

ANTIMONY PENTACHLORIDE

APC

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Antimony (V) chloride Antimony perchloride		Liquid	Colorless to brown	Unpleasant odor
Sinks in water. Irritating vapor is produced. Freezing point is 37°F.				
<p style="color: red;">Avoid contact with liquid. Keep people away. Wear rubber overclothing (including gloves). Stop discharge if possible. Evacuate. Isolate and remove discharged material. Notify local health and pollution control agencies. Protect water intakes.</p>				
Fire	Not flammable. POISONOUS GASES ARE PRODUCED WHEN HEATED. DO NOT USE WATER ON ADJACENT FIRES.			
Exposure	Call for medical aid. VAPOR Irritating to eyes, nose and throat. If inhaled will cause coughing or difficult breathing. Move victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID Will burn skin and eyes. If swallowed will cause nausea, vomiting or loss of consciousness. 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	Effect of low concentrations on aquatic life is unknown. 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
 Collection Systems: Pump
 Chemical and Physical Treatment:
 Neutralize

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** Not listed
 2.2 **Formula:** SbCl₅
 2.3 **IMO/UN Designation:** 8/1730
 2.4 **DOT ID No.:** 1730
 2.5 **CAS Registry No.:** 7647-18-9
 2.6 **NAERG Guide No.:** 157
 2.7 **Standard Industrial Trade Classification:** 52310

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Organic vapor-acid gas type canister mask; rubber, neoprene, vinyl, etc. gloves; chemical safety goggles, plus face shield where appropriate; acid-resistant clothing, plus apron for splash protection; rubber safety shoes or boots; hard hat.
- 3.2 **Symptoms Following Exposure:** Inhalation causes irritation of nose and throat. Contact of liquid with eyes or skin causes severe burns. Ingestion causes vomiting and severe burns of mouth and stomach. Overexposure by any route can cause bloody stools, slow pulse, low blood pressure, coma, convulsions, cardiac arrest.
- 3.3 **Treatment of Exposure:** INHALATION: remove to clean air; rinse mouth and gargle with water; if overexposure is serious, get prompt medical attention. EYES: flush eyes and eye-lids thoroughly with large amounts of water; get prompt medical attention. SKIN: flush thoroughly with water; remove contaminated clothing; wash affected area with soap and water; if overexposure is serious, get prompt medical attention. INGESTION: dilute by drinking water; if vomiting occurs, administer more water. If overexposure is serious, get prompt medical attention.
- 3.4 **TLV-TWA:** 0.5 mg/m³ as antimony
 3.5 **TLV-STEL:** Not listed.
 3.6 **TLV-Ceiling:** Not listed.
 3.7 **Toxicity by Ingestion:** Grade 2; oral LD₅₀ = 1,115 mg/kg (rat), 900 mg/kg (guinea pig)
 3.8 **Toxicity by Inhalation:** Currently not available.
 3.9 **Chronic Toxicity:** Antimony poisoning may result.
 3.10 **Vapor (Gas) Irritant Characteristics:** Vapors are moderately irritating such that personnel will not usually tolerate moderate or high vapor 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:** 50 mg/m³ as antimony
 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:** Do not use water or foam on adjacent fires.
- 4.5 **Special Hazards of Combustion Products:** Not pertinent
- 4.6 **Behavior in Fire:** Irritating fumes of hydrogen chloride given off when water or foam is used to extinguish adjacent fire.
- 4.7 **Auto Ignition Temperature:** Not pertinent
- 4.8 **Electrical Hazards:** Not pertinent
- 4.9 **Burning Rate:** Not pertinent
- 4.10 **Adiabatic Flame Temperature:** Not pertinent
- 4.11 **Stoichiometric Air to Fuel Ratio:** Not pertinent
- 4.12 **Flame Temperature:** Not pertinent
- 4.13 **Combustion Molar Ratio (Reactant Product):** Currently not available
- 4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** Reacts to form hydrogen chloride gas (hydrochloric acid).
- 5.2 **Reactivity with Common Materials:** Causes corrosion of metal.
- 5.3 **Stability During Transport:** Stable
- 5.4 **Neutralizing Agents for Acids and Caustics:** Soda ash or soda ash-lime mixture
- 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: 2
 Human Oral hazard: 1
 Human Contact hazard: II
 Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 99+%
- 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:** II
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:**
- | Category | Classification |
|---------------------------|----------------|
| Health Hazard (Blue)..... | 3 |
| Flammability (Red)..... | 0 |
| Instability (Yellow)..... | 1 |
- 8.6 **EPA Reportable Quantity:** 1000
- 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:** 299.05
- 9.3 **Boiling Point at 1 atm:** (est.) 347°F = 175°C = 448°K
- 9.4 **Freezing Point:** 37°F = 3°C = 276°K
- 9.5 **Critical Temperature:** Not pertinent
- 9.6 **Critical Pressure:** Not pertinent
- 9.7 **Specific Gravity:** 2.354 at 20°C (liquid)
- 9.8 **Liquid Surface Tension:** (est.) 15 dynes/cm = 0.015 N/m at 20°C
- 9.9 **Liquid Water Interfacial Tension:** Not pertinent
- 9.10 **Vapor (Gas) Specific Gravity:** Not pertinent
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** Not pertinent
- 9.12 **Latent Heat of Vaporization:** 68.9 Btu/lb = 38.3 cal/g = 1.60 X 10⁵ J/kg
- 9.13 **Heat of Combustion:** Not pertinent
- 9.14 **Heat of Decomposition:** Not pertinent
- 9.15 **Heat of Solution:** -211.9 Btu/lb = -117.7 cal/g = -4.925 X 10⁵ J/kg
- 9.16 **Heat of Polymerization:** Not pertinent
- 9.17 **Heat of Fusion:** 8.0 cal/g
- 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
51	146.400	51	0.400	51	1.048	40	2.842
52	146.400	52	0.400	52	1.048	45	2.730
53	146.299	53	0.400	53	1.048	50	2.625
54	146.299	54	0.400	54	1.048	55	2.526
55	146.299	55	0.400	55	1.048	60	2.432
56	146.199	56	0.400	56	1.048	65	2.343
57	146.199	57	0.400	57	1.048	70	2.260
58	146.199	58	0.400	58	1.048	75	2.180
59	146.099	59	0.400	59	1.048	80	2.105
60	146.099	60	0.400	60	1.048	85	2.034
61	146.099	61	0.400	61	1.048		
62	146.000	62	0.400	62	1.048		
63	146.000	63	0.400	63	1.048		
64	146.000	64	0.400	64	1.048		
65	145.900	65	0.400	65	1.048		
66	145.900	66	0.400	66	1.048		
67	145.900	67	0.400	67	1.048		
68	145.799	68	0.400	68	1.048		
69	145.799	69	0.400	69	1.048		
70	145.699	70	0.400	70	1.048		
71	145.699	71	0.400	71	1.048		
72	145.699	72	0.400	72	1.048		
73	145.599	73	0.400	73	1.048		
74	145.599	74	0.400	74	1.048		
75	145.599	75	0.400	75	1.048		
76	145.500	76	0.400	76	1.048		

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
	R	60	0.012	60	0.00063		N
	E	70	0.017	70	0.00090		O
	A	80	0.025	80	0.00127		T
	C	90	0.035	90	0.00177		
	T	100	0.049	100	0.00243		P
	S	110	0.068	110	0.00332		E
		120	0.093	120	0.00447		R
		130	0.126	130	0.00596		T
		140	0.169	140	0.00786		I
		150	0.225	150	0.01029		N
		160	0.297	160	0.01333		E
		170	0.387	170	0.01714		N
		180	0.502	180	0.02185		T
		190	0.645	190	0.02764		
		200	0.822	200	0.03471		
		210	1.040	210	0.04328		
		220	1.308	220	0.05361		
		230	1.633	230	0.06598		
		240	2.027	240	0.08071		
		250	2.500	250	0.09814		
		260	3.065	260	0.11870		
		270	3.738	270	0.14270		
		280	4.534	280	0.17080		
		290	5.470	290	0.20330		
		300	6.568	300	0.24090		
		310	7.849	310	0.28410		