



>>Entry Name: 2-Fluoro-2-propenoic acid, 9CI

Synonym(s): 2-Fluoroacrylic acid, 8CI

CAS Registry Number: 430-99-9

$\text{H}_2\text{C}=\text{FCOOH}$

Molecular Formula: $\text{C}_3\text{H}_3\text{FO}_2$

Molecular Weight: 90.054

Accurate Mass: 90.011708

Percentage Composition: C 40.01%; H 3.36%; F 21.10%; O 35.53%

Use/Importance: Ester derivs. have numerous applications in the synth. of polymers

Physical Description: Cryst. by subl.

Melting Point: Mp 50-51°

Boiling Point: Subl._{9,9} 50-51°

Other Data: Polym. on standing at r.t. for 7 days. Stored over hydroquinone. Rate const. for radical polym., $k_p = 2600 \text{ L mol}^{-1} \text{ s}^{-1}$ (H_2O , 20°)

>>Derivative: Me ester

CAS Registry Number: 2343-89-7

Molecular Formula: $\text{C}_4\text{H}_5\text{FO}_2$

Molecular Weight: 104.081

Accurate Mass: 104.027358

Percentage Composition: C 46.16%; H 4.84%; F 18.25%; O 30.74%

Physical Description: Liq.

Boiling Point: Bp 95°

Refractive Index: n_D^{25} 1.3870

Other Data: Undergoes radical polym.

>>Derivative: Et ester

CAS Registry Number: 760-80-5

Molecular Formula: $\text{C}_5\text{H}_7\text{FO}_2$

Molecular Weight: 118.107

Accurate Mass: 118.043008

Percentage Composition: C 50.85%; H 5.97%; F 16.09%; O 27.09%

Physical Description: Liq.

Boiling Point: Bp₈₀ 51-52°. Bp 107-109°

Refractive Index: n_D^{20} 1.3940

Other Data: Stored at -5° with hydroquinone to avoid ready polym. Rate for radical polym., $k_p = 1120 \text{ L mol}^{-1} \text{ s}^{-1}$, $k_t = 4.8 \times 10^8 \text{ L mol}^{-1} \text{ s}^{-1}$ (30°)

>>Derivative: *tert*-Butyl ester

CAS Registry Number: 85345-86-4

Molecular Formula: $\text{C}_7\text{H}_{11}\text{FO}_2$

Molecular Weight: 146.161

Accurate Mass: 146.074308

Percentage Composition: C 57.52%; H 7.59%; F 13.00%; O 21.89%

Boiling Point: Bp 104°

>>Derivative: Ph ester

CAS Registry Number: 46115-40-6

Molecular Formula: $\text{C}_9\text{H}_7\text{FO}_2$

Molecular Weight: 166.151

Accurate Mass: 166.043008

Percentage Composition: C 65.06%; H 4.25%; F 11.43%; O 19.26%

Use/Importance: Polym. produces hard transparent plastics

Physical Description: Liq.

Boiling Point: Bp_{0.5} 52-54°

Other Data: Can be stored for several months at -30° over hydroquinone without dec.