

**1 – PRODUCT and COMPANY IDENTIFICATION**

**PRODUCT NAME:**..... CHLORINE,2.3, UN1017, RQ (JC)

**PRODUCT NUMBER:**.....07901

**CHEMICAL NAME/CLASS/SYNONYMS:** .....CHLORINE

**RECOMMENDED USE:**..... CHLORINATING AND OXIDIZING AGENT, WATER TREATMENT CHEMICALS, PHARMACEUTICAL, SYNTHESIS, DISINFECTANTS AND GENERAL BIOCIDAL PRODUCTS, PLASTICS

**DISTRIBUTOR:** **VIKING CHEMICAL**  
1827 - 18TH AVENUE  
P.O. BOX 1595  
ROCKFORD, IL 61110  
(815) 397-0500

**EMERGENCY PHONE:** ..... (800) 424-9300 (CHEMTREC)

**2 – HAZARDS IDENTIFICATION**

**GHS CLASSIFICATION:**

Oxidizing Gases (1) Gases Under Pressure (Liquefied Gas)  
Acute Aquatic Toxicity (1)  
Acute Toxicity Inhalation (2)  
Skin Corrosion/Irritation (1A)  
Serious Eye Damage/Eye Irritation (1)  
Target Organ Toxicity- Single Exposure (3)

**GHS LABEL:**



**SIGNAL WORD:** ..... Danger

**HAZARD STATEMENTS:**

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

**PRECAUTIONARY STATEMENTS:**

P202: Do not handle until all safety precautions have been read and understood  
P244: Keep valves and fittings free from oil and grease.

P260: Do not breathe dust/fume/gas/mist/vapors/spray  
 P264: Wash exposed area 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  
 P284: [In case of inadequate ventilation] wear respiratory protection  
 P370+376: In case of fire: Stop leak if safe to do so  
 P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 P301+330+331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting  
 P303+361+353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
 P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing  
 P310: Immediately call a POISON CENTER/doctor/physician  
 P320: Specific treatment is urgent.  
 P363: Wash contaminated clothing before reuse  
 P403+233: Store in a well ventilated place. Keep container tightly closed  
 P405: Store locked up  
 P501: Dispose of contents/container to comply with local, state and federal regulations

### 3 – COMPOSITION / INFORMATION ON INGREDIENTS

**SUBSTANCE/MIXTURE:**

CHEMICAL NAME	CAS NUMBER	Wt/Wt%
CHLORINE	7782-50-5	98-100%

### 4 – FIRST-AID MEASURES

**INHALATION:**..... Move to fresh air. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration. **SEEK IMMEDIATE MEDICAL ATTENTION!**  
**EYE CONTACT:** ..... Rinse eyes gently with water for at least 15 minutes while holding eyelids apart. Remove contact lenses, if present and easy to do - continue rinsing. Seek immediate medical attention.  
**SKIN CONTACT:** ..... Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Seek immediate medical attention. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.  
**INGESTION:** ..... Ingestion is not a typical route of exposure for gases or liquefied gases. Contact with liquid form may cause frostbite. Immediately call a poison control center or doctor for treatment advice.  
**NOTE TO PHYSICIANS:** ..... For liquid contact, treat the affected person for frostbite if necessary. If the product is ingested, probable mucosal damage may contraindicate the use of gastric lavage. Treat the affected person appropriately. Provide general supportive measures and treat symptomatically. Symptoms may be delayed.

**5 – FIRE-FIGHTING MEASURES**

**EXTINGUISHING MEDIA:** ..... Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: Direct water spray. Direct water spray jet.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** .....May cause fire or explosion; strong oxidizer. Contents under pressure. Pressurized container may explode when exposed to heat or flame. Contact with reactive metals e.g., aluminum, zinc and tin may result in the generation of flammable hydrogen gas. Water used for fire extinguishing, which has been in contact with the product, may be corrosive. Water spray on active leak may promote accelerated corrosion of container and accelerate rate of leakage.

**SPECIAL FIRE FIGHTING PROCEDURES:** .....In case of fire and/or explosion do not breathe fumes. Remove pressurized gas cylinders from the immediate vicinity. Cylinders can burst violently when heated, due to excess pressure build-up. Cool containers / tanks with water spray. Evacuate area and fight fire remotely due to the risk of explosion. Firefighters should wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to: boots gloves, hard hat, splash-proof goggles, full face shield and impervious clothing, i.e. chemically impermeable suit. Compatible materials for response to this material are neoprene and butyl rubber.

**6 – ACCIDENTAL RELEASE MEASURES**

**PERSONAL PRECAUTIONS:** ... Immediately evacuate personnel to safe areas. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Keep people away from and upwind of spill/leak. Keep out of low areas. Keep unnecessary personnel away. Ventilate closed spaces before entering them. Wear appropriate protective equipment and clothing during clean-up. Local authorities should be advised if significant spillages cannot be contained. 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 material unless wearing appropriate protective clothing. Responders can reference Chlorine Institute pamphlet #65 on PPE.

**ENVIRONMENTAL PRECAUTIONS:** .....Avoid discharge into drains, water courses or onto the ground. Contact local authorities in case of spillage to drain/aquatic environment.

**MEASURES FOR CONTAINMENT AND CLEANING UP:** Extinguish all flames in the vicinity. Keep combustibles (wood, paper, oil, etc.) away from spilled material. Ventilate well, stop flow of gas or liquid if possible. If possible, turn leaking containers so that gas escapes rather than liquid. Dike far ahead of spill for later disposal. Isolate area until gas has dispersed. Neutralize spilled material with crushed limestone, soda ash or lime. Collect spillage. Never return spills to original containers for re-use. Clean up in accordance with all applicable regulations.

**7 – HANDLING and STORAGE**

**PRECAUTIONS FOR SAFE HANDLING:** .....Avoid heat, sparks, open flames and other ignition sources. Keep away from clothing and other combustible materials. Use only chlorine-compatible lubricants. Do not use greases and oils. Do not breathe gas. Do not get in eyes, on skin, on clothing. Use in a sealed system and/or a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Avoid release to the environment.

**PRECAUTIONS FOR SAFE STORAGE, INCLUDING INCOMPATIBILITIES:** Contents under pressure. Keep away from heat, sparks and open flame. Secure cylinders in an upright position at all times, close all valves when not in use. Store in a well-ventilated place. Store away from incompatible materials. Store at temperatures not exceeding 55°C/131°F. For the above specified temperature the system pressure is 225 psig (1551kPa).

**8 – EXPOSURE CONTROLS / PERSONAL PROTECTION**

**OCCUPATIONAL EXPOSURE LIMITS:**  
**COMPONENT (CAS NUMBER):** CHLORINE (7782-50-5)  
**ACGIH** ..... 0.5ppm TWA, 1ppm STEL  
**OSHA** ..... 3 mg/m3/ 1ppm Ceiling

**APPROPRIATE ENGINEERING CONTROLS:** .....Should be handled in closed systems, if possible. Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation. Eye wash facilities and emergency shower must be available when handling this product.

**PERSONAL PROTECTIVE EQUIPMENT:**  
**RESPIRATORY PROTECTION:** .....If exposure limits are exceeded, NIOSH approved respiratory protection should be worn. A NIOSH approved respirator for organic vapors is generally acceptable for concentrations up to 10 times the PEL. For higher concentrations, unknown concentrations and for oxygen deficient atmospheres, use a NIOSH approved air-supplied respirator. Engineering controls are the preferred means for controlling chemical exposures. Respiratory protection may be needed for non-routine or emergency situations. Respiratory protection must be provided in accordance with OSHA 29 CFR 1910.134.

**SKIN PROTECTION:** .....Avoid skin contact. Wear gloves impervious to conditions of use. Additional protection may be necessary to prevent skin contact including use of apron, face shield, boots or full body protection. A safety shower should be located in the work area.

**EYE PROTECTION:** .....Wear goggles/face shield. Gas-proof goggles are recommended.

**ADDITIONAL MEASURES:** .....Ensure that eyewash stations and safety showers are close to the workstation location.

**9 – PHYSICAL / CHEMICAL PROPERTIES**

**APPEARANCE/ODOR:** ..... Compressed liquefied gas/ Yellow green./ Pungent Odor  
**ODOR THRESHOLD:** ..... 1.7 ppm

**pH:** ..... N.A.  
**MELTING/FREEZING POINT:** -149.8 °F (-101 °C) (1 atm)  
**BOILING POINT/RANGE:** -29.27 °F (-34.04 °C) (1 atm)  
**FLASH POINT:**..... N.A.  
**EVAPORATION RATE:**..... N.A.  
**FLAMMABILITY:** ..... N.A.  
**LOWER EXPLOSIVE LIMIT:** .. N.A.  
**UPPER EXPLOSIVE LIMIT:** .... N.A.  
**VAPOR PRESSURE:**..... 113 psia (25°C/77°F)  
779 kPa (25 °C/77 °F)  
4800 mm Hg (25°C/77°F)  
**VAPOR DENSITY (AIR=1):**..... 2.5  
**SPECIFIC GRAVITY OR RELATIVE DENSITY::**....N.A.  
**SOLUBILITY(IES):** 0.73 g/100g H2O (20°C/68°F) (760 mm Hg)  
**PARTITION COEFFICIENT:** ... N.A.  
**AUTOIGNITION TEMP:** ..... N.A.  
**DECOMPOSITION TEMP:** ..... N.A.

**10 – STABILITY and REACTIVITY**

**STABILITY:** ..... Stable under normal temperature conditions and recommended use.  
**POSSIBILITY OF HAZARDOUS REACTIONS:**.....Contact with combustible material may cause fire.  
Hazardous polymerization does not occur.  
**CONDITIONS TO AVOID:** Avoid heat, sparks, open flames and other ignition sources. Titanium will react vigorously, resulting in spontaneous ignition, when contacted by Dry Chlorine. Combustion will be supported in carbon steel systems and equipment containing a Chlorine environment at temperatures greater than 480 °F (248.9 °C). Properly purge systems and equipment PRIOR to conducting Hot Work.  
**INCOMPATIBLE MATERIALS:** .....Reducing agents. Organic material. Alkalis.  
**HAZARDOUS DECOMPOSITION PRODUCTS:**.....N.A. Hydrogen chloride. Hypochlorous acid.

**11 – TOXICOLOGICAL INFORMATION**

**ROUTES OF EXPOSURE:** ..... Inhalation, ingestion, skin and/or eye contact.  
**SYMPTOMS OF EXPOSURE:**  
**SKIN CONTACT:** ..... Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling.  
**EYE CONTACT:** ..... Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling. Can cause blurred vision, redness, pain, severe tissue burns and eye damage.  
**INHALATION:** ..... Fatal if inhaled. Irritating to respiratory system.  
**INGESTION:** ..... Causes digestive tract burns.  
**ACUTE TOXICITY:**  
**LD/LC50 VALUES THAT ARE RELEVANT FOR CLASSIFICATION:**  
ORAL LD50 ..... N.A.  
DERMAL LD50 ..... N.A.  
INHALATION LC50 ..... (1h) Rat 293 ppm

**ADDITIONAL TOXICOLOGICAL INFORMATION:**

**CARCINOGENIC CATEGORIES:**.....This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

**GERM CELL MUTAGENICITY:**..... No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**REPRODUCTIVE TOXICITY:** ..... No data available.

**CHRONIC EFFECTS:**..... Prolonged exposure may cause chronic effects.

**FURTHER INFORMATION:**..... Be aware that symptoms of lung edema (shortness of breath) may develop up to 24 hours after exposure.

**12 – ECOLOGICAL INFORMATION**

**ECOTOXICITY (AQUATIC AND TERRESTRIAL, WHERE AVAILABLE):**

Crustacea ..... LC50 Pacific oyster (*Crassostrea gigas*) 637.5 mg/l, 1 hours  
Water flea (*Daphnia magna*) 0.017 mg/l, 46 hours

Fish ..... LC50 Bluegill (*Lepomis macrochirus*) 0.44 mg/l, 96 hours  
Bullhead, catfish (*Ictalurus sp.*) 0.07 mg/l, 96 hours  
Yellow perch (*Perca flavescens*) 0.88 mg/l, 1 hours

**PERSISTENCE AND DEGRADABILITY:** .....No data available.

**BIOACCUMULATIVE POTENTIAL:**.....Will not bio-accumulate.

**MOBILITY IN SOIL:** ..... The Gas will disperse in the air. This product is miscible in water.

**OTHER ADVERSE EFFECTS:** . No data available.

**13 –DISPOSAL CONSIDERATIONS**

**WASTE DISPOSAL:**..... Product should be disposed in an environmentally safe manner in accordance with local, state and federal regulations. Since emptied cylinders may retain product residue, follow label warnings even after cylinder is emptied.

Hazardous waste code: D002: Waste Corrosive material [pH <=2 or >=12.5, or corrosive to steel]

**UNCLEANED PACKAGING:**....'Empty' containers retain residue (liquid and/or vapor) and may be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION: THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. 'Empty' drums should be completely drained, properly bunged and should be disposed of in an environmentally safe manner and in accordance with local, state and governmental regulations. For work on tanks, please refer to Occupational Safety and Health Administration regulations. ANSI Z49.1, and other governmental and industrial references pertaining to cleaning, repairing, welding, or other governmental and industrial contemplated operations.

**14 – TRANSPORTATION INFORMATION**

UN/NA NUMBER: ..... UN1017  
UN PROPER SHIPPING NAME: .....CHLORINE  
TRANSPORT HAZARD CLASS: .....2.3 (5.1) & (8)  
PACKAGING GROUP : ..... N.A.  
  
MARINE POLLUTANT: ..... YES  
REPORTABLE QUANTITY:..... 10 LB  
SPECIAL PRECAUTIONS: ..... Read safety instructions, SDS and emergency procedures before handling.

**15 – REGULATORY INFORMATION**

Contents of this SDS comply with the OSHA Hazard Communication Standard 29CFR 1910.1200

EPA SARA Title III Chemical Listings:

**HAZARD CATEGORIES:**

Immediate Hazard - Yes  
Delayed Hazard - Yes  
Fire Hazard - No  
Pressure Hazard - Yes  
Reactivity Hazard - Yes  
  
SARA 302 Extremely hazardous substance: Yes  
SARA 311/312 Hazardous chemical: Yes  
SARA 313 (TRI reporting): Listed: Chlorine

**OTHER FEDERAL REGULATIONS:**

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List  
CHLORINE (CAS 7782-50-5)  
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)  
CHLORINE (CAS 7782-50-5)  
Clean Water Act (CWA)  
Section 112(r) (40 CFR 68.130)  
Hazardous substance  
Safe Drinking Water Act (SDWA)  
4 mg/l  
4.0 mg/l  
Food and Drug Administration (FDA)  
Not regulated

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)  
Not regulated.

**16 – OTHER INFORMATION**

PREVIOUS SDS REVISION DATE: .....5/15/15

**ABBREVIATIONS AND ACRONYMS:**

ACGIH - American Conference of Governmental Industrial Hygienists

CAS - Chemical Abstract Service Number

DOT - U.S. Department of Transportation

IDLH - Immediately dangerous to life and health

N.A. - Not Available

NIOSH - National Institute of Occupational Safety and Health

NTP - National Toxicology Program

OSHA - Occupational Safety and Health Administration

PEL - Permissible exposure Limit

ppm - Parts per million

RCRA - Resource Conservation and Recovery Act

SARA - Superfund Amendments and Reauthorization Act

TLV - Threshold Limit Value

TSCA - Toxic Substances Control Act

**DISCLAIMER:** The information contained herein is accurate to the best of our knowledge. No warranty of any kind, expressed or implied, concerning the safe use of this material in your process or in combination with other substances.