



>>Entry Name: Phosphinic acid, 9Cl, 8Cl

Synonym(s): Hypophosphorous acid. Dihydridodioxophosphoric(I) acid. P¹-acid. Hydrogen dihydridodioxophosphate(1-)

CAS Registry Number: 6303-21-5

Related CAS Registry Numbers(s): 14332-09-3 15460-68-1

H₂P(O)OH<< >>HP(OH)₂

Molecular Formula: H₃O₂P

Molecular Weight: 65.996

Accurate Mass: 65.987067

Percentage Composition: H 4.58%; O 48.49%; P 46.93%

Source/Synthesis: Synth from Ca(Ba)(OH)₂ + white P, and salt treated with H₂SO₄ or oxalic acid: free acid also from PH₃/I₂ aq.

Physical Description: Colourless deliquescent cryst.

Melting Point: Mp 26.5° (23.5°)

pKa Value: pK_a 1.4 (1.1)

Other Data: Powerful reducing agent eg. SO₂→S; Cu(II)→Cu(I). Condenses with aldehydes and ketones. Dec. >130°. Also adds across C=C bonds. Dehalogenating agent for activated halogen sites

Aldrich: 21490-6

Fluka: 94210

>>Derivative: Aniline salt

Molecular Formula: C₆H₁₀NO₂P

Molecular Weight: 159.124

Accurate Mass: 159.044916

Percentage Composition: C 45.29%; H 6.33%; N 8.80%; O 20.11%; P 19.47%

Melting Point: Mp 115°

Solubility: Readily sol. H₂O

References:

Gmelin Handbook Inorg. Chem., Syst. No. 16, 1965, 94, (rev, bibl)

Haas, T.E. et al., Inorg. Chem., 1968, 7, 2051, (pmr)

Takahashi, Y., Bull. Chem. Soc. Jpn., 1972, 45, 4

Romanova, N.V. et al., Russ. Chem. Rev. (Engl. Transl.), 1975, 44, 1036, (rev, bibl)

Brauer, G., Handbuch Prap. Anorg. Chem., 3rd edn., Ferdinand Enke Verlag, 1975, 1, 539, (synth)

Hladik, O. et al., Isotopenpraxis, 1976, 12, 122; CA, 84, 171199, (tlc)

Detoni, S. et al., J. Mol. Struct., 1976, 33, 279, (ir, Raman)

Yudelevich, V.I. et al., Russ. Chem. Rev. (Engl. Transl.), 1980, 49, 46, (rev, bibl)

U.S. Pat., 1981, 4 265 866; CA, 95, 27213, (manuf)

Taniguchi, K., Bull. Chem. Soc. Jpn., 1984, 57, 909

Ewig, C.S. et al., J.A.C.S., 1985, 107, 1965, (struct)

Lewis, R.J., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold, 1992, PGY250