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Tris(Trimethylsilyl)Phosphine in Reaction with Bis(Phenylenedioxa)Chlorophosphorane. The Way to Phosphoranylphosphines

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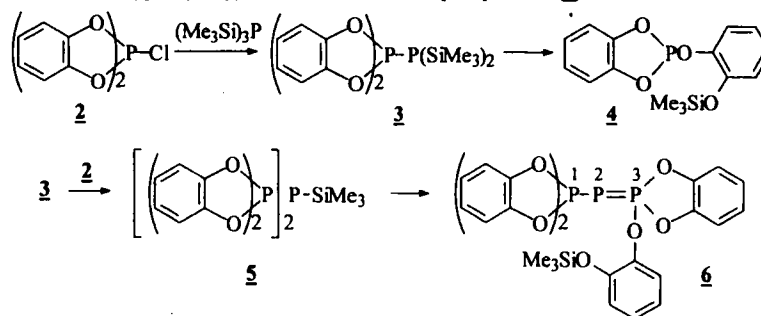
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Tris(trimethylsilyl)phosphine in Reaction with Bis(Phenylenedioxa)Chlorophosphorane. The Way to Phosphoranylphosphines

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Tris(trimethylsilyl)phosphine (**1**) is the key reagent in the synthesis of one- and two-coordinated phosphorus compounds. Its characteristic features are extreme reactivity, high nucleophilicity of phosphorus atom and the P-Si bonds lability. The interaction of phosphine (**1**) with bis(catechol)chlorophosphorane (**2**) has been studied by dynamic ³¹P NMR method. On the reagents ratio 1:1 at first the nucleophilic substitution of chlorine occurs leading to formation of phosphorane (**3**) with P^{III}-P^V bond ($\delta_{P(III)}$ -117.0, $\delta_{P(V)}$ 17.4 ppm, $^1J_{PP}$ 305.0 Hz) which converts then into more stable 2-(trimethylsiloxyphenyloxy)-4,5-benzo-1,3,2-dioxaphospholane (**4**).



Under chlorophosphorane (**2**) excess the triphosphenic structure (**6**) is formed via intermediate diphosphorane (**5**) in a small extent. Three multiplets have been assigned to compound (**6**) in ³¹P NMR spectrum [δ_{P1} 18.8 ppm (d.d), $^1J_{P1P2}$ 471.1 Hz, $^2J_{P1PP3}$ 16.8 Hz; δ_{P2} -157.0 ppm (d.d), $^1J_{P2P3}$ 767.0 Hz, $^1J_{P2P1}$ 471.1 Hz; δ_{P3} 101.5 ppm (d.d), $^1J_{P3P2}$ 767.0 Hz, $^2J_{P3PP1}$ 16.8 Hz].

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