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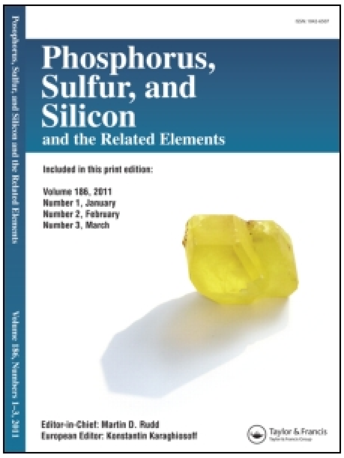

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ω,ω'-Diphospholylalkanes

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To cite this Article Mathey, F. , Maigrot, N. and Charrier, C.(1987) 'ω,ω'-Diphospholylalkanes', Phosphorus, Sulfur, and Silicon and the Related Elements, 30: 3, 706

To link to this Article: DOI: 10.1080/03086648708079200

URL: http://dx.doi.org/10.1080/03086648708079200

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ω,ω′-Diphospholylalkanes

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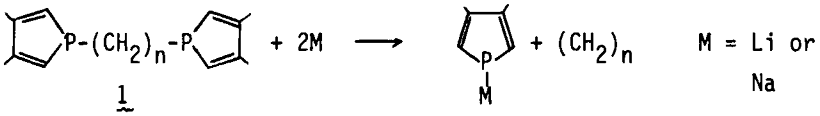
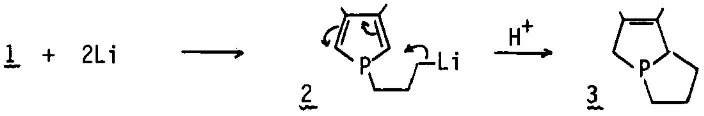
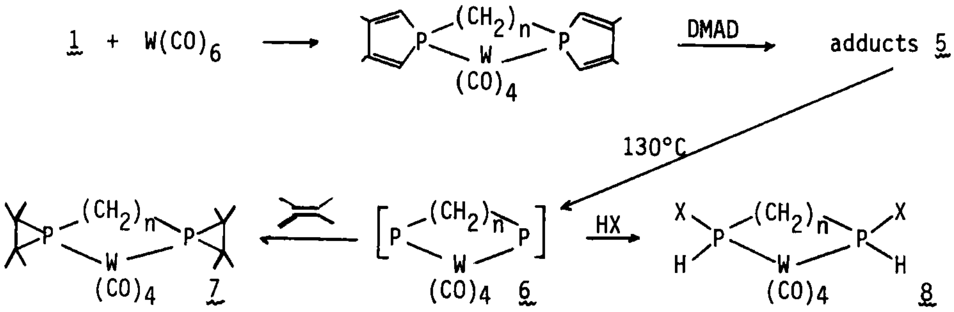
The reaction of compounds (1)with lithium or sodium can lead to different results depending on the length of the exocyclic chain : when n = 1,2 or 4, we observe cleavage of both exocyclic P-C bonds, giving pure phospholyllithium or sodium.



On the other hand, when n = 3, only one P-C bond is broken, and the phospholyl-alkyllithium (2) spontaneously cyclizes to give a bicyclic phosphorus compound (3).



Compounds (1) (n = 2 or 3) react with $W(CO)_6$ at 140°C in xylene to give chelate complexes (4), which give adducts (5) through Diels-Alder reaction with dimethylacetylenedicarboxylate. Thermal decomposition of 5 around 130°C lead to terminal diphosphinidene complexes (6).



These transient phosphinidene complexes can be trapped in situ with olefins or acetylene compounds to give diphosphirane or diphosphirene complexes (7) and also with secondary amines or alcools to give secondary diphosphine complexes (8).

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