ARSENIC TRICHLORIDE

AST

CAUTIONARY RESPONSE INFORMATION

Common Synonyms
Arsenic chloride
Arsenious chloride
Arsenous chloride
Butter of arsenic
Caustic arsenic chloride
Fuming liquid arsenic

Liquid Colorless Unpleasant odor

Sinks and reacts in water. Poisonous visible vapor cloud is produced.

AVOID CONTACT WITH LIQUID AND VAPOR. KEEP PEOPLE AWAY.
Wear goggles and self-contained breathing apparatus.
Avoid inhalation.
Stop discharge if possible.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

Not Flammable.
POISONOUS GASES ARE PRODUCED WHEN HEATED.

Exposure

CALL FOR MEDICAL AID.

VAPOR
POISONOUS IF INHALED.
Move victim to fresh air.
If breathing is difficult, give oxygen.

LIQUID
POISONOUS IF SWALLOWED.
Irritating to 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 and have victim induce vomiting.
IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.

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

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed
2.2 Formula: $AsCl_3$
2.3 IMO/UN Designation: 6.1/1560
2.4 DOT ID No.: 1560
2.5 CAS Registry No.: 7784-34-1
2.6 NAERG Guide No.: 157
2.7 Standard Industrial Trade Classification: 52310

3. HEALTH HAZARDS

3.1 Personal Protective Equipment: Safety goggles and face shield; acid-type canister gas mask; rubber gloves; protective clothing.
3.2 Symptoms Following Exposure: Inhalation causes irritation of nose and throat. Contact of liquid with eyes or skin causes severe irritation. Ingestion causes weakness and severe irritation of mouth and stomach. Overdose can cause arsenic poisoning, but symptoms are delayed.
3.3 Treatment of Exposure: Get medical attention after all exposures to the compound. Be alert for arsenic poisoning symptoms. INHALATION: Remove to fresh air; give artificial respiration if needed. EYES: Flush with water for at least 15 min. SKIN: Flush with water. INGESTION: Give large amounts of water, then induce vomiting; give lime water, milk, or raw egg; give a cathartic.
3.4 TLV-TWA: 0.01 mg/m^3 as arsenic
3.5 TLV-STEL: Not listed.
3.6 TLV-Ceiling: Not listed.
3.7 Toxicity by Ingestion: Grade 3; oral rat LD_{50} = 138 mg/kg; fatal human dose 70-180 mg, depending on weight.
3.8 Toxicity by Inhalation: Currently not available.
3.9 Chronic Toxicity: Arsenic compounds may be carcinogenic.
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: 5 mg/m^3 as arsenic.
3.14 OSHA PEL-TWA: 0.01 mg/m^3 as arsenic.
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: Avoid water on adjacent fires.
4.5 Special Hazards of Combustion Products: Irritating and toxic hydrogen chloride formed when involved in fire.
4.6 Behavior in Fire: Becomes gaseous and causes irritation. Forms hydrogen chloride (hydrochloric acid) by reaction with water used on adjacent fires.
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 with water to generate hydrogen chloride (hydrochloric acid).
5.2 Reactivity with Common Materials: Corrodes metal.
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): Currently not available
6.4 Food Chain Concentration Potential: None
6.5 GESAMP Hazard Profile:
Bioaccumulation: 0
Damage to living resources: 3
Human Oral hazard: 4
Human Contact hazard: I
Reduction of amenities: 0

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: Poison
8.2 49 CFR Class: 6.1
8.3 49 CFR Package Group: I
8.4 Marine Pollutant: No
8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	3
Flammability (Red).....	0
Instability (Yellow).....	0

8.6 EPA Reportable Quantity: 1
8.7 EPA Pollution Category: X
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: 181.3
9.3 Boiling Point at 1 atm: 266.4°F = 130.2°C = 403.4°K
9.4 Freezing Point: 9°F = –13°C = 260°K
9.5 Critical Temperature: Not pertinent
9.6 Critical Pressure: Not pertinent
9.7 Specific Gravity: 2.156 at 25°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: 88.31 Btu/lb = 49.06 cal/g = 2.054 X 10^5 J/kg
9.13 Heat of Combustion: Not pertinent
9.14 Heat of Decomposition: Not pertinent
9.15 Heat of Solution: (est.) –18 Btu/lb = -10 cal/g = -0.42 X 10^5 J/kg
9.16 Heat of Polymerization: Not pertinent
9.17 Heat of Fusion: 13.3 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
30	137.699	34	0.400	34	1.048	45	1.342
35	137.299	36	0.400	36	1.048	50	1.297
40	137.000	38	0.400	38	1.048	55	1.254
45	136.599	40	0.400	40	1.048	60	1.214
50	136.199	42	0.400	42	1.048	65	1.175
55	135.799	44	0.400	44	1.048	70	1.139
60	135.500	46	0.400	46	1.048	75	1.104
65	135.099	48	0.400	48	1.048	80	1.071
70	134.699	50	0.400	50	1.048	85	1.039
75	134.299	52	0.400	52	1.048	90	1.009
80	134.000	54	0.400	54	1.048	95	0.981
85	133.599	56	0.400	56	1.048	100	0.953
90	133.199	58	0.400	58	1.048	105	0.927
95	132.799	60	0.400	60	1.048	110	0.902
100	132.500	62	0.400	62	1.048	115	0.878
105	132.099	64	0.400	64	1.048	120	0.855
110	131.699	66	0.400	66	1.048	125	0.834
115	131.400	68	0.400	68	1.048		
120	131.000	70	0.400				
125	130.599	72	0.400				
		74	0.400				
		76	0.400				

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	0.123	60	0.00400		N
	E	70	0.169	70	0.00539		O
	A	80	0.230	80	0.00719		T
	C	90	0.308	90	0.00948		
	T	100	0.410	100	0.01237		P
	S	110	0.540	110	0.01600		E
		120	0.703	120	0.02049		R
		130	0.909	130	0.02602		T
		140	1.164	140	0.03278		I
		150	1.479	150	0.04096		N
		160	1.864	160	0.05081		E
		170	2.333	170	0.06258		N
		180	2.899	180	0.07655		T
		190	3.579	190	0.09304		
		200	4.390	200	0.11240		
		210	5.352	210	0.13500		
		220	6.486	220	0.16120		
		230	7.818	230	0.19150		
		240	9.373	240	0.22620		
		250	11.180	250	0.26610		
		260	13.270	260	0.31140		