

# 4-FLUOROTOLUENE

FTU

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b> 1-Fluoro-4-methylbenzene 4-Fluoro-1-methylbenzene p-Fluorotoluene p-Tolyl fluoride	Liquid  Colorless  Aromatic  May sink or float on water.
<p>Keep people away. Avoid contact with vapor or liquid. Avoid inhalation. Wear self-contained breathing apparatus and full protective clothing. Contain Collection Systems: Skim; Pump (as appropriate) Do not burn Shut off all sources of ignition. Call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>	
<b>Fire</b>	<p>COMBUSTIBLE Poisonous gases may be produced in fire. Containers may explode in fire. Flashback may occur along vapor trail. Vapor may explode if ignited in an enclosed area. Wear self-contained breathing apparatus and full protective clothing. Small fires: extinguish with dry chemical, CO<sub>2</sub>, water spray or foam. Large fires: extinguish with water spray, fog, or foam.</p>
<b>Exposure</b>	<p>CALL FOR MEDICAL AID</p> <p>VAPOR May be harmful if inhaled or absorbed through the skin. Irritating to eyes, skin, nose, and throat. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID Irritating to skin and eyes. Harmful if swallowed or absorbed through skin. 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. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS: do nothing except keep victim warm.</p>
<b>Water Pollution</b>	<p>HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.</p>

### 1. CORRECTIVE RESPONSE ACTIONS

Stop discharge

### 2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: Not listed.
- 2.2 Formula: 4-F(C<sub>6</sub>H<sub>4</sub>)CH<sub>3</sub>
- 2.3 IMO/IUN Designation: 3.2/2388
- 2.4 DOT ID No.: 2388
- 2.5 CAS Registry No.: 352-32-9
- 2.6 NAERG Guide No.: 130
- 2.7 Standard Industrial Trade Classification: 51129

### 3. HEALTH HAZARDS

- 3.1 Personal Protective Equipment: Respirator with proper filter, goggles
- 3.2 Symptoms Following Exposure: INHALATION: Irritation of respiratory system. EYES AND SKIN: Severe irritation. INGESTION: Severe internal damage if swallowed.
- 3.3 Treatment of Exposure: Get medical aid. INHALATION: Move to fresh air. Remove contaminated clothing. Keep warm and quiet. If breathing has stopped give artificial respiration. EYES AND SKIN: Wash with plenty of water. INGESTION: Give one or two glasses of water or milk. Induce vomiting. Give cathartics.
- 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; LD<sub>50</sub> = 500 mg/kg
- 3.8 Toxicity by Inhalation: Currently not available.
- 3.9 Chronic Toxicity: Currently not available
- 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

### 4. FIRE HAZARDS

- 4.1 Flash Point: 105°F C.C.
- 4.2 Flammable Limits in Air: Currently not available
- 4.3 Fire Extinguishing Agents: Alcohol foam; CO<sub>2</sub>; Dry chemical
- 4.4 Fire Extinguishing Agents Not to Be Used: Currently not available
- 4.5 Special Hazards of Combustion Products: Toxic fumes of fluoride
- 4.6 Behavior in Fire: Not pertinent
- 4.7 Auto Ignition Temperature: Currently not available
- 4.8 Electrical Hazards: Currently not available
- 4.9 Burning Rate: Currently not available
- 4.10 Adiabatic Flame Temperature: Currently not available
- 4.11 Stoichiometric Air to Fuel Ratio: 40.5 (calc.)
- 4.12 Flame Temperature: Currently not available
- 4.13 Combustion Molar Ratio (Reactant to Product): 11.0 (calc.)
- 4.14 Minimum Oxygen Concentration for Combustion (MOCC): Not listed

### 5. CHEMICAL REACTIVITY

- 5.1 Reactivity with Water: Currently not available
- 5.2 Reactivity with Common Materials: Currently not available
- 5.3 Stability During Transport: Currently not available
- 5.4 Neutralizing Agents for Acids and Caustics: Currently not available
- 5.5 Polymerization: Currently not available
- 5.6 Inhibitor of Polymerization: Currently not available

### 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: 97%
- 7.2 Storage Temperature: Currently not available
- 7.3 Inert Atmosphere: Currently not available
- 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: Flammable liquid
- 8.2 49 CFR Class: 3
- 8.3 49 CFR Package Group: II
- 8.4 Marine Pollutant: No
- 8.5 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue).....	2
Flammability (Red).....	2
Instability (Yellow).....	0
- 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: Liquid
- 9.2 Molecular Weight: 110.13
- 9.3 Boiling Point at 1 atm: 241.9°F = 116.6°C = 389.8°K
- 9.4 Freezing Point: -70.2°F = -56.8°C = 216.4°K
- 9.5 Critical Temperature: Currently not available
- 9.6 Critical Pressure: Currently not available
- 9.7 Specific Gravity: 1.0007 at 20°C
- 9.8 Liquid Surface Tension: Currently not available
- 9.9 Liquid Water Interfacial Tension: Currently not available
- 9.10 Vapor (Gas) Specific Gravity: 3.8 (est)
- 9.11 Ratio of Specific Heats of Vapor (Gas): Currently not available
- 9.12 Latent Heat of Vaporization: Currently not available
- 9.13 Heat of Combustion: Currently not available
- 9.14 Heat of Decomposition: Currently not available
- 9.15 Heat of Solution: Not pertinent
- 9.16 Heat of Polymerization: Currently not available
- 9.17 Heat of Fusion: Currently not available
- 9.18 Limiting Value: Currently not available
- 9.19 Reid Vapor Pressure: 0.77 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
60	62.470		C U R R E N T L Y  N O T  A V A I L A B L E		C U R R E N T L Y  N O T  A V A I L A B L E		C U R R E N T L Y  N O T  A V A I L A B L E

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
	I N S O L U B I L I T Y	0	0.040		C U R R E N T L Y	0	0.214
		20	0.067			25	0.224
		40	0.112			50	0.234
		60	0.188			75	0.245
		80	0.315			100	0.255
		100	0.529			125	0.265
		120	0.889			150	0.275
		140	1.492			175	0.285
		160	2.510			200	0.295
		180	4.210			225	0.306
		200	7.067		N O T	250	0.316
		220	11.869			275	0.326
						300	0.336
						325	0.346
					A V A I L A B L E	350	0.356
						375	0.366
						400	0.377
						425	0.387
						450	0.397
						475	0.407
						500	0.417
						525	0.427
						550	0.437
						575	0.448
						600	0.458