

Material Safety Data Sheet-MSDS

Section I : Identification

Chemical Name:	Chlorine
C. A. S. No. :	7782-50-5
Trade Name:	Chlorine
Synonyms:	Dichlorine Molecular Chlorine
Contact Person in Emergency	
Mailing Address	
Telephone / Telex No. s	
Trem Card Details /Ref	
Standard Packing	

Section II : Hazard Identification



Chemical Classification	Inorganic gas or liquid
Formula	Cl ₂
Hazchem code	2XE
Hazardous waste ID No.:	17
Codes/Label	Non-Flammable

Section III : Composition information or Ingradient

INGREDIENTS:	OSHA PEL	ACGIH TLV	Other Exposure Limits	CAS No.
PURE				

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Section IV : First Aid Measures

EXPOSURE	First Aid Measures	Ingestion:	Give large amounts of water. Induce vomiting
		Skin:	Wash the area with soap and water remove the victims from exposure
		Eyes:	Remove contaminated clothes, flush eyes with lukewarm water at least 15 minutes
		Inhalation:	Move to fresh air
	Antidotes / Dosages	Not available	
SPILL	Steps to be taken	Shut off leaks if without risk. Collect liquid with sand or earth. Prevent the liquid from entering the sewer. Vapours creates toxic atmosphere, knock down vapours with water sprays. Isolate the area and deny unauthorized entry. If cylinder is leaking then controlled by bubble system through Sodium Sulphide and excess Sodium bicarbonate solution.	
	Waste disposal	Neutralize small liquid spillage with soda ash and drain with abundant water. Cover pool with protein foam, so that the release of vapours to atmosphere is low and under control.	
NOTES TO PHYSICIAN	Victims of overexposure should be kept under medical observation for 24 to 48 hours or 72 hours if exposure was severe. The hazards of this material are due mainly to its severe irritant and corrosive properties on the skin and mucosal surfaces. There is no specific antidote; and treatment should be directed at the control of symptoms and clinical condition.		

Section V : Fire Fighting Measures

Flammability Classification (OSHA) : NA		
Flammability Limits	LEL : Not pertinent	UEL : Not pertinent
Auto Ignition Temperature	Not pertinent	
Flash Point	Not pertinent	
Extinguishing Media	It is non flammable but water should be used to cool fire exposed container, stop flow gas.	
Special Procedure/Special Protective equipment and precautions for fire fighters	Keep container cool by spraying water if exposed to heat or flame using recommended personal protection.	

Unusual Hazard	Poisonous gases produce in fire
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Section VI : Accidental Release Measures

Personal Precautions, protective equipment and emergency procedures: Quick opening of safety shower and eye fountain. Air breathing set, safety goggles, PVC gloves, gumboots, rubber overcoats, head mask. Avoid contact with liquid vapors.
Environmental Precautions:
Spill Clean Up and disposal: Not pertinent

Section VII : Precautions for SAFE Handling And Storage

Conditions for safe storage and handling: Keep unnecessary people away, isolate hazardous area and deny entry, use proper safety appliances. Chlorine should be kept outdoors or in well-ventilated area. It should be protected against physical damage.
Special Protection Information/control measures while handling and storage:
Respiratory Protection: Chemical cartridge, acid gas respirator or SCBA as appropriate for exposure of concern
Ventilation:
General Mechanical:
Protective Gloves:
Eye Protection:
Other Protective Equipments:
Other Precautions/Note: In case of large gas escapes, the presence of cloud can be marked with ammonia with which it will turn into mist. Run away from the gas clouds in a direction perpendicular to the wind direction. Avoid liquid chlorine from leaking an body contact. Persons with pulmonary diseases should avoid the exposure. 1000 ppm is fatal. Can react to cause fires/exposure on contact with turpentine, illuminating gas, polypropylene, rubber, sulfonic acid, acetaldehyde, and alcohols. Bring the leaking portion of the cylinder or the containers to the upper most portions, so that only the gas escapes and not the liquid.

Section VIII : Exposure controls and personal protection

Engineering Controls:	
Personal Protective Equipment:	Respiratory Protection: Goggles, contact lenses are not allowed
	Eye/Face protection: Goggles, contact lenses are not allowed
	Skin Protection: Wear total encapsulating suit and SCBA

Section IX : Physical and Chemical Properties

Boiling Point: >(-)42.22 °C	Physical State: Gas (at 15 °C & 1 atm.)	Appearance : colourless
Melting / Freezing Point : (-) 160 °C	Vapour Pressure :	Odour: odourless
Vapour Density: 1.5 (Air = 1]	Solubility : Insoluble (in water at 30 °C)	Sp. Gravity: 1.51 (Gas) (Water = 1) at 19 °C
Mol weight : 42-58		Colour: colourless
Evaporation rate		Percentage volatility by weight
Viscosity :		PH : Not pertinent
Decomposition Temp:		
Partition coefficient:		
Others: Soluble in alkalis, chloride and alcohols		

Section X : Stability and Reactivity


Chemical Stability : Stable
Conditions to avoid :
Incompatibility with other materials :Combustible substances and finely divided metals
Hazardous Decomposition Products:
Polymerization : Will not occur

Section XI : Toxicological Information

Routes of entry: Inhalation, skin, ingestion and eyes
Target Organ: Skin, Liver

Effects of Exposure/ Symptom:	Acute Inhalation: Effects may be delayed chlorine is corrosive may be converted to Hcl in lungs, High concentration causes respiratory distress and violent coughing.
	Acute Ingestion:
	Acute Skin/Eyes: Acute exposure may cause hypertension followed by cardiovascular collapse causes eyes, nose, salivation, general excitement, restlessness
Short term exposure Limit (STEL): 1 ppm	
IDLH :	
ERPG values :	ERPG 1 : 1 ppm
	ERPG 2 : 20 ppm
	ERPG 3 : 30 ppm
Teratogenicity	Chlorine is not expected to cause teratogenic effects in humans
Reproductive Effects	Chlorine is not expected to cause adverse reproductive effects in humans

Section XII : Ecological Information

Ecotoxicological Information: Aquatic Toxicity	
	
Persistence and Degradability:	
Bioaccumulative Potential:	
Mobility in soil:	
Other adverse effects:	

Section XIII : Disposal Considerations

Waste Disposal:	Not pertinent
Environmental Hazards:	
Information on safe handling of Disposal:	Not pertinent

Section XIV : Transport Information

Shipping Name: Chlorine
U.N. Number: 1017

N.A. Number:
Transport Hazardous Class:
Packing Group:
Marine Pollutant :
Special Precautions which a user needs to be aware:

Section XV : Regulatory Information

Section XVI : Other Information

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