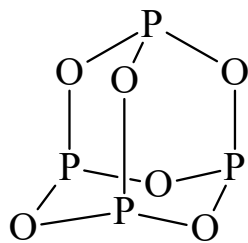




>>Entry Name: Phosphorus oxide (P₄O₆), 9Cl, 8Cl

Synonym(s): Phosphorus trioxide. 2,4,6,8,9,10-Hexaoxa-1,3,5,7-tetraphosphatricyclo[3.3.1.1^{3,7}]decane, 9Cl, 8Cl. 2,4,6,8,9,10-Hexaoxa-1,3,5,7-tetraphosphaadamantane. Tetraphosphorus hexaoxide



CAS Registry Number: 10248-58-5

Related CAS Registry Numbers(s): 12440-00-5

Extra CAS Registry Numbers(s): 1314-24-5

Molecular Formula: O₆P₄

Molecular Weight: 219.891

Accurate Mass: 219.864538

Percentage Composition: O 43.66%; P 56.34%

Source/Synthesis: Synth. from PCl₃ + As₂O₃; or from P + N₂O or O₂/N₂; or from PCl₃ + (Me₄N)₂SO₃

Physical Description: White cryst., stable to oxygen at r.t. Attacked by H₂O, or H₃PO₃ → polyphosphorous acids. Hot H₂O → P, PH₃, and H₃PO₄. Reacts with PCl₃, P(OMe)₃, and acetic anhydride only at elevated temp. At 100-150°, gradual yellowing occurs, and at >210°, dec. to red P. Et₂O.BF₃ → Diphosphorous tetrafluoride [HTJ41-F](#) and Phosphorus fluoride (PF₃) [HTJ37-I](#)

Melting Point: Mp 23°

Boiling Point: Bp 175°

Solubility: Sol. CS₂, CCl₄, CHCl₃, CH₂Cl₂, C₆H₆, Et₂O, Me₂S, or Me₄Si without reaction

Density: d₄²¹ 2.135

Other Data: Exhibits phase transition at -45°; no plastic phase between liq. and solid states. ΔH₂₉₈^o -2196, -2256 kJ mol⁻¹

Hazard & Toxicity: Reacts vigorously with DMF, DMSO, MeOH, or AsF₃

>>Derivative: Bis-borane complex

CAS Registry Number: 14940-94-4

Molecular Formula: B₂H₆O₆P₄

Molecular Weight: 247.561

Accurate Mass: 247.930098

Percentage Composition: B 8.73%; H 2.44%; O 38.78%; P 50.05%

Physical Description: Orthorhombic cryst. (pentane)

Other Data: Stable under N₂

>>Derivative: Tris-borane complex

CAS Registry Number: 14644-53-2

Molecular Formula: B₃H₉O₆P₄

Molecular Weight: 261.395

Accurate Mass: 261.962878

Percentage Composition: B 12.41%; H 3.47%; O 36.72%; P 47.40%

Physical Description: Unstable cryst.

References: