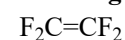




**>>Entry Name: Tetrafluoroethylene**

**Synonym(s):** Tetrafluoroethene, 9Cl. Fluorocarbon 1114. TFE

**CAS Registry Number:** 116-14-3



**Molecular Formula:**  $\text{C}_2\text{F}_4$

**Molecular Weight:** 100.016

**Accurate Mass:** 99.993612

**Percentage Composition:** C 24.02%; F 75.98%

**Source/Synthesis:** Manuf. by pyrolysis of Chlorodifluoromethane [DLL34-T](#)

**Use/Importance:** Used in manuf. of homo- and copolymers having valuable heat resistance, chemical inertness, electrical insulation and low friction props.

**Physical Description:** Gas

**Melting Point:** Fp  $-142.5^\circ$

**Boiling Point:** Bp  $-78.4^\circ$

**Solubility:** Insol.  $\text{H}_2\text{O}$

**Other Data:** Q/e values for copolym., Q 0.032, e 1.63. Rates for radical polym.,  $k_p$   $7400 \text{ L mol}^{-1} \text{ s}^{-1}$ ,  $k_t$   $7.4 \times 10^{-5} \text{ L mol}^{-1} \text{ s}^{-1}$  ( $50^\circ$ ). Forms copolymers with propylene:  $r_{\text{C}_2\text{F}_4}$  0.05,  $r_{\text{C}_3\text{H}_6}$  0.10;  $Q_{\text{C}_2\text{F}_4}$  0.05;  $e_{\text{C}_2\text{F}_4}$  1.22;  $Q_{\text{C}_3\text{H}_6}$  0.02;  $e_{\text{C}_3\text{H}_6}$  -0.78 (peroxide redox catalysis):  $r_{\text{C}_2\text{F}_4}$  0.06,  $r_{\text{C}_3\text{H}_6}$  1.00 ( $\gamma$ -irradiation)

**Hazard & Toxicity:** Explodes under pressure, forms explosive peroxides, flammable, autoignition temp.  $180/200^\circ$ .  $\text{LC}_{50}$  (rat, ihl) 40000 ppm (4h exposure)

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