

TETRACHLOROETHANE

TEC

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Acetylene tetrachloride 1,1,2,2-Tetrachloroethane		Liquid Colorless to pale yellow Sweet odor Sinks in water.
KEEP PEOPLE AWAY. AVOID CONTACT WITH LIQUID AND VAPOR. Wear rubber overclothing (including gloves). Notify local health and pollution control agencies. Protect water intakes.		
Fire	Not flammable. Poisonous gases may be produced when heated.	
Exposure	CALL FOR MEDICAL AID. VAPOR Irritating to eyes, nose and throat. Harmful if inhaled. If in eyes, hold eyelids open and flush with plenty of water. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED. Irritating to skin and eyes. If swallowed will cause nausea and vomiting. 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

Stop discharge
 Collection Systems: Pump

2. CHEMICAL DESIGNATIONS

- 2.1 **CG Compatibility Group:** 36; Halogenated hydrocarbon
- 2.2 **Formula:** Cl₂CHCHCl₂
- 2.3 **IMO/UN Designation:** Not listed
- 2.4 **DOT ID No.:** 1702
- 2.5 **CAS Registry No.:** 1299-90-7
- 2.6 **NAERG Guide No.:** 151
- 2.7 **Standard Industrial Trade Classification:** 51134

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Chemical safety goggles; plastic face shield; air- or oxygen-supplied mask; safety hat with brim; solvent-proof apron; synthetic rubber gloves
- 3.2 **Symptoms Following Exposure:** Compound is a powerful narcotic and liver poison; may also cause changes in blood composition and neurological disturbances. Repeated exposure by inhalation can be fatal. Ingestion causes vomiting, diarrhea, severe mucosal injury, liver necrosis, cyanosis, unconsciousness, loss of reflexes, and death. Contact with eyes causes irritation and lachrymation. Can be absorbed through the skin and may produce severe skin lesions.
- 3.3 **Treatment of Exposure:** INHALATION: remove victim from exposure; begin artificial respiration if breathing has ceased. INGESTION: induce vomiting; call a physician. EYES: irrigate with water for 15 min. SKIN: remove clothing; wash skin thoroughly with warm water and soap.
- 3.4 **TLV-TWA:** 1 ppm
- 3.5 **TLV-STEL:** Not listed.
- 3.6 **TLV-Ceiling:** Not listed.
- 3.7 **Toxicity by Ingestion:** Grade 3; oral LD₅₀ = 200 mg/kg (rat)
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Liver poisoning, nervous disorders
- 3.10 **Vapor (Gas) Irritant Characteristics:** Vapor is moderately irritating such that personnel will not usually tolerate moderate or high vapor concentrations.
- 3.11 **Liquid or Solid Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
- 3.12 **Odor Threshold:** 0.5 ppm
- 3.13 **IDLH Value:** 100 ppm
- 3.14 **OSHA PEL-TWA:** 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:** Not pertinent
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
- 4.5 **Special Hazards of Combustion Products:** Irritating hydrogen chloride vapor may form in fire.
- 4.6 **Behavior in Fire:** Currently not available
- 4.7 **Auto Ignition Temperature:** Not pertinent
- 4.8 **Electrical Hazards:** Not pertinent
- 4.9 **Burning Rate:** Not pertinent
- 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:** No reaction
- 5.2 **Reactivity with Common Materials:** May attack some forms of plastics
- 5.3 **Stability During Transport:** Stable
- 5.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
- 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:**
Currently not available
- 6.5 **GESAMP Hazard Profile:**
Bioaccumulation: Z
Damage to living resources: 2
Human Oral hazard: 2
Human Contact hazard: II
Reduction of amenities: X

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Technical, 98%
- 7.2 **Storage Temperature:** Ambient
- 7.3 **Inert Atmosphere:** No requirement
- 7.4 **Venting:** Open
- 7.5 **IMO Pollution Category:** B
- 7.6 **Ship Type:** 3
- 7.7 **Barge Hull Type:** 3

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Poison
- 8.2 **49 CFR Class:** 6.1
- 8.3 **49 CFR Package Group:** II
- 8.4 **Marine Pollutant:** Yes
- 8.5 **NFPA Hazard Classification:** Not listed
- 8.6 **EPA Reportable Quantity:** 100 pounds
- 8.7 **EPA Pollution Category:** B
- 8.8 **RCRA Waste Number:** U209
- 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:** 167.85
- 9.3 **Boiling Point at 1 atm:** 295.3°F = 146.3°C = 419.5°K
- 9.4 **Freezing Point:** -46.8°F = -43.8°C = 229.4°K
- 9.5 **Critical Temperature:** Currently not available
- 9.6 **Critical Pressure:** Currently not available
- 9.7 **Specific Gravity:** 1.595 at 20°C (liquid)
- 9.8 **Liquid Surface Tension:** 37.85 dynes/cm = 0.03785 N/m at 20°C
- 9.9 **Liquid Water Interfacial Tension:** Currently not available
- 9.10 **Vapor (Gas) Specific Gravity:** 5.79
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.090 at 25°C
- 9.12 **Latent Heat of Vaporization:** 99.2 Btu/lb = 55.1 cal/g = 2.30 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:** 0.5 psia

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	101.400	52	0.210	30	0.791	34	2.527
36	101.299	54	0.210	40	0.784	36	2.473
38	101.200	56	0.210	50	0.777	38	2.422
40	101.099	58	0.210	60	0.770	40	2.371
42	101.000	60	0.210	70	0.763	42	2.322
44	100.900	62	0.210	80	0.756	44	2.275
46	100.799	64	0.210	90	0.748	46	2.229
48	100.599	66	0.210	100	0.741	48	2.184
50	100.500	68	0.210	110	0.734	50	2.140
52	100.400	70	0.210	120	0.727	52	2.098
54	100.299	72	0.210	130	0.720	54	2.057
56	100.200	74	0.210	140	0.713	56	2.017
58	100.099	76	0.210	150	0.706	58	1.977
60	100.000	78	0.210	160	0.699	60	1.939
62	99.910	80	0.210	170	0.692	62	1.902
64	99.799	82	0.210	180	0.685	64	1.866
66	99.690	84	0.210	190	0.678	66	1.831
68	99.589	86	0.210	200	0.671	68	1.797
70	99.480					70	1.764
72	99.379					72	1.732
74	99.270					74	1.700
76	99.160					76	1.669
78	99.059					78	1.639
80	98.950					80	1.610
82	98.849					82	1.582
84	98.740					84	1.554

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
34	0.251	80	0.161	80	0.00468	90	0.145
36	0.252	90	0.216	90	0.00614	100	0.146
38	0.254	100	0.285	100	0.00797	110	0.148
40	0.256	110	0.374	110	0.01026	120	0.149
42	0.258	120	0.485	120	0.01309	130	0.150
44	0.259	130	0.624	130	0.01655	140	0.151
46	0.261	140	0.796	140	0.02076	150	0.153
48	0.263	150	1.008	150	0.02584	160	0.154
50	0.265	160	1.265	160	0.03193	170	0.155
52	0.266	170	1.578	170	0.03918	180	0.156
54	0.268	180	1.954	180	0.04776	190	0.157
56	0.270	190	2.403	190	0.05784	200	0.159
58	0.272	200	2.938	200	0.06964	210	0.160
60	0.273	210	3.570	210	0.08335	220	0.161
62	0.275	220	4.313	220	0.09922	230	0.162
64	0.277	230	5.182	230	0.11750	240	0.164
66	0.279	240	6.194	240	0.13840	250	0.165
68	0.280	250	7.366	250	0.16230	260	0.166
70	0.282	260	8.719	260	0.18940		
72	0.284	270	10.270	270	0.22010		
74	0.286	280	12.050	280	0.25470		
76	0.287	290	14.070	290	0.29350		
78	0.289						
80	0.291						
82	0.293						
84	0.294						