>>**Entry Name: (Difluoromethyl)phosphonic acid,** 9CI

CAS Registry Number: 74963-39-6
Related CAS Registry Numbers(s): 681-80-1 83567-74-2 94993-99-4 110624-90-3
$F_2CHP(O)(OH)_2$

Molecular Formula: $CH_3F_2O_3P$
Molecular Weight: 132.003
Accurate Mass: 131.978788
Percentage Composition: C 9.10%; H 2.29%; F 28.78%; O 36.36%; P 23.46%

>>**Derivative:** Bis(cyclohexylammonium) salt

CAS Registry Number: 110624-94-7
Physical Description: Solid
Melting Point: Mp 193-195°

>>**Derivative:** Di-Et ester
Synonym(s): Diethyl (difluoromethyl)phosphonate

CAS Registry Number: 1478-53-1

Molecular Formula: $C_5H_{11}F_2O_3P$
Molecular Weight: 188.111
Accurate Mass: 188.041388
Percentage Composition: C 31.93%; H 5.89%; F 20.20%; O 25.52%; P 16.47%
Use/Importance: Wittig-Horner reagent for the synth. of 1,1-difluoroalkenes
Physical Description: Liq.
Boiling Point: Bp_{12} 85.5-86.5°. $Bp_{1.5}$ 62°
Aldrich: 41141-8

>>**Derivative:** Di-2-propenyl ester
Synonym(s): Di-2-propenyl (difluoromethyl)phosphonate. Diallyl (difluoromethyl)phosphonate

Molecular Formula: $C_7H_{11}F_2O_3P$
Molecular Weight: 212.133
Accurate Mass: 212.041388
Percentage Composition: C 39.63%; H 5.23%; F 17.91%; O 22.63%; P 14.60%
Source/Synthesis: Reagent for synth. of (1,1-difluoroalkyl)phosphonic acids
Physical Description: Liq.
Boiling Point: $Bp_{0.2}$ 60°

>>**Derivative:** Dichloride

CAS Registry Number: 1554-44-5

Molecular Formula: $CHCl_2F_2OP$
Molecular Weight: 168.894
Accurate Mass: 167.911012
Percentage Composition: C 7.11%; H 0.60%; Cl 41.98%; F 22.50%; O 9.47%; P 18.34%
Physical Description: Liq.
Boiling Point: Bp 128-133°. Bp_{50} 50-52°

References:

Soborovskii, L.Z. *et al.*, *Zh. Obshch. Khim.*, 1959, **29**, 1144; *J. Gen. Chem. USSR (Engl. Transl.)*, 1959, **29**, 1115, *(synth)*
McKenna, C.E. *et al.*, *J.O.C.*, 1981, **46**, 4536, *(synth, pmr, F-19 nmr, P-31 nmr)*
Obayashi, M. *et al.*, *Tet. Lett.*, 1982, **23**, 2323, *(synth, use)*
Hall, C.R. *et al.*, *J.C.S. Perkin 1*, 1985, 233, *(esters)*
Blackburn, G.M. *et al.*, *J.C.S. Perkin 1*, 1987, 181
Bergstrom, D.E. *et al.*, *J.O.C.*, 1988, **53**, 3953, *(di-Et ester, dichloride, synth)*
Berkowitz, D.B. *et al.*, *J.O.C.*, 1995, **60**, 7047, *(dialkyl ester)*