

TETRAFLUOROETHYLENE

TFE

CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Compressed Gas Teflon monomer	Colorless	Odorless or faint odor
Visible vapor cloud is produced.			
Keep people away. Shut off ignition sources, call fire department. Stay upwind. Use water spray to "knock down" vapor. Evacuate area in case of large discharge. Notify local health and pollution control agencies. Avoid contact with vapor.			
Fire	FLAMMABLE. POISONOUS GASES ARE 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. Let fire burn. Stop flow of gas if possible. Cool exposed containers and protect men effecting shutoff with water.		
Call for medical aid.			
Exposure	VAPOR Irritating to eyes, nose and throat. Move victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.		
Water Pollution	Not harmful to aquatic life.		

1. CORRECTIVE RESPONSE ACTIONS	Stop discharge	2. CHEMICAL DESIGNATIONS
3.1 Personal Protective Equipment: Self-contained breathing apparatus for high gas concentrations		
3.2 Symptoms Following Exposure: Inhalation causes irritation of respiratory system. Contact with eyes causes slight irritation.		
3.3 Treatment of Exposure: INHALATION: remove victim from exposure; if breathing is difficult, give artificial respiration and call physician.		
3.4 TLV-TWA: Not listed. 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: Causes possible impairment of immunological defense system in rats 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: 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		
3. HEATH HAZARDS		

4. FIRE HAZARDS	7. SHIPPING INFORMATION
4.1 Flash Point: Not pertinent	7.1 Grades of Purity: 98+%
4.2 Flammable Limits in Air: 10%-50%	7.2 Storage Temperature: Cool ambient
4.3 Fire Extinguishing Agents: Let fire burn; stop flow of gas; cool containers with water.	7.3 Inert Atmosphere: No requirement
4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent	7.4 Venting: Safety relief
4.5 Special Hazards of Combustion Products: When burned in air, gas forms toxic carbonyl fluoride and hydrogen fluoride.	7.5 IMO Pollution Category: Currently not available
4.6 Behavior in Fire: Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back. Containers may explode.	7.6 Ship Type: Currently not available
4.7 Auto Ignition Temperature: 370°F	7.7 Barge Hull Type: Currently not available
4.8 Electrical Hazards: C-F-air mixtures produced explosions which propagated through the smallest clearance in the standard test conducted by Underwriters Laboratories. It does not meet any group classification.	8. HAZARD CLASSIFICATIONS
4.9 Burning Rate: Not pertinent	8.1 49 CFR Category: Flammable gas
4.10 Adiabatic Flame Temperature: Currently not available	8.2 49 CFR Class: 2.1
4.11 Stoichiometric Air to Fuel Ratio: Not pertinent	8.3 49 CFR Package Group: Not pertinent
4.12 Flame Temperature: Currently not available	8.4 Marine Pollutant: No
4.13 Combustion Molar Ratio (Reactant to Product): Not pertinent.	8.5 NFPA Hazard Classification:
4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed	Category Classification Health Hazard (Blue)..... 2 3 Flammability (Red)..... 4 4 Instability (Yellow)..... 3 3
5. CHEMICAL REACTIVITY	8.6 EPA Reportable Quantity: Not listed. 8.7 EPA Pollution Category: Not listed. 8.8 RCRA Waste Number: Not listed 8.9 EPA FWC List: Not listed
5.1 Reactivity with Water: No reaction	9. PHYSICAL & CHEMICAL PROPERTIES
5.2 Reactivity with Common Materials: No reaction	9.1 Physical State at 15°C and 1 atm: Gas
5.3 Stability During Transport: Stable	9.2 Molecular Weight: 100.0
5.4 Neutralizing Agents for Acids and Caustics: Not pertinent	9.3 Boiling Point at 1 atm: -105°F = -76°C = 197°K
5.5 Polymerization: Can polymerize in the absence of inhibitor, especially when heated or in presence of oxygen.	9.4 Freezing Point: -224°F = -142°C = 131°K
5.6 Inhibitor of Polymerization: d-limonene; pinene; tetrahydronaphthalene; 1-octene; methyl methacrylate	9.5 Critical Temperature: (est.) 92°F = 33°C = 306°K
6. WATER POLLUTION	9.6 Critical Pressure: (est.) 573 psia = 38.9 atm = 3.95 MN/m²
6.1 Aquatic Toxicity: None	9.7 Specific Gravity: Not pertinent
6.2 Waterfowl Toxicity: None	9.8 Liquid Surface Tension: Not pertinent
6.3 Biological Oxygen Demand (BOD): None	9.9 Liquid Water Interfacial Tension: Not pertinent
6.4 Food Chain Concentration Potential: None	9.10 Vapor (Gas) Specific Gravity: 3.45
6.5 GESAMP Hazard Profile: Not listed	9.11 Ratio of Specific Heats of Vapor (Gas): (est.) 1.1261
9.12 Latent Heat of Vaporization: Not pertinent	
9.13 Heat of Combustion: (est.) -4,000 Btu/lb = -2,000 cal/g = -90 X 10³ J/kg	
9.14 Heat of Decomposition: Not pertinent	
9.15 Heat of Solution: Not pertinent	
9.16 Heat of Polymerization: -450 Btu/lb = -250 cal/g = -10.5 X 10³ J/kg	
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
NOT PERTINENT	NOT PERTINENT	NOT PERTINENT	NOT PERTINENT	NOT PERTINENT	NOT PERTINENT	NOT PERTINENT	NOT PERTINENT

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
INSOLUBLE	-100 -95 -90 -85 -80 -75 -70 -65 -60 -55 -50 -45 -40 -35 -30 -25 -20 -15 -10 -5 0 5 10 15 20 25	17.290 19.860 22.720 25.910 29.440 33.340 37.630 42.350 47.510 53.160 59.310 66.009 73.270 81.120 89.610 98.759 108.599 119.200 130.500 142.599 155.599 169.400 184.099 199.699 216.299 233.799	-100 -95 -90 -85 -80 -75 -70 -65 -60 -55 -50 -45 -40 -35 -30 -25 -20 -15 -10 -5 0 5 10 15 20 25	0.44790 0.50720 0.57270 0.64420 0.72230 0.80730 0.89960 0.99950 1.10700 1.22400 1.34900 1.48300 1.62600 1.78000 1.94300 2.11700 2.30100 2.49700 2.70400 2.92200 3.15300 3.39600 3.65100 3.91900 4.20000 4.49400	0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440	0.166 0.169 0.173 0.176 0.179 0.183 0.186 0.189 0.192 0.195 0.198 0.201 0.204 0.207 0.209 0.212 0.215 0.217 0.220 0.222 0.225 0.227 0.229	