



ACCORDING TO US CFR 1910.1200

**1. SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

## 1.1 Product identifier

Product Name	CHLORINE
Synonyms	Cl <sub>2</sub> ; Bertholite; Chloor; Chlor; Chlore; Chlorine mol.; Cloro
CAS No.	7782-50-5
EC No.	231-959-5

## 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s)	Industrial gas.
Uses Advised Against	Not known.

## 1.3 Details of the supplier of the safety data sheet

Company Identification	Hudson Technologies Company
Address	PO Box 1541 One Blue Hill Plaza Pearl River, New York USA
Postal code	10965
Telephone:	+1 (800) 953 2244
Fax	+1 (845) 512 6070
E-mail	information@hudsontech.com

## 1.4 Emergency telephone number

Emergency Phone No.	+1 (800) 501 4376
CHEMTREC (U.S.)	+1 (800) 424 9300
INTERNATIONAL	+1 (703) 527 3887

**2. SECTION 2: HAZARDS IDENTIFICATION**

2.1 Classification of the substance or mixture

US CFR 1910.1200                      MAY CAUSE OR INTENSIFY FIRE; OXIDIZER. H270  
CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED.  
H280  
CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. H314  
FATAL IF INHALED. H330  
\*VERY TOXIC TO AQUATIC LIFE. H400  
CORROSIVE TO THE RESPIRATORY TRACT. CGA-HG22

2.2 Label elements

Product Name                              CHLORINE

Hazard Pictogram(s)



Signal Word(s)                              Danger.

Hazard Statement(s)                      H270: May cause or intensify fire; oxidizer.  
H280: Contains gas under pressure; may explode if heated.  
H314: Causes severe skin burns and eye damage.  
H330: Fatal if inhaled.  
H400: Very toxic to aquatic life.  
CGA-HG22: Corrosive to the respiratory tract.  
Causes severe skin burns and eye damage.

Precautionary Statement(s)              Do not handle until all safety precautions have been read and  
understood. P202  
Keep valves and fittings free from grease and oil. P244  
Do not breathe gas. P260  
P264: Wash hands thoroughly after handling.  
P271+P403: Use and store only outdoors or in a well-ventilated  
place.



P273: \*Avoid release to the environment.

P280+P284: Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection.

P304, P340, P310: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

P305, P351, P338, P310: 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 or doctor/physician.

P303, P361, P353, P363, P310: IF ON SKIN (OR HAIR): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.

P370+P376+P405: In case of fire: Stop leak if safe to do so. Store locked up.

P501: Dispose of contents/container in accordance with container supplier/owner instructions.

### 2.3 Other hazards

None.

### 2.4 Additional Information

CGA-PG05: Use a back flow preventive device in the piping.

CGA-PG20+CGA-PG10: Use only with equipment of compatible materials of construction and rated for cylinder pressure.

CGA-PG12: Do not open valve until connected to equipment prepared for use.

CGA-PG18: When returning cylinder, install leak tight valve outlet cap or plug.

CGA-PG06: Close valve after each use and when empty.

CGA-PG02: Protect from sunlight when ambient temperature exceeds 52 °C (125 °F).

CGA-PG27: Read and follow the Safety Data Sheet (SDS) before use.

This SDS is available in languages other than English.

**3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

HAZARDOUS INGREDIENT(S)	Common Names	CAS No.	%W/W	Hazard Statement(s)	Hazard Pictogram(s)
Chlorine	Cl <sub>2</sub> ; Bertholite; Chloor; Chlor; Chlore; Chlorine mol.; Cloro	7782-50-5	100	Ox. Gas 1; H270 Press. Gas, Liquefied gas; H280 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Acute Tox. 3; H331 STOT SE 3; H335 Aquatic Acute 1; H400	GHS04 GHS03 GHS05 GHS07 GHS06 GHS09

**4. SECTION 4: FIRST AID MEASURES**

4.1 Description of first aid measures

- Inhalation IF INHALED: Remove person to fresh air and keep comfortable for breathing. Administer oxygen if available and artificial respiration if necessary. Call a POISON CENTER/doctor.
- Skin Contact IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention.
- Eye Contact IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
- Ingestion Unlikely route of exposure.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: High concentrations: Choking, burning of throat, severe irritation of upper respiratory tract, pulmonary oedema.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

**5. SECTION 5: FIREFIGHTING MEASURES**

5.1 Extinguishing media



Suitable Extinguishing media As appropriate for surrounding fire.

Unsuitable extinguishing media None.

#### 5.2 Special hazards arising from the substance or mixture

Contains gas under pressure; may explode if heated. May accelerate combustion. May react with combustible substances creating fire or explosion hazard. Decomposition products may include halogen compounds.

#### 5.3 Advice for fire-fighters

Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep containers cool by spraying with water if exposed to fire. If it is safe to do so, containers should be removed from fire area because they are likely to rupture under fire conditions.

### 6. SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1 Personal precautions, protective equipment and emergency procedures

Evacuate area. Use only outdoors or in a well-ventilated area. Shut off leaks if without risk. Remove all combustible materials from affected area. Avoid breathing gas. Wear protective gloves/ protective clothing/eye protection/face protection.

#### 6.2 Environmental precautions

Avoid release to the environment.

#### 6.3 Methods and material for containment and cleaning up

Allow small spillages to evaporate provided there is adequate ventilation.

#### 6.4 Reference to other sections

See Also Section 8, 13.

### 7. SECTION 7: HANDLING AND STORAGE

#### 7.1 Precautions for safe handling

Provide adequate ventilation. Keep/Store away from clothing/combustible materials. Keep valves and fittings free from oil and grease. Avoid breathing gas. Use only outdoors or in a well-ventilated area. Do not drag, roll, slide or drop cylinders. Secure cylinders in an upright position at all times, close all valves when not in use. Keep closed even when empty. Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Take off contaminated clothing and wash it before reuse.

7.2 Conditions for safe storage, including any incompatibilities

Protect from sunlight. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Storage temperature

<122°F (<50°C)

Storage life

Stable under normal conditions.

Incompatible materials

Combustible materials, Reducing agent, metal, Organic material.

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

8.1 Control parameters

Occupational Exposure Limits

SUBSTANCE.	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Chlorine	7782-50-5			0.5	1.42	NIOSH
Chlorine	7782-50-5			1	3	OSHA

Remark

Footnote

NIOSH

National Institute for Occupational Safety and Health

OSHA

Occupational Safety and Health Administration

8.2 Exposure controls

Appropriate engineering controls Provide adequate ventilation, including appropriate local extraction.

A washing facility/water for eye and skin cleaning purposes should be present.

Personal protection equipment



Eye Protection

Wear suitable eye/face protection.



Skin protection

Wear suitable gloves.



Respiratory protection

Wear suitable respiratory protective equipment.

Thermal hazards

Not applicable.

**9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

9.1 Information on basic physical and chemical properties

Appearance

Gas.  
Color: Greenish/Yellow.

Odor

Pungent.

Odor threshold

0.1-0.2 ppm

pH

Not applicable.

Melting point/freezing point

-145 °F (-101.1 °C)

Initial boiling point and boiling range

-29.4°F (-34.1 °C)

Flash Point

Not applicable.

Evaporation rate

Not known.

Flammability (solid, gas)

Non-flammable. May accelerate combustion.

Upper/lower flammability or explosive limits

Not applicable.

Vapor pressure

6780 hPa @ 20°C (68°F)

Vapor density

Not known.

Density (g/ml)

3.21 kg/m<sup>3</sup>

Relative density

Not available.

Solubility(ies)

Solubility (Water) : Soluble.  
Solubility (Other): Not available.



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Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not applicable.
Decomposition Temperature (°C)	Not available.
Viscosity	Not applicable.
Explosive properties	Not explosive.
Oxidizing properties	May cause or intensify fire; oxidizer.
9.2 Other information	None.

**10. SECTION 10: STABILITY AND REACTIVITY**

10.1 Reactivity	Stable under normal conditions.
10.2 Chemical Stability	Stable under normal conditions.
10.3 Possibility of hazardous reactions	May react with combustible substances creating fire or explosion hazard.
10.4 Conditions to avoid	Keep away from heat and direct sunlight.
10.5 Incompatible materials	Combustible materials, Reducing agent, metal, Organic material.
10.6 Hazardous decomposition product(s)	No hazardous decomposition products known.

**11. SECTION 11: TOXICOLOGICAL INFORMATION**

11.1 Information on toxicological effects	
Acute toxicity - Ingestion	Low acute toxicity.
Acute toxicity - Skin Contact	Low acute toxicity.
Acute toxicity - Inhalation	Toxic if inhaled. LC50 (rat) = 834 mg/m <sup>3</sup>
Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/irritation	Causes serious eye irritation.
Skin sensitization data	Not classified.
Respiratory sensitization data	Not classified.
Germ cell mutagenicity	There is no evidence of mutagenic potential.





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Carcinogenicity	No evidence of carcinogenicity.
Reproductive toxicity	Not classified.
Lactation	Not classified.
STOT - single exposure	May cause respiratory irritation.
STOT - repeated exposure	None anticipated.
Aspiration hazard	Not classified.
11.2 Other information	Not known.

## 12. SECTION 12: ECOLOGICAL INFORMATION

### 12.1 Toxicity

Toxicity - Aquatic invertebrates	Very toxic to aquatic life.
Toxicity - Fish	Very toxic to aquatic life.
Toxicity - Algae	Very toxic to aquatic life.
Toxicity - Sediment	Not classified.

### Compartment

Toxicity - Terrestrial	Not classified.
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### Compartment

### 12.2. Persistence and Degradation

No adverse ecological effects are expected.

### 12.3. Bioaccumulative potential

No adverse ecological effects are expected.

### 12.4. Mobility in soil

Not applicable.

### 12.5 Other adverse effects

Not known.

## 13. SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

Containers must not be punctured or destroyed by burning, even when empty. Refer to manufacturer/supplier for information on recovery/recycling.

### 13.2 Additional Information

Disposal should be in accordance with local, state or national legislation.

## 14. SECTION 14: TRANSPORT INFORMATION



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14.1 UN number

UN No. 1017

14.2 UN proper shipping name

UN proper shipping name CHLORINE

14.3 Transport hazard class(es)

ADR/RID Class 2.2

IMDG Class 2.2

IMDG EMS Not available

ICAO/IATA

Excepted Quantities Not applicable

Passenger and Cargo Aircraft Forbidden for transport by air.

Limited Quantities Packing

Instructions

Passenger and Cargo Aircraft Forbidden for transport by air.

Limited Quantities Max net Qty

Passenger and Cargo Aircraft Forbidden for transport by air.

Max net Qty

Passenger and Cargo Aircraft Forbidden for transport by air.

Max net Qty

Cargo Aircraft Packing Forbidden for transport by air.

Instructions

Cargo Aircraft Max net Qty Forbidden for transport by air.

Special Provisions A2

Emergency Response 2PX

Guidebook (ERG) Code

ADR Classification Code 2TOC

ADR HIN 265

ADR Transport Category 1


Tunnel Restriction Code C/D

Emergency Action Code 2XE

Advice on Additional Personal A(c)

Protection (APP)

14.4 Packing group

Packing group	Not applicable
Labels	2.3 +5.1 +8
	
Special Provisions	Not applicable
Limited Quantities	0
Excepted Quantities	E0
Mixed Packing Instructions for Packages	P200
Special Packing Provisions for Packages	Not applicable
Mixed Packing Instructions for Packages	MP9
14.5 Environmental hazards	
Environmental hazards	Classified as a Marine Pollutant.
14.6 Special precautions for user	
Special precautions for user	Not known.
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	
Packing Instructions for Portable Tanks	(M) T50
Special Provisions for Portable Tanks	TP19
Tank Code for Tanks	P22DH(M)
Special Provisions for Tanks	TA4 TT9 TT10
Vehicle for Tank Carriage	AT
Special Provisions for Carriage - Packages	Not applicable
Special Provisions for Carriage - Bulk	Not applicable
Special Provisions for Carriage - Loading, Unloading and Handling	CV9 CV10 CV36
Special Provisions for Carriage - Operation	S14

**15. SECTION 15: REGULATORY INFORMATION**



### 15.1 Federal

Toxic and hazardous substances Chlorine (CAS No.: 7782-50-5)  
(29 CFR 1910; Subpart Z )

National emission standards for Not listed.

hazardous air pollutants (40 CFR

61.01)

Title III Consolidated List of Lists Chlorine (CAS No.: 7782-50-5)

TSCA (Toxic Substance Control Chlorine (CAS No.: 7782-50-5)

Act)

CAA 602 - Ozone Depleting Not listed.

Substances (ODS)

### 15.2 State

State Right to Know Lists Listed in: New Jersey, Pennsylvania, Rhode Island, Minnesota.

Proposition 65 (California) Not listed.

### 15.3 Other

OSPAR List of Chemicals for Not listed.

Priority Action

NTP (National Toxicology Not listed.

Program)

OSHA Chlorine (CAS No.: 7782-50-5)

(List of Highly Hazardous

Chemicals, Toxics and

Reactives)

IARC (International Agency for Not listed.

Research on Cancer)

## 16. SECTION 16: OTHER INFORMATION

The following sections contain 1-16 revisions or new statements:

NFPA		HMIS	
Health	4	Health	4
Fire	0	Flammability	0
Instability	0	Physical hazards	0

LEGEND:

Hazard Pictogram(s)



GHS03



GHS04



GHS05



GHS06



GHS09

Hazard Statement(s)

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.

H331: Toxic if inhaled.

H335: May cause respiratory irritation.

H400: Very toxic to aquatic life.

Precautionary Statement(s)

P220: Keep/Store away from clothing//combustible materials.

P244: Keep valves and fittings free from oil and grease.

P261: Avoid breathing gas.

P264: Wash hands thoroughly after handling.

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352: IF ON SKIN: Wash with plenty of water.

P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.



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P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P311: Call a POISON CENTER/doctor.

P332+P313: If skin irritation occurs: Get medical advice/attention.

P337+P313: If eye irritation persists: Get medical advice/attention.

P362+P364: Take off contaminated clothing and wash it before reuse.

P403+P233: Store in a well-ventilated place. Keep container tightly closed.

P405: Store locked up.

P410+P403: Protect from sunlight. Store in a well-ventilated place.

Additional Information required by Federal Standard 313 Rev. E:

Contract or Solicitation Number: SPE4A6-16-D-0226

Prime Contractor: Hudson Technologies, Inc.

Prime Contractor CAGE: 7DSQ0

National Stock Number (NSN): 6830002813464

Specification Reference:

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