ANTIMONY PENTAFLUORIDE

APF

CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Liquid Colorless Sharp odor Reacts violently with water. Poisonous gas is produced on contact with water. Freezing point is 45°F.

AVOID CONTACT WITH LIQUID AND VAPOR. KEEP PEOPLE AWAY.
Wear goggles and self-contained breathing apparatus.
Stop discharge if possible.
Call fire department.
Evacuate.
Isolate and remove discharged material.
Notify local health and pollution control agencies.
Protect water intakes.

Fire	Not flammable. May cause fire on contact with combustibles. POISONOUS GASES ARE PRODUCED WHEN HEATED. DO NOT USE WATER OR FOAM ON FIRE OR ON ADJACENT FIRES. Extinguish with dry chemicals or carbon dioxide.
Exposure	CALL FOR MEDICAL AID. VAPOR POISONOUS IF INHALED. Irritating to eyes, nose and throat. Move victim 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	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
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: SbF_5
2.3 IMO/UN Designation: 8/1732
2.4 DOT ID No.: 1732
2.5 CAS Registry No.: 7783-70-2
2.6 NAERG Guide No.: 157
2.7 Standard Industrial Trade Classification: 52310

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Acid-gas-type canister mask; rubber gloves, protective clothing; safety goggles and face shield.
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 throat. 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 fresh air; rinse mouth with water; give oxygen if necessary to assist breathing; get medical attention. EYES: irrigate with copious amounts of water for at least 15 min.; get medical attention. SKIN: flush with copious amounts of water; wash well with soap and water. INGESTION: dilute by drinking water; if vomiting occurs, drink more water; get medical attention promptly.
3.4 TLV-TWA: 0.5 mg/m^3 as antimony
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Currently not available
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Antimony poisoning may result.
3.10 Vapor (Gas) Irritant Characteristics: Currently not available
3.11 Liquid or Solid Characteristics: Currently not available
3.12 Odor Threshold: Currently not available
3.13 IDLH Value: 50 mg/m^3 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: Gives off toxic hydrogen fluoride fumes when water 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 Stoichometric Air to Fuel Ratio: Not pertinent
4.12 Flame Temperature: Not pertinent
4.13 Combustion Molar Ratio (Reactant to Product): Currently not available
4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

5. CHEMICAL REACTIVITY

5.1 Reactivity with Water: Reacts vigorously to form toxic hydrogen fluoride (hydrofluoric acid).
5.2 Reactivity with Common Materials: When moisture is present, causes severe corrosion of metals (except steel) and glass. If confined and wet can cause explosion. May cause fire in contact with combustible material.
5.3 Stability During Transport: Stable
5.4 Neutralizing Agents for Acids and Caustics: Flush with water, rinse with sodium bicarbonate or lime solution.
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: Not listed

7. SHIPPING INFORMATION

7.1 Grades of Purity: Commercial
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).....	4
Flammability (Red).....	0
Instability (Yellow).....	1

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

9. PHYSICAL & CHEMICAL PROPERTIES

9.1 Physical State at 15° C and 1 atm: Liquid
9.2 Molecular Weight: 216.7
9.3 Boiling Point at 1 atm: 289°F = 143°C = 416°K
9.4 Freezing Point: 45°F = 7°C = 280°K
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 2.340 at 30°C (liquid)
9.8 Liquid Surface Tension: (est.) 20 dynes/cm = 0.020 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: (est.) 79 Btu/lb = 44 cal/g = 1.8 X 10^5 J/kg
9.13 Heat of Combustion: Not pertinent
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solution: Currently not available
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
50	146.699	51	0.400	51	1.048	51	0.954
52	146.599	52	0.400	52	1.048	52	0.945
54	146.599	53	0.400	53	1.048	53	0.937
56	146.500	54	0.400	54	1.048	54	0.928
58	146.400	55	0.400	55	1.048	55	0.920
60	146.299	56	0.400	56	1.048	56	0.912
62	146.299	57	0.400	57	1.048	57	0.904
64	146.199	58	0.400	58	1.048	58	0.896
66	146.099	59	0.400	59	1.048	59	0.888
68	146.099	60	0.400	60	1.048	60	0.880
70	146.000	61	0.400	61	1.048	61	0.872
72	145.900	62	0.400	62	1.048	62	0.865
74	145.900	63	0.400	63	1.048	63	0.857
76	145.799	64	0.400	64	1.048	64	0.850
78	145.699	65	0.400	65	1.048	65	0.842
80	145.699	66	0.400	66	1.048	66	0.835
82	145.599	67	0.400	67	1.048	67	0.828
84	145.500	68	0.400	68	1.048	68	0.821
86	145.400	69	0.400	69	1.048	69	0.814
88	145.400	70	0.400	70	1.048	70	0.807
		71	0.400	71	1.048	71	0.800
		72	0.400	72	1.048	72	0.794
		73	0.400	73	1.048	73	0.787
		74	0.400	74	1.048	74	0.780
		75	0.400	75	1.048	75	0.774
		76	0.400	76	1.048	76	0.768

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	215	4.127	215	0.12350		N
	E	220	4.534	220	0.13470		O
	A	225	4.975	225	0.14670		T
	C	230	5.450	230	0.15950		
	T	235	5.964	235	0.17330		P
	S	240	6.517	240	0.18800		E
		245	7.113	245	0.20380		R
		250	7.754	250	0.22060		T
		255	8.443	255	0.23850		I
		260	9.181	260	0.25750		N
		265	9.973	265	0.27780		E
		270	10.820	270	0.29940		N
		275	11.730	275	0.32220		T
		280	12.700	280	0.34650		
		285	13.730	285	0.37220		
		290	14.830	290	0.39940		
		295	16.010	295	0.42820		
		300	17.260	300	0.45870		