

DICHLOROTETRAFLUOROETHANE

DTE

CAUTIONARY RESPONSE INFORMATION

Common Synonyms 1,2-Dichlorotetrafluoroethane F-114 Fluorane 114 Freon 114 Halon 242 Refrigerant 114		Gas	Colorless	Slight, ethereal odor
Keep people away. Avoid contact with vapor or liquid. Stay upwind; keep out of low areas. Wear self-contained positive pressure breathing apparatus and full protective clothing.				
Fire	Not flammable. Container may explode in heat of fire. Move container from fire area if you can do it without risk. Stay away from ends of tanks. Cool containers that are exposed to flames with water from the side until well after fire is out. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire.			
Exposure	CALL FOR MEDICAL AID. VAPOR Vapors may cause dizziness or suffocation. Move victim to fresh air; call emergency medical care. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. LIQUID Contact with liquid may cause frostbite. Remove contaminated clothing and shoes. Flush affected areas with lukewarm water. DO NOT USE HOT WATER.			
Water Pollution	Not pertinent			

1. CORRECTIVE RESPONSE ACTIONS Stop discharge	2. CHEMICAL DESIGNATIONS 2.1 CG Compatibility Group: Not listed. 2.2 Formula: C ₂ Cl ₂ F ₄ 2.3 IMO/UN Designation: 2.2/1958 2.4 DOT ID No.: 1958 2.5 CAS Registry No.: 76-14-2 2.6 NAERG Guide No.: 126 2.7 Standard Industrial Trade Classification: 51137
3. HEALTH HAZARDS 3.1 Personal Protective Equipment: Approved respirator, rubber gloves, safety goggles, and safety shoes. 3.2 Symptoms Following Exposure: Prolonged exposure can cause narcotic effect or rapid suffocation. 3.3 Treatment of Exposure: INHALATION: Remove to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. EYES: Flush with water for at least 15 minutes. SKIN: Remove contaminated clothing and shoes. Wash affected areas with soap and water. 3.4 TLV-TWA: 1,000 ppm 3.5 TLV-STEL: Not listed. 3.6 TLV-Ceiling: Not listed. 3.7 Toxicity by Ingestion: Not pertinent 3.8 Toxicity by Inhalation: Currently not available. 3.9 Chronic Toxicity: Currently not available 3.10 Vapor (Gas) Irritant Characteristics: Vapors are non-irritating to eyes and throat. 3.11 Liquid or Solid Characteristics: Minimum hazard. Contact may cause frostbite. 3.12 Odor Threshold: Currently not available 3.13 IDLH Value: 15,000 ppm 3.14 OSHA PEL-TWA: 1,000 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 pertinent
- 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:** Not pertinent
- 4.6 **Behavior in Fire:** Not pertinent
- 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 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:** No reaction
- 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:** Not listed

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 99 + %
- 7.2 **Storage Temperature:** Below 125 °F
- 7.3 **Inert Atmosphere:** Not pertinent
- 7.4 **Venting:** Currently not available
- 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:** Non-flammable gas
- 8.2 **49 CFR Class:** 2.2
- 8.3 **49 CFR Package Group:** Not pertinent.
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:** Not listed
- 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:** Gas
- 9.2 **Molecular Weight:** 170.93
- 9.3 **Boiling Point at 1 atm:** 38.8°F = 3.8°C = 277°K
- 9.4 **Freezing Point:** -137°F = -94°C = 179°K
- 9.5 **Critical Temperature:** 294.3°F = 145.7°C = 418.9°K
- 9.6 **Critical Pressure:** 473.2 psia = 32.2 atm = 3.3 MN/m²
- 9.7 **Specific Gravity:** 1.455 at 25°C
- 9.8 **Liquid Surface Tension:** 12 dyne/cm = .012 N/m at 25°C
- 9.9 **Liquid Water Interfacial Tension:** Currently not available
- 9.10 **Vapor (Gas) Specific Gravity:** 5.89
- 9.11 **Ratio of Specific Heats of Vapor (Gas):**
Currently not available
- 9.12 **Latent Heat of Vaporization:** 58.5 Btu/lb = 32.5 cal/g = 1.36 x 10⁵ J/kg
- 9.13 **Heat of Combustion:** Not pertinent
- 9.14 **Heat of Decomposition:** Currently not available
- 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:** 50.6 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
77	90.830		C U R R E N T L Y N O T A V A I L A B L E	80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155	0.464 0.491 0.514 0.535 0.553 0.570 0.586 0.600 0.613 0.625 0.635 0.646 0.655 0.664 0.672 0.680	77	0.380

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
77	0.013	-130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10	0.049 0.070 0.100 0.144 0.207 0.298 0.428 0.616 1.273 1.830 2.630 3.782 5.436 7.815 11.235	38	0.49000	0 25 50 75 100 125 150 175 200 225 250 275 300 325 350 375 400 425 450 475 500 525 550 575 600	0.139 0.141 0.144 0.146 0.149 0.152 0.155 0.158 0.161 0.165 0.168 0.172 0.176 0.180 0.184 0.188 0.193 0.198 0.203 0.208 0.214 0.220 0.226 0.232 0.239