

PHOSPHORUS TRICHLORIDE

PPT

CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Liquid Colorless to slightly yellow Sharp irritating odor Fumes in air, sinks and reacts with water. Harmful vapor is produced.
<p>Evacuate. Keep people away. AVOID CONTACT WITH LIQUID AND VAPOR. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Notify local health and pollution control agencies. Protect water intakes.</p>	
Fire	Not flammable. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). DO NOT USE WATER ON ADJACENT FIRES. Extinguish adjacent fires with carbon dioxide or dry chemical.
Exposure	CALL FOR MEDICAL AID. VAPOR Irritating to eyes, nose, and throat. Harmful if inhaled. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID Will burn skin and eyes. Poisonous if swallowed. 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	Dangerous to aquatic life in high 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 dissolved material
Stop discharge
Chemical and Physical Treatment:
Neutralize
Do not add water to undissolved material

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: PCl₃
2.3 IMO/UN Designation: 8.0/1809
2.4 DOT ID No.: 1809
2.5 CAS Registry No.: 7719-12-2
2.6 NAERG Guide No.: 137
2.7 Standard Industrial Trade Classification: 52241

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Chemical safety goggles; plastic face shield; self-contained or air-line respirator; safety hat; rubber gloves and protective clothing.
- 3.2 **Symptoms Following Exposure:** Vapors cause severe irritation of eyes and respiratory tract. Liquid burns eyes and skin.
- 3.3 **Treatment of Exposure:** CAUTION: Persons doing treatment should protect themselves.
INHALATION: remove victim from contaminated area; if breathing has stopped, start artificial respiration; call a doctor. INGESTION: if victim is conscious, give large quantities of water; do NOT induce vomiting; call a doctor. EYES: retract eyelids and wash eyes with water for at least 15 min.; call a doctor. SKIN: remove contaminated clothing and wash exposed skin with water.
- 3.4 TLV-TWA: 0.2 ppm
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: 0.5 ppm
3.7 Toxicity by Ingestion: Grade 2; oral rat LD₅₀ = 550 mg/kg
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: None
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 and is very injurious to the eyes.
3.12 Odor Threshold: Currently not available
3.13 IDLH Value: 25 ppm
3.14 OSHA PEL-TWA: 0.5 ppm
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: Sand, carbon dioxide and dry chemicals on adjacent fires
4.4 Fire Extinguishing Agents Not to Be Used: Water
4.5 Special Hazards of Combustion Products: Not pertinent
4.6 Behavior in Fire: Generates toxic, irritating gases
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: Reacts violently and may cause flashes of fire. Hydrochloric acid fumes are formed in the reaction.
5.2 Reactivity with Common Materials: Corrodes most common construction materials. Reacts with water to form hydrochloric acid, which reacts with most metals to form flammable hydrogen gas.
5.3 Stability During Transport: Stable
5.4 Neutralizing Agents for Acids and Caustics: Flush with water; neutralize acids formed with lime or soda ash.
5.5 Polymerization: Not pertinent
5.6 Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

- 6.1 Aquatic Toxicity: Currently not available
6.2 Waterfowl Toxicity: Currently not available
6.3 Biological Oxygen Demand (BOD): None
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: (1)
Human Oral hazard: 1
Human Contact hazard: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 Grades of Purity: Pure: 99.5+%; technical: 98.5+%
7.2 Storage Temperature: Ambient
7.3 Inert Atmosphere: No requirement
7.4 Venting: Pressure-vacuum
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: Corrosive material
8.2 49 CFR Class: 8
8.3 49 CFR Package Group: I
8.4 Marine Pollutant: No
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	4
Flammability (Red).....	0
Instability (Yellow).....	2
Special (White).....	W

8.6 EPA Reportable Quantity: 1000 pounds
8.7 EPA Pollution Category: C
8.8 RCRA Waste Number: Not listed
8.9 EPA FWPCA List: Yes

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 Physical State at 15° C and 1 atm: Liquid
9.2 Molecular Weight: 137.33
9.3 Boiling Point at 1 atm: 169°F = 76°C = 349°K
9.4 Freezing Point: -170°F = -112°C = 161°K
9.5 Critical Temperature: 546.8°F = 286°C = 559.2°K
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 1.575 at 20°C (liquid)
9.8 Liquid Surface Tension: 25.6 dynes/cm = 0.0256 N/m at 20°C
9.9 Liquid Water Interfacial Tension: Not pertinent
9.10 Vapor (Gas) Specific Gravity: 4.7
9.11 Ratio of Specific Heats of Vapor (Gas): (est.) 1.290
9.12 Latent Heat of Vaporization: 95 Btu/lb = 53 cal/g = 2.2 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	100.500	50	0.260		N		N
40	100.200	52	0.260		O		O
45	99.830	54	0.260		T		T
50	99.500	56	0.260				
55	99.169	58	0.260		P		P
60	98.839	60	0.260		E		E
65	98.509	62	0.260		R		R
70	98.179	64	0.260		T		T
75	97.849	66	0.260		I		I
80	97.530	68	0.260		N		N
85	97.200	70	0.260		E		E
90	96.870	72	0.260		N		N
95	96.540	74	0.260		T		T
100	96.209	76	0.260				
105	95.879	78	0.260				
110	95.549	80	0.260				
115	95.219	82	0.260				
120	94.889	84	0.260				

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
	D	70	2.057	70	0.04969	100	0.000
	E	75	2.323	75	0.05559	120	0.000
	C	80	2.618	80	0.06207	140	0.000
	O	85	2.944	85	0.06915	160	0.000
	M	90	3.303	90	0.07688	180	0.000
	P	95	3.699	95	0.08531	200	0.000
	O	100	4.133	100	0.09448	220	0.000
	S	105	4.610	105	0.10440	240	0.000
		110	5.131	110	0.11520	260	0.000
		115	5.701	115	0.12690	280	0.000
		120	6.323	120	0.13950	300	0.000
		125	7.000	125	0.15320	320	0.000
		130	7.736	130	0.16780	340	0.000
		135	8.535	135	0.18360	360	0.000
		140	9.401	140	0.20060	380	0.000
		145	10.340	145	0.21870	400	0.000
		150	11.350	150	0.23820	420	0.000
		155	12.450	155	0.25910	440	0.000
		160	13.630	160	0.28130		
		165	14.890	165	0.30500		
		170	16.260	170	0.33030		
		175	17.720	175	0.35730		
		180	19.300	180	0.38590		
		185	20.980	185	0.41630		
		190	22.780	190	0.44850		
		195	24.700	195	0.48270		