>>**Entry Name: Hypophosphoric acid,** 9Cl, 8Cl
Synonym(s): Diphosphoric(*IV*) acid. P^4-P^4 Acid

CAS Registry Number: 7803-60-3
$(HO)_2P(O)$-$P(O)P(OH)_2$

Molecular Formula: $H_4O_6P_2$
Molecular Weight: 161.975
Accurate Mass: 161.948314
Percentage Composition: H 2.49%; O 59.27%; P 38.25%
Source/Synthesis: Formed by oxidation of red P with NaClO, $NaClO_2$, alk. $KMnO_4$ or alk. H_2O_2
Physical Description: Solid. Stable at 0-5° in absence of moisture. Ag soln. when boiled → H_3PO_3 and H_3PO_4. Dec. in dil. aq. acid but stable to strongly alkaline solns.
Melting Point: Mp 73 dec.°
pKa Value: pK_{a1} 2.1; pK_{a2} 6.8; pK_{a3} 9.5 (20°, 0.1*N* KCl)
Hazard & Toxicity: May cause skin blisters on contact

>>**Derivative:** Dihydrate

Molecular Formula: $H_8O_8P_2$
Molecular Weight: 198.006
Accurate Mass: 197.969444
Percentage Composition: H 4.07%; O 64.64%; P 31.29%
Physical Description: Large, hygroscopic rhombic plates
Melting Point: Mp 62° (55°)
Solubility: V. sol. H_2O
Other Data: Stable for 2 months at –15°. Dec. more rapidly at r.t. Best formulated as $2H_3O^{(+)}H_2P_2O_6^{2(-)}$

References:

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