



>>Entry Name: Phosphorus pentoxide

Synonym(s): Phosphorus oxide (P₂O₅), 9Cl, 8Cl

CAS Registry Number: 1314-56-3

Extra CAS Registry Numbers(s): 12640-86-7

P₂O₅

Molecular Formula: O₅P₂

Molecular Weight: 141.944

Accurate Mass: 141.922099

Percentage Composition: O 56.36%; P 43.64%

Aldrich: 21470-1

Fluka: 79612

Sigma: P0679

>>Derivative: 'Dimer'

>>Derivative: Bis-Py complex

CAS Registry Number: 81483-65-0

Molecular Formula: C₁₀H₁₀N₂O₅P₂

Molecular Weight: 300.147

Accurate Mass: 300.006497

Percentage Composition: C 40.02%; H 3.36%; N 9.33%; O 26.65%; P 20.64%

Physical Description: White cryst. solid

>>Variant: O-form

Synonym(s): Orthorhombic-form

Molecular Formula: O₅P₂

Molecular Weight: 141.944

Accurate Mass: 141.922099

Percentage Composition: O 56.36%; P 43.64%

Source/Synthesis: Synth. from H-form by heating at 400° in closed system

Other Data: Reacts rel. slowly with water even at 100°. Melts to visc. liq.

>>Variant: O'-form

Synonym(s): Orthorhombic-form. Phyllododecagonal phosphorus(*V*) oxide

Molecular Formula: O₅P₂

Molecular Weight: 141.944

Accurate Mass: 141.922099

Percentage Composition: O 56.36%; P 43.64%

No discrete molecules

Source/Synthesis: Synth. from H-form at 450° in closed system

Melting Point: Mp 580°

Other Data: Melts v. slowly to v. visc. liq. With H₂O, reacts to give a gel

References:

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Ahmed, S., *Pak. J. Sci. Ind. Res.*, 1971, **14**, 47, (cryst struct)

Wolf, G.U. *et al.*, *Z. Chem.*, 1982, **22**, 54, (Py adduct)

Duncan, T.M. *et al.*, *J. Chem. Phys.*, 1984, **87**, 339, (P-31 nmr)

Sharma, B.D., *Inorg. Chem.*, 1987, **26**, 454, (cryst struct, rev)

Withnall, R. *et al.*, *J. Phys. Chem.*, 1988, **92**, 4610, (ir)

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