

METHYLTRICHLOROSILANE

MTS

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Trichloromethylsilane		Liquid	Colorless	Sharp irritating odor
Reacts violently with water. Irritating gas is produced on contact with water.				
Evacuate. KEEP PEOPLE AWAY. AVOID CONTACT WITH LIQUID AND VAPOR. Avoid inhalation. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Shut off ignition sources. Call fire department. Notify local health and pollution control agencies. Protect water intakes.				
Fire	FLAMMABLE. POISONOUS GASES MAY BE PRODUCED IN FIRE. Containers may explode in fire. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Wear goggles and self-contained breathing apparatus. Extinguish with dry chemicals or carbon dioxide. DO NOT USE WATER OR FOAM ON FIRE. DO NOT USE WATER OR FOAM ON ADJACENT FIRES.			
Exposure	Call for medical aid. VAPOR Irritating to eyes, nose and throat. If inhaled will cause 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. Harmful 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	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 burn
 Do not add water to undissolved material

2. CHEMICAL DESIGNATIONS

2.1 **CG Compatibility Group:** Not listed.
 2.2 **Formula:** CH₃SiCl₃
 2.3 **IMO/UN Designation:** 3.2/1250
 2.4 **DOT ID No.:** 1250
 2.5 **CAS Registry No.:** 75-79-6
 2.6 **NAERG Guide No.:** 155
 2.7 **Standard Industrial Trade Classification:** 51550

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Full protective clothing; acid-vapor-type respiratory protection; rubber gloves; chemical worker's goggles; other protective equipment as necessary to protect skin and eyes.
- 3.2 **Symptoms Following Exposure:** Inhalation causes irritation of mucous membrane. Contact with liquid causes severe burns of eyes and skin. Ingestion causes severe burns of mouth and stomach.
- 3.3 **Treatment of Exposure:** Get medical attention at once following all exposures to this compound.
 INHALATION: remove victim from exposure; give artificial respiration if breathing has ceased.
 EYES: flush with water for 15 min. SKIN: flush with water. INGESTION: do NOT induce vomiting; give large amounts of water.
- 3.4 **TLV-TWA:** Not listed.
 3.5 **TLV-STEL:** Not listed.
 3.6 **TLV-Ceiling:** Not listed.
 3.7 **Toxicity by Ingestion:** Grade 3; LD₅₀ = 50 to 500 mg/kg
 3.8 **Toxicity by Inhalation:** Currently not available.
 3.9 **Chronic Toxicity:** Currently not available
 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:** Decomposes in moist air, creating HCl with odor threshold of 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:** 45°F O.C. 15°F C.C.
 4.2 **Flammable Limits in Air:** 5.1%- >20%
 4.3 **Fire Extinguishing Agents:** Dry chemical, carbon dioxide
 4.4 **Fire Extinguishing Agents Not to Be Used:** Water, foam
 4.5 **Special Hazards of Combustion Products:** Toxic hydrogen chloride and phosgene gases may form in fires.
 4.6 **Behavior in Fire:** Difficult to extinguish; re-ignition may occur. Contact with water applied to adjacent fires produces irritating hydrogen chloride.
 4.7 **Auto Ignition Temperature:** >760
 4.8 **Electrical Hazards:** Currently not available
 4.9 **Burning Rate:** 1.9 mm/min.
 4.10 **Adiabatic Flame Temperature:** Currently not available
 4.11 **Stoichiometric Air to Fuel Ratio:** 9.5 (calc.)
 4.12 **Flame Temperature:** Currently not available
 4.13 **Combustion Molar Ratio (Reactant to Product):** 5.0 (calc.)
 4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** Reacts violently to form hydrogen chloride (hydrochloric acid).
 5.2 **Reactivity with Common Materials:** Reacts with surface moisture to evolve hydrogen chloride, which is corrosive to metals.
 5.3 **Stability During Transport:** Stable
 5.4 **Neutralizing Agents for Acids and Caustics:** Flood 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: 1
 Human Oral hazard: 1
 Human Contact hazard: II
 Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 98+%
 7.2 **Storage Temperature:** Ambient
 7.3 **Inert Atmosphere:** No requirement
 7.4 **Venting:** Safety relief
 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:** Flammable liquid
 8.2 **49 CFR Class:** 3
 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)..... | 3 |
| Instability (Yellow)..... | 2 |
| Special (White)..... | W |
- 8.6 **EPA Reportable Quantity:** Not listed.
 8.7 **EPA Pollution Category:** Not listed.
 8.8 **RCRA Waste Number:** Not listed
 8.9 **EPA FWPC List:** Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Liquid
 9.2 **Molecular Weight:** 149.5
 9.3 **Boiling Point at 1 atm:** 151.5°F = 66.4°C = 339.6°K
 9.4 **Freezing Point:** -130°F = -90°C = 183°K
 9.5 **Critical Temperature:** Not pertinent
 9.6 **Critical Pressure:** Not pertinent
 9.7 **Specific Gravity:** 1.27 at 25°C (liquid)
 9.8 **Liquid Surface Tension:** 20.3 dynes/cm = 0.0203 N/m at 20°C
 9.9 **Liquid Water Interfacial Tension:** Not pertinent
 9.10 **Vapor (Gas) Specific Gravity:** 5.16
 9.11 **Ratio of Specific Heats of Vapor (Gas):** Currently not available
 9.12 **Latent Heat of Vaporization:** 89.3 Btu/lb = 49.6 cal/g = 2.08 X 10⁵ J/kg
 9.13 **Heat of Combustion:** (est.) -3,000 Btu/lb = -1,700 cal/g = -70 X 10⁵ J/kg
 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
34	80.770	52	0.350	42	0.984	51	4.064
36	80.700	54	0.350	44	0.984	52	4.005
38	80.629	56	0.350	46	0.984	53	3.948
40	80.559	58	0.350	48	0.984	54	3.892
42	80.490	60	0.350	50	0.984	55	3.836
44	80.419	62	0.350	52	0.984	56	3.782
46	80.349	64	0.350	54	0.984	57	3.729
48	80.280	66	0.350	56	0.984	58	3.677
50	80.209	68	0.350	58	0.984	59	3.625
52	80.139	70	0.350	60	0.984	60	3.575
54	80.070	72	0.350	62	0.984	61	3.525
56	80.000	74	0.350	64	0.984	62	3.476
58	79.929	76	0.350	66	0.984	63	3.428
60	79.870	78	0.350	68	0.984	64	3.381
62	79.799	80	0.350	70	0.984	65	3.335
64	79.730	82	0.350	72	0.984	66	3.290
66	79.660	84	0.350	74	0.984	67	3.245
68	79.589	86	0.350	76	0.984	68	3.201
70	79.520			78	0.984	69	3.158
72	79.450			80	0.984	70	3.116
74	79.379			82	0.984	71	3.074
76	79.309			84	0.984	72	3.033
78	79.240			86	0.984	73	2.993
80	79.169			88	0.984	74	2.954
82	79.099					75	2.915
84	79.030					76	2.877

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	0	0.408	0	0.01237		N
	E	5	0.478	5	0.01434		O
	A	10	0.558	10	0.01656		T
	C	15	0.650	15	0.01906		
	T	20	0.753	20	0.02188		P
	S	25	0.871	25	0.02503		E
		30	1.004	30	0.02857		R
		35	1.155	35	0.03251		T
		40	1.323	40	0.03689		I
		45	1.513	45	0.04175		N
		50	1.725	50	0.04714		E
		55	1.962	55	0.05309		N
		60	2.226	60	0.05966		T
		65	2.519	65	0.06687		
		70	2.845	70	0.07480		
		75	3.205	75	0.08348		
		80	3.602	80	0.09297		
		85	4.041	85	0.10330		
		90	4.523	90	0.11460		
		95	5.052	95	0.12690		
		100	5.633	100	0.14020		
		105	6.267	105	0.15460		
		110	6.961	110	0.17020		
		115	7.717	115	0.18700		
		120	8.539	120	0.20520		