



SAFETY MANUAL

ISSUE

NO:

DATE:

SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: CHLORINE

OTHER DESIGNATIONS: Cl₂, CAS # 007 782 505

DESCRIPTION: A gas shipped in steel cylinders as a liquid under its own vapor pressure.

MANUFACTURER: Available from many suppliers.

SECTION II. INGREDIENTS AND HAZARDS

	%	HAZARD DATA
Chlorine	> 99	8-hr TWA 1 ppm (C) or 3 mg/m ³ *
<p>*Current OSHA ceiling limit. ACGIH TLV (1978) is 1 ppm with a STEL of 3 ppm for up to 15 minutes exposure. NIOSH (1976) proposed a ceiling limit of 0.5 ppm (15 minute sampling time).</p> <p>(Controversy going on whether OSHA standard should include ceiling limit or not.)</p>		

SECTION III. PHYSICAL DATA

Boiling point at 1 atm, deg C -----	-34	Density at 0°C:	
Vapor pressure at 20 C, mm Hg -----	4800	Gas at 1 atm, g/liter -----	3.214
Vapor density (Air=1) -----	2.49	Liquid at 3.65 atm, g/cc --	1.47
Water solubility at 20 C, 1 atm, g/l --	7.3	Molecular weight -----	70.91

Appearance & Odor: A greenish-yellow gas or clear, amber-colored liquid with a suffocating, pungent, irritating odor. The odor recognition threshold (100% of test panel, unfatigued) is reported at 0.314 ppm. The odor is easily noticed at 1.9-3.5 ppm and has been reported as intolerable at 2.6-41 ppm, depending on the observer.

SECTION IV. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp.	Flammability Limits In Air	LOWER	UPPER
Non-flammable				

Use extinguishing media that is appropriate for the surrounding fire. Use water spray to cool intact, fire-exposed containers (one ton tanks and cylinders will release chlorine when a fusible metal safety plug melts at 158-165F.) If possible, have specially trained personnel remove intact cylinders from fire area.

Chlorine will support the burning of most combustible materials, just as oxygen does. Flammable gases and vapors can form explosive mixtures with chlorine.

Firefighters must use self-contained breathing equipment, eye protection, and full protective clothing when fighting fires in which chlorine is involved.

SECTION V. REACTIVITY DATA

Chlorine is stable in steel containers at room temperature when dry. [Intense local heat (above 215°C) on steel walls can cause steel to ignite in chlorine.]

It is a powerful oxidizing agent which reacts violently with reducing agents and combustible materials. Materials such as acetylene, turpentine, other hydrocarbons, ammonia, hydrogen, ether, powdered metals, etc. must be kept away from chlorine.

It reacts with H₂S and H₂O forming HCl; it combines with CO and SO₂ to form phosgene and sulfuryl chloride (toxic and corrosive materials).

Wet chlorine (150 ppm water) corrosively attacks most common metals. Handling chlorine requires special materials technology.

