



>>Entry Name: Potassium hexafluorophosphate(V) (KPF₆)

Synonym(s): Hexafluorophosphate(1-), potassium salt, 8Cl

CAS Registry Number: 17084-13-8

KPF₆

Molecular Formula: F₆KP

Molecular Weight: 184.062

Accurate Mass: 183.927887

1.24%; P 16.83%

(-) anions adopt the NaCl struct. Also exists in a rhombohedral modification

Source/Synthesis: Synth. by: (a) fusing, or dissolving in liq. HF, KHF₂ + PCl₅, (b) treatment of PBr₅ + KBr with BrF₃, (c) treatment of KOH with [PyH]PF₆

Use/Importance: Commercially available. Component of capacitors and battery electrolytes

Physical Description: Hygroscopic colourless rhombohedral cryst. Preserved over conc. H₂SO₄. Dec. on heating → PF₅ and KF

Melting Point: Mp 575°

Solubility: Sol. H₂O (9.3 g per 100 cm³ at 25°; 21 g per 100 cm³ at 50°)

Hazard & Toxicity: Corrosive

Aldrich: 20091-3

Fluka: 60321

Sigma: P1304

References:

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 1293B, (*ir*)

Woolf, A.A. *et al.*, *J.C.S.*, 1950, 1050, (*synth*)

Bode, H. *et al.*, *Z. Anorg. Allg. Chem.*, 1951, **265**, 229, (*cryst struct, polymorphs*)

Kemmitt, R.D.W. *et al.*, *J.C.S.*, 1963, 4408, (*cryst struct*)

Begun, G.M. *et al.*, *Inorg. Chem.*, 1965, **6**, 2212, (*ir, Raman*)

Wieker, W. *et al.*, *Z. Naturforsch., B*, 1966, **21**, 1103, (*P-31 nmr*)

Ehlert, T.C., *J. Chem. Eng. Data*, 1972, **17**, 18, (*thermal dec*)

Opalovskii, A.A. *et al.*, *Acta Phys. Chem.*, 1977, **23**, 305, (*synth*)

Shih, J.S. *et al.*, *Inorg. Nucl. Chem. Lett.*, 1977, **13**, 105, (*K-39 nmr*)

Syed Mohamed, K. *et al.*, *J. Fluorine Chem.*, 1983, **23**, 509, (*synth*)

Sigma-Aldrich Library of Chemical Safety Data, 1988, **2**, 2903B, (*haz*)