

CHLORINE

CLX

CAUTIONARY RESPONSE INFORMATION			4. FIRE HAZARDS		7. SHIPPING INFORMATION	
Common Synonyms	Liquefied compressed gas	Greenish yellow Irritating, bleach-like choking odor	4.1 Flash Point: Not flammable	4.2 Flammable Limits in Air: Not flammable	7.1 Grades of Purity: Research purity; ultra high purity; high purity	7.2 Storage Temperature: Ambient
	Sinks and boils in water. Poisonous, visible vapor cloud is produced.		4.3 Fire Extinguishing Agents: Currently not available	7.3 Inert Atmosphere: No requirement	7.4 Venting: Safety relief (300 psi)	7.5 IMO Pollution Category: Currently not available
	Keep people away. AVOID CONTACT WITH LIQUID AND VAPOR. Wear goggles, self-contained breathing apparatus and rubber overclothing (including gloves). Evacuate area in case of large discharge. Stay upwind and use water spray to "knock down" vapor. Notify local health and pollution control agencies. Protect water intakes.		4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent	7.6 Ship Type: Currently not available	7.7 Barge Hull Type: 1	
Fire	Not flammable. May cause fire on contact with combustibles. POISONOUS GASES ARE PRODUCED IN FIRES. Stop flow of gas if possible. Cool exposed containers and protect men effecting shutoff with water. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).		4.5 Special Hazards of Combustion Products: Toxic products are generated when combustibles burn in chlorine.	4.6 Behavior in Fire: Most combustibles will burn in chlorine, although gas is not flammable.	8. HAZARD CLASSIFICATIONS	
Exposure	CALL FOR MEDICAL AID. VAPOR POISONOUS IF INHALED. Will burn eyes. Move to fresh air. If breathing has stopped, give artificial respiration (but NOT mouth-to-mouth). If breathing is difficult, give oxygen. IF IN EYES, hold eyelids open and flush with plenty of water. LIQUID Will burn skin and eyes. Will cause frostbite. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. DO NOT RUB AFFECTED AREAS.		4.7 Auto Ignition Temperature: Not flammable	8.1 49 CFR Category: Poison Gas	8.2 49 CFR Class: 2.3	
Water Pollution	HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.		4.8 Electrical Hazards: Currently not available	8.3 49 CFR Package Group: Not pertinent	8.4 Marine Pollutant: Yes	8.5 NFPA Hazard Classification:
			4.9 Burning Rate: Not flammable	Category Health Hazard (Blue).....	Classification 3	
			4.10 Adiabatic Flame Temperature: Currently not available	Flammability (Red).....	0	
			4.11 Stoichiometric Air to Fuel Ratio: Not Pertinent	Instability (Yellow).....	0	
			4.12 Flame Temperature: Currently not available	Special (White).....	OX	
			4.13 Combustion Molar Ratio (Reactant to Product): Not Pertinent	8.6 EPA Reportable Quantity: Not listed.		
			4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed	8.7 EPA Pollution Category: Not listed.		
				8.8 RCRA Waste Number: Not listed		
				8.9 EPA FWPCA List: Not listed		
1. CORRECTIVE RESPONSE ACTIONS			5. CHEMICAL REACTIVITY			
Dilute and disperse Stop discharge Do not add water to undissolved material	2. CHEMICAL DESIGNATIONS		5.1 Reactivity with Water: Forms a corrosive solution	9. PHYSICAL & CHEMICAL PROPERTIES		
	2.1 CG Compatibility Group: Not listed. 2.2 Formula: Cl ₂ 2.3 IMO/UN Designation: 2.0/1017 2.4 DOT ID No.: 1017 2.5 CAS Registry No.: 7782-50-5 2.6 NAERG Guide No.: 124 2.7 Standard Industrial Trade Classification: 52224		5.2 Reactivity with Common Materials: Reacts vigorously with most metals at high temperature. Copper may burn spontaneously.	9.1 Physical State at 15°C and 1 atm: Gas		
	3. HEALTH HAZARDS		5.3 Stability During Transport: Stable	9.2 Molecular Weight: 70.91		
3.1 Personal Protective Equipment: Quick-opening safety shower and eye fountain; respiratory equipment approved for chlorine service. Wear safety goggles at all times when in vicinity of liquid chlorine.	3.2 Symptoms Following Exposure: Eye irritation, sneezing, copious salivation, general excitement and restlessness. Irritation may persist for several days. High concentrations cause respiratory distress and violent coughing, often with retching. Death may result from suffocation.		5.4 Neutralizing Agents for Acids and Caustics: Not pertinent	9.3 Boiling Point at 1 atm: -29.4°F = -34.1°C = 239.1 K		
3.3 Treatment of Exposure: INHALATION: remove victim from source of exposure; call a doctor; support respiration; administer oxygen. EYES: flush with copious amounts of water for at least 15 min.	3.4 TLV-TWA: 0.5 ppm 3.5 TLV-STEL: Not listed. 3.6 TLV-Ceiling: 1 ppm. 3.7 Toxicity by Ingestion: Not pertinent; ingestion unlikely (chlorine is a gas above -34.5°C) 3.8 Toxicity by Inhalation: Currently not available. 3.9 Chronic Toxicity: None.		5.5 Polymerization: Not pertinent	9.4 Freezing Point: -150°F = -101°C = 172°K		
3.10 Vapor (Gas) Irritant Characteristics: Vapors cause severe irritation of eyes and throat and can cause eye and lung injury. They cannot be tolerated even at low concentrations.	3.11 Liquid or Solid Characteristics: Causes smarting of the skin and first-degree burns on short exposure; may cause secondary burns on long exposure.		5.6 Inhibitor of Polymerization: Not pertinent	9.5 Critical Temperature: 291.2°F = 144°C = 417.2 K		
3.12 Odor Threshold: 3.5 ppm 3.13IDLH Value: 10 ppm	3.14 OSHA PEL-TWA: Not listed. 3.15 OSHA PEL-STEL: Not listed. 3.16 OSHA PEL-Ceiling: 1 ppm. 3.17 EPA AEGL: Not listed		6. WATER POLLUTION	9.6 Critical Pressure: 1118 psia = 76.05 atm = 7,704 MN/m ²		
			6.1 Aquatic Toxicity: 0.08 ppm/168 hr/trout/TL _m /fresh water 10 ppm/1 hr/tunicates/killed/salt water	9.7 Specific Gravity: 1.424 at 15°C (liquid)		
			6.2 Waterfowl Toxicity: Currently not available	9.8 Liquid Surface Tension: 26.55 dynes/cm at -35.3°C		
			6.3 Biological Oxygen Demand (BOD): None	9.9 Liquid Water Interfacial Tension: Not pertinent		
			6.4 Food Chain Concentration Potential: None	9.10 Vapor (Gas) Specific Gravity: 2.4		
			6.5 GESAMP Hazard Profile: Bioaccumulation: 0 Damage to living resources: 4 Human Oral hazard: N/A Human Contact hazard: II Reduction of amenities: XX	9.11 Ratio of Specific Heats of Vapor (Gas): 1.325		
				9.12 Latent Heat of Vaporization: 124 Btu/lb = 68.7 cal/g = 2.87 X 10 ⁵ J/kg		
				9.13 Heat of Combustion: Not pertinent		
				9.14 Heat of Decomposition: Not pertinent		
				9.15 Heat of Solution: Not pertinent		
				9.16 Heat of Polymerization: Not pertinent		
				9.17 Heat of Fusion: 22.8 cal/g		
				9.18 Limiting Value: Currently not available		
				9.19 Reid Vapor Pressure: 155 psia		
NOTES						

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
-35 -30	97.179 96.730		N O T P E R T I N E N T		N O T P E R T I N E N T		N O T P E R T I N E N T

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
77	0.650	-55 -50 -45 -40 -35 -30 -25 -20 -15 -10 -5 0 5 10 15 20 25 30 35 40 45 50	7.491 8.580 9.795 11.150 12.650 14.310 16.140 18.150 20.370 22.790 25.450 28.340 31.490 34.910 38.610 42.620 46.950 51.620 56.650 62.050 67.839 74.040	-55 -50 -45 -40 -35 -30 -25 -20 -15 -10 -5 0 5 10 15 20 25 30 35 40 45 50	0.12230 0.13840 0.15600 0.17550 0.19670 0.22000 0.24530 0.27280 0.30260 0.33490 0.36970 0.40720 0.44760 0.49090 0.53730 0.58700 0.63990 0.69640 0.75650 0.82030 0.88790 0.95960	0 25 50 75 100 125 150 175 200 225 250 275 300 325 350 375 400 425 450 475 500 525 550 575 600	0.112 0.113 0.114 0.114 0.115 0.116 0.116 0.117 0.118 0.118 0.119 0.119 0.120 0.120 0.121 0.121 0.121 0.122 0.122 0.122 0.122 0.122 0.122 0.122 0.122