



>>Entry Name: Sodium phosphonate (Na₂(HPO₃))

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

CAS Registry Number: 13708-85-5

Na₂(HPO₃)

Molecular Formula: HNa₂O₃P

Molecular Weight: 125.959

Accurate Mass: 125.945866

Percentage Composition: H 0.80%; Na 36.50%; O 38.11%; P 24.59%

Source/Synthesis: Anhydrous salt. obt. from the pentahydrate at >=100° (normal pr.) org40° (0.01 mm), or from H₂PO₃ + NaOH in MeOH or EtOH

Physical Description: Colourless solid

>>Derivative: Hemihydrate

CAS Registry Number: 66454-66-8

Source/Synthesis: Synth. by dehydration of the pentahydrate

Melting Point: Mp 53-74° (incongr.)

Other Data: Orthorhombic

>>Derivative: Pentahydrate

CAS Registry Number: 13517-23-2

Molecular Formula: H₁₁Na₂O₈P

Molecular Weight: 216.036

Accurate Mass: 215.998691

Percentage Composition: H 5.13%; Na 21.28%; O 59.25%; P 14.34%

Source/Synthesis: Synth. from PCl₃ or yellow phosphorus and aq. NaOH

Physical Description: Clourless hexagonal plates or white deliquescent cryst.

Melting Point: Mp 200-250° (dec.)

Solubility: Sol. H₂O

Other Data: Orthorhombic. H₂O molecules and adjacent PO₃²⁽⁻⁾ ions form 3-D H-bonded network. Layers of Na coordination polyhedra share edges and vertices. OPO 113° (mean), P-O 148.4, 152.0 pm

Fluka: 71912

References:

- Ebel, J.P. *et al.*, *Bull. Soc. Chim. Fr.*, 1958, 203, (*synth, props*)
Ebert, M., *Coll. Czech. Chem. Comm.*, 1959, **24**, 1389, (*synth*)
Estour, H. *et al.*, *Bull. Soc. Chim. Fr.*, 1964, 2843, (*props*)
Zobel, D. *et al.*, *Chem. Tech. (Leipzig)*, 1967, **19**, 762, (*manuf, rev, bibl*)
Gmelin Handbook Inorg. Chem., Syst. No. 21, 1967, **4**, 1547, (*rev, bibl*)
Morgunova, E.M. *et al.*, *Zh. Prikl. Khim. (Leningrad)*, 1967, **40**, 1660; *J. Appl. Chem. USSR (Engl. Transl.)*, 1967, **40**, 1602, (*formn*)
Derbyshire, W. *et al.*, *CA*, 1969, **71**, 130583, (*Na-23 nmr*)
Colton, R.H. *et al.*, *J.C.S.(A)*, 1971, 1207, (*cryst struct*)
Ebert, M. *et al.*, *Monatsh. Chem.*, 1972, **103**, 188, (*synth, ir*)
Fluck, E. *et al.*, *Pure Appl. Chem.*, 1975, **44**, 373, (*pe*)
Fichter, M., *Spectrochim. Acta B*, 1975, **30**, 417, (*pe*)
Brodalla, D. *et al.*, *Z. Anorg. Allg. Chem.*, 1978, **439**, 265, (*phase diagram, cryst structs*)
Piehl, A. *et al.*, *Z. Chem.*, 1982, **22**, 53, (*P-31 nmr*)