

CYANOGEN CHLORIDE

CCL

CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Liquid or gas Colorless Sharp, pungent odor Poisonous vapor cloud is produced. Boiling point is 56°F.
<p>Evacuate. Keep people away. Evacuate area in case of large discharges. AVOID CONTACT WITH LIQUID AND VAPOR. Wear chemical protective suit with self-contained breathing apparatus. Stay upwind and use water spray to "knock down" vapor. Notify local health and pollution control agencies. Protect water intakes.</p>	
Fire	Not flammable. POISONOUS GASES ARE PRODUCED WHEN HEATED IN FIRE. Wear chemical protective suit with self-contained breathing apparatus. Cool exposed containers with water.
Exposure	CALL FOR MEDICAL AID. VAPOR POISONOUS IF INHALED OR IF SKIN IS EXPOSED. Irritating to eyes. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID POISONOUS IF SWALLOWED. Will burn skin and eyes. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk. DO NOT INDUCE VOMITING.
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.

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge
Do not burn

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: CNCl
2.3 IMO/JUN Designation: 6.1/1589
2.4 DOT ID No.: 1589
2.5 CAS Registry No.: 506-77-4
2.6 NAERG Guide No.: 125
2.7 Standard Industrial Trade Classification: 52381

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Chemical cartridge respirator, goggles, protective clothing.
3.2 **Symptoms Following Exposure:** Similar in toxicity and mode of action to hydrogen cyanide, but is much more irritating. Can cause a marked irritation of the respiratory tract with a hemorrhagic exudate of the bronchi and trachea and pulmonary edema. It is improbable that anyone would voluntarily remain in areas with a high enough concentration to exert a typical nitrile effect.
3.3 **Treatment of Exposure:** INHALATION: support respiration and administer oxygen; call a doctor; if nitrile effect is seen, administer amyl nitrite. INGESTION: have victim drink water or milk; do NOT induce vomiting.
3.4 **TLV-TWA:** Not listed.
3.5 **TLV-STEL:** Not listed.
3.6 **TLV-Ceiling:** 0.3 ppm.
3.7 **Toxicity by Ingestion:** Not pertinent
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** Long term exposure causes dermatitis, loss of appetite, headache, upper respiratory irritation in humans.
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:** Severe skin irritant. Causes second-and-third- degree burns on short contact; very injurious to the eyes.
3.12 **Odor Threshold:** 1 ppm
3.13 **IDLH Value:** Not listed.
3.14 **OSHA PEL-TWA:** Not listed.
3.15 **OSHA PEL-STEL:** Not listed.
3.16 **OSHA PEL-Ceiling:** Not listed.
3.17 **EPA AEGL:** Not listed

4. FIRE HAZARDS

- 4.1 **Flash Point:**
Not flammable
4.2 **Flammable Limits in Air:** Not flammable
4.3 **Fire Extinguishing Agents:** Not pertinent
4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
4.5 **Special Hazards of Combustion Products:** Not pertinent
4.6 **Behavior in Fire:** Overheated containers can explode
4.7 **Auto Ignition Temperature:** Not flammable
4.8 **Electrical Hazards:** Not pertinent
4.9 **Burning Rate:** Not flammable
4.10 **Adiabatic Flame Temperature:** Currently not available
4.11 **Stoichiometric Air to Fuel Ratio:** Not Pertinent
4.12 **Flame Temperature:** Currently not available
4.13 **Combustion Molar Ratio (Reactant to Product):** Not Pertinent
4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** Very slow reaction
5.2 **Reactivity with Common Materials:**
Slow, not immediately hazardous
5.3 **Stability During Transport:** Stable
5.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
5.5 **Polymerization:** Not pertinent
5.6 **Inhibitor of Polymerization:** Not pertinent

6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:**
0.08 ppm/fish/killed/fresh water
*Duration not specified
6.2 **Waterfowl Toxicity:** Currently not available
6.3 **Biological Oxygen Demand (BOD):**
Currently not available
6.4 **Food Chain Concentration Potential:**
None
6.5 **GESAMP Hazard Profile:**
Bioaccumulation: 0
Damage to living resources: 4
Human Oral hazard: 3
Human Contact hazard: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Currently not available
7.2 **Storage Temperature:** Currently not available
7.3 **Inert Atmosphere:** Currently not available
7.4 **Venting:** Currently not available
7.5 **IMO Pollution Category:** Currently not available
7.6 **Ship Type:** Currently not available
7.7 **Barge Hull Type:** Currently not available

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Poison Gas
8.2 **49 CFR Class:** 2.3
8.3 **49 CFR Package Group:** Not pertinent.
8.4 **Marine Pollutant:** Yes
8.5 **NFPA Hazard Classification:** Not listed
8.6 **EPA Reportable Quantity:** 10 pounds
8.7 **EPA Pollution Category:** A
8.8 **RCRA Waste Number:** P033
8.9 **EPA FWPCA List:** Yes

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Gas
9.2 **Molecular Weight:** 61.48
9.3 **Boiling Point at 1 atm:** 55.6°F = 13.1°C = 286.3°K
9.4 **Freezing Point:** 20°F = -6.9°C = 266.3°K
9.5 **Critical Temperature:** Not pertinent
9.6 **Critical Pressure:** Not pertinent
9.7 **Specific Gravity:** 1.222 at 0°C (liquid)
9.8 **Liquid Surface Tension:** 24.6 dynes/cm = 0.0246 N/m at 10°C
9.9 **Liquid Water Interfacial Tension:** Currently not available
9.10 **Vapor (Gas) Specific Gravity:** 2.1
9.11 **Ratio of Specific Heats of Vapor (Gas):**
1.229
9.12 **Latent Heat of Vaporization:** 191.3 Btu/lb = 106.3 cal/g = 4.451 X 10⁵ 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:** Currently not available
9.18 **Limiting Value:** Currently not available
9.19 **Reid Vapor Pressure:** Currently not available

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	76.089		C	32	1.040		C
40	75.780		U	34	1.040		U
45	75.469		R	36	1.040		R
50	75.160		R	38	1.040		R
55	74.849		E	40	1.040		E
			N	42	1.040		N
			T	44	1.040		T
			L	46	1.040		L
			Y	48	1.040		Y
			N	50	1.040		N
			O	52	1.040		O
			T	54	1.040		T
			A				A
			V				V
			A				A
			I				I
			L				L
			A				A
			B				B
			L				L
			E				E

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
	I	-100	0.028	-100	0.00044	0	0.167
	N	-90	0.051	-90	0.00080	25	0.169
	S	-80	0.091	-80	0.00137	50	0.172
	O	-70	0.155	-70	0.00228	75	0.174
	L	-60	0.257	-60	0.00368	100	0.176
	U	-50	0.411	-50	0.00575	125	0.178
	B	-40	0.641	-40	0.00874	150	0.180
	L	-30	0.973	-30	0.01297	175	0.182
	E	-20	1.443	-20	0.01880	200	0.184
		-10	2.095	-10	0.02669	225	0.186
		0	2.983	0	0.03717	250	0.187
		10	4.170	10	0.05086	275	0.189
		20	5.733	20	0.06845	300	0.190
		30	7.759	30	0.09075	325	0.192
		40	10.350	40	0.11860	350	0.193
		50	13.620	50	0.15310	375	0.194
						400	0.195
						425	0.196
						450	0.197
						475	0.198
						500	0.199
						525	0.199
						550	0.200
						575	0.200
						600	0.200