NIOSH REL (ceiling) (ppm)	0.5 ppm
<b>USA IDLH</b>	US IDLH (ppm)	10 ppm
<b>Alberta</b>	OEL STEL (mg/m <sup>3</sup> )	2.9 mg/m <sup>3</sup>
<b>Alberta</b>	OEL STEL (ppm)	1 ppm
<b>Alberta</b>	OEL TWA (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup>
<b>Alberta</b>	OEL TWA (ppm)	0.5 ppm
<b>British Columbia</b>	OEL STEL (ppm)	1 ppm
<b>British Columbia</b>	OEL TWA (ppm)	0.5 ppm
<b>Manitoba</b>	OEL STEL (ppm)	1 ppm

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Manitoba	OEL TWA (ppm)	0.5 ppm
New Brunswick	OEL STEL (mg/m <sup>3</sup> )	2.9 mg/m <sup>3</sup>
New Brunswick	OEL STEL (ppm)	1 ppm
New Brunswick	OEL TWA (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup>
New Brunswick	OEL TWA (ppm)	0.5 ppm
Newfoundland & Labrador	OEL STEL (ppm)	1 ppm
Newfoundland & Labrador	OEL TWA (ppm)	0.5 ppm
Nova Scotia	OEL STEL (ppm)	1 ppm
Nova Scotia	OEL TWA (ppm)	0.5 ppm
Nunavut	OEL STEL (ppm)	1 ppm
Nunavut	OEL TWA (ppm)	0.5 ppm
Northwest Territories	OEL STEL (ppm)	1 ppm
Northwest Territories	OEL TWA (ppm)	0.5 ppm
Ontario	OEL STEL (ppm)	1 ppm
Ontario	OEL TWA (ppm)	0.5 ppm
Prince Edward Island	OEL STEL (ppm)	1 ppm
Prince Edward Island	OEL TWA (ppm)	0.5 ppm
Québec	VECD (mg/m <sup>3</sup> )	2.9 mg/m <sup>3</sup>
Québec	VECD (ppm)	1 ppm
Québec	VEMP (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup>
Québec	VEMP (ppm)	0.5 ppm
Saskatchewan	OEL STEL (ppm)	1 ppm
Saskatchewan	OEL TWA (ppm)	0.5 ppm
Yukon	OEL STEL (mg/m <sup>3</sup> )	9 mg/m <sup>3</sup>
Yukon	OEL STEL (ppm)	3 ppm
Yukon	OEL TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup>
Yukon	OEL TWA (ppm)	1 ppm

### Exposure Controls

**Appropriate Engineering Controls:** Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof equipment. Gas detectors should be used when toxic gases may be released.

**Personal Protective Equipment:** Gloves. Protective clothing. Protective goggles. Face shield. Insufficient ventilation: wear respiratory protection.



**Materials for Protective Clothing:** Chemically resistant materials and fabrics. Corrosion-proof clothing.

**Hand Protection:** Wear protective gloves. If material is cold, wear thermally resistant protective gloves.

**Eye Protection:** Chemical safety goggles and face shield.

**Skin and Body Protection:** Wear suitable protective clothing.

**Respiratory Protection:** Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

**Thermal Hazard Protection:** Wear thermally resistant protective clothing.

**Other Information:** When using, do not eat, drink or smoke.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on Basic Physical and Chemical Properties

**Physical State** : Liquid (compressed Gas)  
**Appearance** : Amber liquid or greenish-yellow gas

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<b>Odor</b>	: Pungent
<b>Odor Threshold</b>	: < 1 ppm
<b>pH</b>	: Reacts with water to product acidic solutions
<b>Evaporation Rate</b>	: Not available
<b>Melting Point</b>	: -101 °C (-149.8 °F)
<b>Freezing Point</b>	: Not available
<b>Boiling Point</b>	: -34 °C (-29.2 °F)
<b>Flash Point</b>	: Not applicable
<b>Auto-ignition Temperature</b>	: Not applicable
<b>Decomposition Temperature</b>	: Not available
<b>Flammability (solid, gas)</b>	: Not applicable
<b>Lower Flammable Limit</b>	: Not applicable
<b>Upper Flammable Limit</b>	: Not applicable
<b>Vapor Pressure</b>	: 638.4 kPa
<b>Relative Vapor Density at 20°C</b>	: 2.5 (air = 1)
<b>Relative Density</b>	: Not available
<b>Specific Gravity</b>	: 2.5
<b>Solubility</b>	: Water: 7.41 g/l
<b>Partition Coefficient: N-Octanol/Water</b>	: Not available
<b>Viscosity, Dynamic</b>	: 0.01 mPa.s (0.01 cP)
<b>Explosive Properties</b>	: Contains gas under pressure; may explode if heated

## SECTION 10: STABILITY AND REACTIVITY

**Reactivity:** Oxidizer: increases the burning rate of combustible materials. May be corrosive to metals.

**Chemical Stability:** Contains gas under pressure; may explode if heated.

**Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.

**Conditions to Avoid:** Extremely high or low temperatures and incompatible materials. Ignition sources. Combustible materials.

**Incompatible Materials:** Attacks many metals in presence of water. Attacks plastic, rubber and coatings. Chlorine is corrosive to most metals in the presence of moisture (>150 ppm water) or at high temperature. Combines with water to produce hydrochloric and hypochlorous acid. Chlorine reacts with carbon monoxide to produce toxic phosgene, and Sulphur dioxide to produce sulfonyl chloride.

**Hazardous Decomposition Products:** None expected under normal conditions of use.

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects - Product

**Acute Toxicity (Oral):** Not classified

**Acute Toxicity (Dermal):** Not classified

**Acute Toxicity (Inhalation):** Inhalation:gas: Fatal if inhaled.

**LD50 and LC50 Data:**

<b>Chlorine (7782-50-5)</b>	
<b>ATE (Gases)</b>	147.98 ppmV/4h

**Skin Corrosion/Irritation:** Causes severe skin burns and eye damage.

**Eye Damage/Irritation:** Causes serious eye damage.

**Respiratory or Skin Sensitization:** Not classified

**Germ Cell Mutagenicity:** Not classified

**Carcinogenicity:** Not classified

**Specific Target Organ Toxicity (Repeated Exposure):** Not classified

**Reproductive Toxicity:** Not classified

**Specific Target Organ Toxicity (Single Exposure):** 3

**Aspiration Hazard:** Not classified

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**Symptoms/Effects After Inhalation:** Inhalation of this material can cause serious health effects in small amounts, leading to unconsciousness and death. Corrosive to the respiratory tract, respiratory tract irritation, coughing, shortness of breath, headache, nausea or vomiting, may cause lung damage, Fatal if inhaled. Irritation threshold is approximately 0.5 ppm. Immediately Dangerous to Life or Health: 10ppm.

**Symptoms/Effects After Skin Contact:** Causes severe irritation which will progress to chemical burns. Contact with gas/liquid escaping the container can cause irritation, redness, frostbite and freeze burns.

**Symptoms/Effects After Eye Contact:** Causes permanent damage to the cornea, iris, or conjunctiva. Contact with gas/liquid escaping the container can cause pain or irritation, watering, redness, frostbite, freeze burns, and permanent eye damage.

**Symptoms/Effects After Ingestion:** Not considered a normal route of exposure, but contact with gas/liquid escaping the container can cause freeze burns and frostbite. May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

**Chronic Symptoms:** May increase the likelihood of respiratory disorders. Repeated inhalation exposure may cause impairment of lung function and permanent lung damage.

### Information on Toxicological Effects - Ingredient(s)

#### LD50 and LC50 Data:

Chlorine (7782-50-5)	
LC50 Inhalation Rat	293 ppm/1h

## SECTION 12: ECOLOGICAL INFORMATION

### Toxicity

**Ecology - General:** Very toxic to aquatic life.

Chlorine (7782-50-5)	
LC50 Fish 1	0.44 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])
EC50 Daphnia 1	0.017 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 Fish 2	0.014 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])

### Persistence and Degradability

Chlorine (7782-50-5)	
Persistence and Degradability	Not established.

### Bioaccumulative Potential

Chlorine (7782-50-5)	
Bioaccumulative Potential	Not established.

Chlorine (7782-50-5)	
BCF Fish 1	(no bioaccumulation expected)

**Mobility in Soil** Not available

### Other Adverse Effects

**Other Information:** Avoid release to the environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

**Waste Disposal Recommendations:** Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

**Additional Information:** Empty gas cylinders should be returned to the vendor for recycling or refilling. Do not puncture or incinerate container.

**Ecology - Waste Materials:** Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

## SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.




\*When shipped in accordance with US DOT 49 CFR part 171.4(c) this product is not regulated as a marine pollutant when transported on inland waterways in sizes of  $\leq 5$  L or  $\leq 5$  kg or by road, rail, or inland air in non-bulk sizes, provided the packaging meet the general provisions of §§ 173.24 and 173.24a.

\*\*When shipped in accordance with the Canada Transport of Dangerous Goods Regulations part 1.45.1 and other appropriate sections/provisions, the marine pollutant mark is not required when transported by road or rail.

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TRANSPORTATION CLASSIFICATION	DOT	TDG	IMDG	IATA
Identification Number	UN1017	UN1017	UN1017	Forbidden
Proper Shipping Name	CHLORINE	CHLORINE	CHLORINE	No applicable
Transport Hazard Class(es)	2.3 (5.1, 8)	2.3 (5.1, 8)	2.3 (5.1, 8)	Not applicable
				
Packing Group	Not applicable	Not applicable	Not applicable	Not applicable
Environmental Hazards	Marine Pollutant : Yes*	Marine Pollutant : Yes**	Marine Pollutant : Yes	Marine Pollutant: N/A
Emergency Response	ERG Number : 124	ERAP Index: 500	EMS: F-C, S-U	ERG code (IATA): 2CP
Additional Information	Not applicable	Not applicable	Not applicable	Not applicable

## SECTION 15: REGULATORY INFORMATION

### US Federal Regulations

Chemical Name (CAS No.)	CERCLA RQ	EPCRA 304 RQ	SARA 302 TPQ	SARA 313
Chlorine (7782-50-5)	10 lb	10 lb	100 lb	Yes

### SARA 311/312

<b>Chlorine (7782-50-5)</b>
Fire hazard. Sudden release of pressure hazard. Immediate (acute) health hazard. Delayed (chronic) health hazard

US TSCA Flags: Not present

### US State Regulations

#### California Proposition 65

Chemical Name (CAS No.)	Carcinogenicity	Developmental Toxicity	Female Reproductive Toxicity	Male Reproductive Toxicity
Chlorine (7782-50-5)	No	No	No	No

### State Right-To-Know Lists

<b>Chlorine (7782-50-5)</b>
U.S. - Massachusetts - Right To Know List - Yes
U.S. - New Jersey - Right to Know Hazardous Substance List - Yes
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List - Yes
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances - No
U.S. - Pennsylvania - RTK (Right to Know) List - Yes

### Canadian Regulations

<b>Chlorine (7782-50-5)</b>
Listed on the Canadian DSL (Domestic Substances List)
Not listed on the Canadian NDSL (Non-Domestic Substances List)

### International Inventories/Lists

Chemical Name (CAS No.)	Australia AICS	Turkey CICR	Korea ECL	EU EINECS	EU ELINCS	EU SVHC	EU NLP	Mexico INSQ
Chlorine (7782-50-5)	Yes	Yes	Yes	Yes	No	No	No	Yes
Chemical Name (CAS No.)	China IECS	Japan ENCS	Japan ISHL	Japan PDSCL	Japan PRTR	Philippines PICCS	New Zealand	US TSCA



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							<b>NZIOC</b>	
Chlorine (7782-50-5)	Yes	No	No	Yes	No	Yes	Yes	Yes

### SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

**Date of Preparation or Latest Revision** : 07/18/2017

**Other Information** : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR).

#### Revision Summary

Section	Change	Date Changed

#### GHS Full Text Phrases:

Acute Tox. 2 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 2
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Eye Dam. 1	Serious eye damage/eye irritation Category 1
HHNOC 1	Health hazard not otherwise classified, category 1
Ox. Gas 1	Oxidizing gases Category 1
Press. Gas (Liq.)	Gases under pressure Liquefied gas
Skin Corr. 1A	Skin corrosion/irritation Category 1A
H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H330	Fatal if inhaled
H400	Very toxic to aquatic life

#### NFPA 704

- NFPA Health Hazard** : 4 - Materials that, under emergency conditions, can be lethal.
- NFPA Fire Hazard** : 0 - Materials that will not burn under typical dire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.
- NFPA Reactivity Hazard** : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.
- NFPA Specific Hazards** : OX - Materials that posses oxidizing properties.



#### HMIS Rating

- Health** : 4 Severe Hazard - Life-threatening, major or permanent damage may result from single or repeated overexposures
- Flammability** : 0 Minimal Hazard
- Physical** : 1 Slight Hazard
- PPE** : See Section 8

#### NSF® - 60

This product has been certified to NSF/ANSI 60 for a Maximum Use Level (MUL) of 30 mg/L.

#### Abbreviations and Acronyms

AICS – Australian Inventory of Chemical Substances

ACGIH – American Conference of Governmental Industrial Hygienists

AIHA – American Industrial Hygiene Association

ATE - Acute Toxicity Estimate

LC50 - Median Lethal Concentration

LD50 - Median Lethal Dose

LOAEL - Lowest Observed Adverse Effect Level

LOEC - Lowest-observed-effect Concentration

# Chlorine

## Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

BCF - Bioconcentration factor	Log Pow - Octanol/water Partition Coefficient
BEI - Biological Exposure Indices (BEI)	NFPA 704 - National Fire Protection Association - Standard System for the Identification of the Hazards of Materials for Emergency Response
CAS No. - Chemical Abstracts Service number	NIOSH - National Institute for Occupational Safety and Health
CERCLA RQ - Comprehensive Environmental Response, Compensation, and Liability Act - Reportable Quantity	NLP - Europe No Longer Polymers List
CICR - Turkish Inventory and Control of Chemicals	NOAEL - No-Observed Adverse Effect Level
DOT - 49 CFR - US Department of Transportation - Code of Federal Regulations Title 49 - Transportation.	NOEC - No-Observed Effect Concentration
EC50 - Median effective concentration	NZIOC - New Zealand Inventory of Chemicals
ECL - Korea Existing Chemicals List	OEL - Occupational Exposure Limits
EINECS - European Inventory of Existing Commercial Chemical Substances	OSHA - Occupational Safety and Health Administration
ELINCS - European List of Notified Chemical Substances	PEL - Permissible Exposure Limits
EmS - IMDG Emergency Schedule Fire & Spillage	PICCS - Philippine Inventory of Chemicals and Chemical Substances
ENCS - Japanese Existing and New Chemical Substances Inventory	PDSCL - Japan Poisonous and Deleterious Substances Control Law
EPA - Environmental Protection Agency	PPE - Personal Protective Equipment
EPCRA 304 RQ - EPCRA 304 Extremely Hazardous Substance Emergency Planning and Community Right-to-Know-Act - Reportable Quantity	PRTR - Japan Pollutant Release and Transfer Register
ERAP Index - Emergency Response Assistance Plan Quantity Limit	REL - Recommended Exposure Limit
ErC50 - EC50 in Terms of Reduction Growth Rate	SADT - Self Accelerating Decomposition Temperature
ERG code (IATA) - Emergency Response Drill Code as found in the International Civil Aviation Organization (ICAO)	SARA - Superfund Amendments and Reauthorization Act
ERG No. - Emergency Response Guide Number	SARA 302 - Section 302, 40 CFR Part 355
HCCL - Hazard Communication Carcinogen List	SARA 311/312 - Sections 311 and 312, 40 CFR Part 370 Hazard Categories
HMIS - Hazardous Materials Information System	SARA 313 - Section 313, 40 CFR Part 372
IARC - International Agency for Research on Cancer	SRCL - Specifically Regulated Carcinogen List
IATA - International Air Transport Association - Dangerous Goods Regulations	STEL - Short Term Exposure Limit
IDLH - Immediately Dangerous to Life or Health	SVHC - European Candidate List of Substance of Very High Concern
IECSC - Inventory of Existing Chemical Substances Produced or Imported in China	TDG - Transport Canada Transport of Dangerous Goods Regulations
IMDG - International Maritime Dangerous Goods Code	TLM - Median Tolerance Limit
INSQ - Mexican National Inventory of Chemical Substances	TLV - Threshold Limit Value
ISHL - Japan Industrial Safety and Health Law	TPQ - Threshold Planning Quantity
	TSCA - United States Toxic Substances Control Act
	TWA - Time Weighted Average
	WEEL - Workplace Environmental Exposure Levels

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