



>>Entry Name: Potassium phosphonate (K(H₂PO₃))

Synonym(s): Monopotassium phosphonate, 9Cl, 8Cl. Monopotassium phosphite

CAS Registry Number: 13977-65-6

K[HP(O)₂OH]

Molecular Formula: H₂KO₃P

Molecular Weight: 120.086

Accurate Mass: 119.937864

Percentage Composition: H 1.68%; K 32.56%; O 39.97%; P 25.79%

held together by K⁽⁺⁾ ions. Two non-equivalent K⁽⁺⁾ ions are surrounded by 7 or 8 oxygens. There are 6 non-equiv. HPO₃ tetrahedra, with P-O 148.7-157.9 pm, P-H 122 or 130 pm

Source/Synthesis: Synth. from K₂HPO₃ + H₃PO₃ in H₂O

Physical Description: Hygroscopic colourless cryst.

>>Derivative: HF complex (1:1)

CAS Registry Number: 28265-06-7

Molecular Formula: FH₃KO₃P

Molecular Weight: 140.092

Percentage Composition: F 13.56%; H 2.16%; K 27.91%; O 34.26%; P 22.11%

Source/Synthesis: Synth. from H₃PO₃ + KF in H₂O

Physical Description: Colourless cryst. (MeOH or aq. MeOH)

Melting Point: Mp 96°

Other Data: Monoclinic unit cell with molecular HF and H-phosphite anions; P-O 150.2, 151.2, P-O(H) 156.6 P-H 131 pm

>>Derivative: H₃PO₃ complex (2:1)

Molecular Formula: H₇K₂O₉P₃

Molecular Weight: 322.168

Accurate Mass: 321.85771

Percentage Composition: H 2.19%; K 24.27%; O 44.70%; P 28.84%

Other Data: Triclinic unit cell. The K ions, each with 7 oxygen neighbours, form columns. Anions and H₃PO₃ form a 3-D network with P-O 149, P-O(H) 156, P-H 127 pm

References:

- Ebert, M. *et al.*, *Coll. Czech. Chem. Comm.*, 1963, **28**, 257, (*synth*)
Falius, H. *et al.*, *Angew. Chem., Int. Ed.*, 1970, **9**, 459, (*complex*)
Brun, G. *et al.*, *C. R. Hebd. Seances Acad. Sci. Ser. C*, 1970, **271**, 294, (*Raman*)
Barnoyer, B. *et al.*, *Rev. Chim. Miner.*, 1970, **7**, 941, (*ir, Raman, cryst struct*)
Altenburg, H. *et al.*, *Acta Cryst. B*, 1971, **27**, 1982, (*complex, cryst struct*)
Loub, J. *et al.*, *Acta Cryst. B*, 1981, **37**, 2058, (*complex, cryst struct*)
Piehl, A. *et al.*, *Z. Chem.*, 1982, **22**, 53, (*P-31 nmr*)
Kratochvil, B. *et al.*, *Acta Cryst. C*, 1983, **39**, 326, (*cryst struct*)