



86 North Hackensack Avenue,
Kearny, NJ 07032-4675
Tel. 973-589-0700
Fax. 973-589-4866
www.kuehnecompany.com

(This SDS follows the GHS format)

CHLORINE

SDS NUMBER: KCC – CL2 - 001

SDS DATE: June 6, 2022

24 HOUR EMERGENCY PHONE NUMBER: **(973) 589-0700**
Alt. (551) 200-2751
CHEMTREC – (800) 424-9300

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Chlorine

Chemical Name: Chlorine

CAS Number: 7782-50-5

Common Names: Chlorine

Chemical Formula: Cl₂

Company: Kuehne Chemical Company, Inc.
86 North Hackensack Avenue
South Kearny, New Jersey 07032-4673
(973) 589-0700 Fax: (973) 589-4866

Manufacturer: In addition to Kuehne Chemical Company manufactured product, Kuehne Chemical Company also utilizes various suppliers for this product. For specific information concerning the manufacturer of this product please call the company phone number listed above.

SECTION 2 – HAZARD(S) IDENTIFICATION

Category 1

Symbol(s):



Signal Word: Danger

Corrosive to metals: Category 1
Skin Corrosion: Category 1
Serious Eye Damage: Category 1
Acute Toxicity: Category 2 – Fatal if inhaled

Hazard Statements: H270 - May cause or intensify fire; oxidizer
H280 - Gas under pressure, may explode if heated
H290 - May be corrosive to metals
H314 – Causes severe skin burns and eye damage
H330 - Fatal if inhaled
H400 - Very toxic to aquatic life

HMIS HAZARD RATINGS

HEALTH	3
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	

Based on Nat'l Paint & Coatings Association HMIS system

NFPA HAZARD RATINGS



Chemical not listed. Ratings based on NFPA guidelines

Effects of Exposure

Acute: Inhalation – Coughing, burning, chest pain, vomiting, headache, anxiety and feeling of suffocation. Severe exposure may cause pneumonia and pulmonary edema.

Eyes – High concentrations or contact causes burns.

Skin – Contact may cause burns and tissue destruction. Contact with cold liquid or gas can produce freeze burns.

Ingestion – Is not a likely route of exposure.

Chronic: Exposure above the established exposure limits may cause reduced breathing capacity.

Note: Can react explosively with organic products.

Appearance: Amber color liquid, Greenish yellow gas

Routes of Entry: Inhalation, Eye Contact, Skin

Target Organs: Eyes, Skin, Respiratory Tract

Reproductive Effects: No information is available and no adverse reproductive effects are anticipated.

Cancer Information: The ingredient(s) of this product is (are) not classified as carcinogenic by ACGIH (American Conference of Governmental Industrial Hygienists) or IARC (International Agency for Research on Cancer), not regulated as carcinogens by OSHA (Occupational Safety and Health Administration), and not listed as carcinogens by NTP (National Toxicology Program).

Synergistic Materials: None known

Mutagenicity: There is no evidence of mutagenic potential.

Medical Conditions Aggravated by Exposure: Pre-existing respiratory disorders

SECTION 3 – COMPOSITION AND INFORMATION ON INGREDIENTS

CAS Number

7782-50-5

Name

Chlorine

Common Names

Chlorine

Percentage

VOL: 99.5 - 100

WT: 99.5 - 100

Exposure Limits

PEL: 1 ppm ceiling (OSHA)

TWA: 0.1 ppm (ACGIH)

STEL: 0.4 ppm (ACGIH)

IDLH: 10 ppm

SECTION 4 – FIRST AID MEASURES

- Inhalation:** Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If respiration stops, have a trained person administer artificial respiration. In case of excessive inhalation, maintain under observation for 48 hours due to risk of pulmonary edema. **SEEK MEDICAL ATTENTION IMMEDIATELY.**
- Eyes:** Immediately flush eyes with a directed stream of water for at least 15 minutes. **SEEK MEDICAL ATTENTION IMMEDIATELY.**
- Skin:** Look for inhalation effects first. Keep airway open if consciousness is impaired. Remove contaminated clothing under safety shower. Flush exposed skin with water for at least 15 minutes. Wash with soap and water. If irritation is present after washing, **SEEK MEDICAL ATTENTION IMMEDIATELY.**
- Ingestion:** If swallowed, do not induce vomiting. Give large quantities of water if the person is conscious. (If available give several glasses of milk.) If vomiting occurs spontaneously, keep airway clear and give more water. **SEEK MEDICAL ATTENTION IMMEDIATELY.**

Note to Physician

Treatment is symptomatic. Because there is no known antidote for chlorine gas inhalation, effective and immediate relief of symptoms is the primary goal. Steroid therapy, if given early, has been reported effective in preventing pulmonary edema.

SECTION 5 – FIRE-FIGHTING MEASURES

	Flash Point:	Not Applicable.
	Auto-ignition Temperature:	Nonflammable.
Flammable Limits in Air - % by Volume - Upper:		Nonflammable.

Extinguishing Media

Cool fire exposed containers with water spray. Use agents appropriate for surrounding fire.

Fire Fighting Procedures

Water spray should be used to cool containers. Keep water away from the leak source. If possible, remove containers from fire zone. Apply water to cool containers.

Fire and Explosion Hazard

Non-combustible in air but most combustible materials will burn in chlorine as they do in oxygen. Flammable gases and vapors will form explosive mixtures with chlorine. Reacts explosively or forms explosive compounds with many common chemicals especially acetylene, turpentine, ether, ammonia gas, fuel gas, hydrogen, hydrocarbons and finely divided metals. Containers will vent through fusible plugs at 71°C.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Steps to be Taken if Material is Released or Spilled

Evacuate unnecessary personnel. Keep unprotected personnel upwind of the spill area. Contain liquids and prevent discharges to streams or sewers.

Ventilation Requirements

General room ventilation plus local exhaust ventilation required. Provide ventilation in low-lying areas.

Methods for Cleaning Up

Move leaking container to an isolated area. Position to release gas NOT LIQUID. Chlorine can be absorbed into an alkaline solution such as caustic soda, soda ash, hydrated lime.

SECTION 7 – HANDLING AND STORAGE

Handling Precautions

Follow safety procedures for containers of compressed gas. Provide special training to workers handling chlorine. Avoid breathing vapor or gas. Locate safety shower and eyewash station close to chemical handling area but not too close to limit usage. Secure containers at all times. Leaks should be fixed promptly. Do not allow contact with materials as noted in Section 10.

Storage

Store in well-ventilated area of low fire potential and away from incompatible materials (see section 10). Keep away from heat and source of ignition. Protect containers from weather and physical damage.

Liquid levels should be less than 85% of tank or cylinder capacity.

Do Not Reuse Containers

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

Specific Personal Protective Equipment

Respiratory: Use supplied air respirator in positive pressure mode for tank and confined space entry. Wear a NIOSH/MSHA-approved organic vapor acid-gas respirator, follow manufacturer's recommendations.

Eye: Wear chemical splash goggles plus a full face-shield to protect against splashing when appropriate.

Gloves: Wear chemical resistant gloves such as rubber, neoprene, or vinyl. Wear protective clothing to minimize skin contact. Wherever there is a possibility of splash or contact wear a chemical resistant full body suit and boots.

Other: Emergency shower and eyewash facility should be in close proximity.

****Poison**** Hazardous liquid and gas under pressure, may cause chemical pneumonia and even death in high concentrations, may cause severe irritation to skin, eyes, and respiratory tract. Liquid may burn eyes and skin.

Odor may indicate concentration above exposure limits.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear, amber-colored liquid as shipped or greenish-yellow gas when vaporized.
Odor:	Pungent irritating odor
pH:	(Acidic)
Vapor Density: (Air = 1)	2.5
Boiling Point:	-29°F (34°C)
Freezing/Melting Point:	-150°F (-101°C)
Solubility in Water: Solubility (Other):	Slight Soluble in alkaline solutions.
Specific Gravity: (H ₂ O = 1)	1.5
Odor Threshold (ppm):	0.06
Evaporation Rate:	Not available
Chemical Family:	Halogen
% Volatile by Volume:	100%
Molecular Weight:	71

SECTION 10 – STABILITY AND REACTIVITY

Conditions Contributing to Instability

High temperatures, chlorine reacts with most metals at increased temperatures. Ignites carbon steel at 251°C.

Incompatibility

Stable at room temperature, contact with combustibles (gasoline, petroleum products, turpentine, alcohols, acetylene, hydrogen, ammonia and sulfur) and finely-divided metals may cause fires and explosions. Wet chlorine is corrosive to most metals except titanium.

Reacts With: Titanium, Carbon Steel, Hydrogen and Air, Oil, Greases, Lubricants, and Other Hydrocarbons

Hazardous Decomposition Products: None known

Hazardous Polymerization: Hazardous Polymerization will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

<u>CAS Number</u>	<u>Name</u>	<u>Common Names</u>
7782-50-5	Chlorine	Chlorine
Acute Inhalation LC₅₀:	human	430 ppm/30 minutes
	rat	293 ppm/60 minutes
Oral LD₅₀	Rat	5,800 mg/kg

Teratogenicity and Fetotoxicity: No information is available and no adverse teratogenic/embryotoxic effects are anticipated.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicological Information: Highly toxic to aquatic life.

Fish toxicity:	LC ₅₀	Pimephales Promelas	0.1 mg/L (96 hour)
Invertebrate Toxicity	LC ₅₀	Daphnia magna	0.017 mg/L (48 hour)

Environmental Effects: Dangerous if allowed to enter drinking water supply in high concentrations. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers. The substance is highly reactive and will not persist in the environment.

SECTION 13 – DISPOSAL CONSIDERATIONS

Product Disposal

Dispose of in accordance with all local, state, and federal regulations. Depending on the situation, special equipment may be required; Consult with your chlorine supplier.

SECTION 14 – TRANSPORT INFORMATION

DOT Proper Shipping Name:	Chlorine
DOT Hazard Class:	2.3 (5.1, 8)
DOT ID Number:	UN1017
DOT Hazardous Substance:	RQ 10 Lb. (Chlorine)
DOT Marine Pollutant:	Marine Pollutant
Additional Description:	Poison, Inhalation Hazard, Zone B

SECTION 15 – REGULATORY INFORMATION

U.S. Federal Regulations

OSHA: Physical classification – Compressed gas, Oxidizer, Corrosive
Health classification – Corrosive, Highly Toxic

TSCA (Toxic Substances Control Act): Regulations, 40 CFR 710, all ingredients are on the TSCA Section 8 (b) Inventory.

CERCLA and SARA/Title III: Regulations (40 CFR 370 and 372) Section 313 Supplier Notification.

This product contains the following toxic chemical(s) subject to reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 and of 40 CFR 372: 99.9% Chlorine (7782-50-5)

Emergency Planning and Notification (40 CFR 355): This product contains chemical(s) which are on the Extremely Hazardous Chemicals list:

Molecular chlorine (7782-50-5) TPQ=100

This product is registered with the USEPA as a pesticide as required under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

Other Standards

Legislation which apply to this product: Massachusetts Extraordinarily Hazardous Substance List
Massachusetts Right to Know, Pennsylvania Right to Know, New Jersey Right-to-Know

NSF Certification: This product has been classified as an approved drinking water treatment chemical under ANSI/NSF Standard 60.

American Water Works Association: This product meets the specifications of AWWA-B301-99.

SECTION 16 – OTHER INFORMATION

Product Use: Bactericide in water purification, used in the manufacture of many inorganic and organic chlorinated compounds and pulp bleaching.

Prepared By: Kuehne Company's Health, Safety, Environmental & Security Department

Revision G – 6 June 2022

For additional non-emergency health, safety or environmental information, telephone:

(973) 589 - 0700 or write to:

Kuehne Chemical Company, Inc.
86 N. Hackensack Avenue
South Kearny, New Jersey 07032-4673

SDS Legend:

ACGIH	American Conference of Governmental Industrial Hygienists
CAS	Chemical Abstracts Service Registry Number
CEILING	Ceiling Limit (15 Minutes)
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit (OSHA)
STEL	Short Term Exposure Limit (15 Minutes)
TLV	Threshold Limit Value (ACGIH)
TWA	Time Weighted Average (8 Hours)

IMPORTANT: The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations.

The information presented herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge.

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No warranty of any kind is given or implied and Kuehne Chemical Company, Inc. will not be liable for any damages, losses, injuries or consequential damages that may result from the use of or reliance on any information contained herein.

This Safety Data Sheet (SDS) covers the following materials:

Chlorine – Liquefied gas: Under pressure

REFERENCES:

- American National Standard, Z400.1-1993
- The Chlorine Manual Sixth Edition
- Chlorine Institute Pamphlet 1 Chlorine Basics Edition 8 May 2014
- Pamphlet 164 Reactivity and Compatibility of Chlorine and Sodium Hydroxide with Various Materials Edition 3 May 2017
- National Institute for Occupational Safety and Health, US Dept. of Health & Human Services, Cincinnati, 1994.
- Supplier's Safety Data Sheets
- Windholz, Martha, Ed, The Merck Index, 11th ed., Merck and Co, Inc., Rahway, New Jersey, 1989.

WARNING LABEL INFORMATION

Active Ingredient: Chlorine (Cl₂)..... 99.5 % (by weight)
Other Ingredients..... 00.5 %
Total..... 100.0 %

KEEP OUT OF REACH OF CHILDREN

DANGER POISON

Category 1

Symbol(s):



Signal Word: Danger

Hazard Statements: H270 - May cause or intensify fire; oxidizer
H280 - Contains gas under pressure, may explode if heated
H290 - May be corrosive to metals
H314 – Causes severe skin burns and eye damage
H330 - Fatal if inhaled
H400 - Very toxic to aquatic life

FIRST AID

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice.

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

HOT LINE NUMBER: 1-800-POISON-1 Class I Pesticide

Have product container or label with you when calling a poison control center or doctor, or going for treatment.

PRECAUTIONARY STATEMENTS HAZARDOUS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Fatal if inhaled or absorbed through the skin. Corrosive. Causes irreversible eye damage and skin burns. Do not breathe vapors. Do not get in eyes, on skin or on clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Wear chemical resistant gloves (such as nitrile or butyl) and respirator. If air concentrations are less than the Immediately Hazardous to Life or Health (IDLH) limit of 10 ppm, then a full face canister style (gas mask) respirator approved for chlorine (MSHA/NIOSH approved number prefix TC-14G) can be used. If the concentrations are above the IDLH or if the concentrations are unknown then a self-contained breathing apparatus (SCBA) / (NIOSH approval number prefix TC-13F) must be worn. Remove and wash contaminated clothing before reuse.

Personal Protective Equipment (PPE): In case of a spill or leak, handler must wear coveralls worn over long-sleeved shirts, long pants, socks, chemical resistant footwear, waterproof or chemical-resistant gloves (such as nitrile or rubber) and respirator. If air concentrations are less than the Immediately Hazardous to Life or Health (IDLH) limit of 10 ppm, then a full face canister style (gas mask) respirator approved for chlorine (MSHA/NIOSH approved number prefix TC-14G) can be used. If the concentrations are above the IDLH or if the concentrations are unknown then a self-contained breathing apparatus (SCBA) / (NIOSH approval number prefix TC-13F) must be worn.

Environmental Hazards: This pesticide is toxic or highly toxic to fish and aquatic invertebrates. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollution Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your local State Water Board or Regional Office of the EPA.

Physical and Chemical Hazards: Chlorine is a non-flammable gas, liquefied, under pressure. Do not drop container. Do not heat container. Keep away from intense heat or open sunlight. Corrosive to most metals in the presence of moisture.

DIRECTION FOR USE

IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH ITS LABELING.

Only for use as a disinfectant and/or algacide by experienced personnel only, in municipal water supplies, sewage, sewage and waste management plants, and in commercial and industrial cooling systems and in paper mills; and in repackaging into portable cylinders. Packagers must obtain their own registration with the Environmental Protection Agency.

Only specifically designed dispensing equipment should be used in accordance with manufacturer's instructions and according to state regulatory agency recommendations for dosage or residual chlorine levels which should be maintained for each specific site of application.

Have available a gas mask approved for chlorine service by the U.S. Bureau of Mines or the National Institute of Occupational Safety and Health. Handle and use only in accordance with practices recommended in the CHLORINE MANUAL published by the Chlorine Institute, Inc. Washington D.C. Use only in well ventilated areas.

STORAGE AND DISPOSAL

Store cylinders and ton containers in a dry area away from sources of heat and protected from direct sunlight and precipitation. Do not store in excessive heat. Segregate chlorine containers from other compressed gases and never stored near hydrocarbons, finely divided metals, turpentine, ether, anhydrous ammonia, and other flammable materials. All storage containers must have a weather resistant label and must not be accessible to the general public. Do not drop container. If container is damaged or leaking contact CHEMTREC and/or notify supplier immediately. Do not contaminate water, food, or feed by storage or disposal.

Exercise due caution to prevent damage to or leakage from the containers.

DISPOSAL OF CONTAINERS: Refillable container. Refill this container with Chlorine only. Do not reuse this container for any other purpose. Container is returnable and must be properly identified with return tag and returned as promptly as possible to supplier according to prescribed instructions and practices. All valves must be closed tightly and closures or caps secured. It is illegal to ship a leaking container.

IN CASE OF FIRE: Material does not burn. Use extinguishing medium as appropriate for surrounding fire.

LEAK PROCEDURES: Make daily inspection for leaks. Stop a leak at once, since it will become worse with time.

In case of a leak, evacuate everyone from the immediate area. For entry into the affected area to correct problem, wear personal protective equipment (including prescribed respirators) specified in the Hazards to Humans section of this labeling. When possible, move leaking or damaged cylinders outdoors or to an isolated location. Observe strict safety precautions. Work upwind, if possible. Allow any liquid chlorine to evaporate. Only correctly trained and Personal Protective Equipment (PPE)-equipped handlers are to perform such cleanup. Do not permit entry into the leak area by any other person until the chlorine has completely dispersed.

Get protective equipment. Contain spill and pump into marked container for reclamation for disposal. Avoid discharges to sewers and streams. Spills of 10 pounds or more must be reported to the National Response Center at the following number:

1-800-424-8802

State and local regulations may have additional reporting requirements, check with the proper state and local authorities. Wear neoprene or rubber gloves.

**IN CASE OF CHEMICAL EMERGENCIES CALL:
24 HOUR EMERGENCY PHONE (973) 589-0700
Alt. (551) 200-2751**