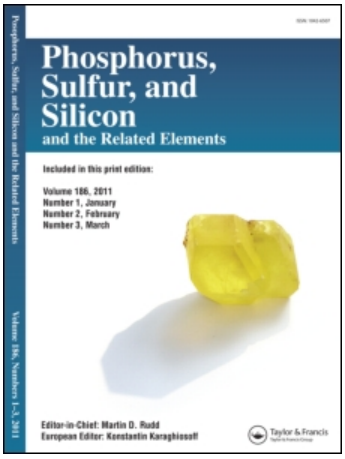

Phosphorus, Sulfur, and Silicon and the Related Elements
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713618290

Synthesis and Structure of a Kinetically Stabilized 1,3,6-Triphosphafulvene

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Online publication date: 27 October 2010

To cite this Article Sugiyama, Hiroki , Ito, Shigekazu and Yoshifuji, Masaaki(2002) 'Synthesis and Structure of a Kinetically Stabilized 1,3,6-Triphosphafulvene', Phosphorus, Sulfur, and Silicon and the Related Elements, 177: 8, 2013 — 2014
To link to this Article: DOI: 10.1080/10426500213341
URL: http://dx.doi.org/10.1080/10426500213341

Phosphorus, Sulfur and Silicon, 2002, Vol. 177:2013–2014

1042-6507/02 $12.00 + .00
DOI: 10.1080/10426500290094026

SYNTHESIS AND STRUCTURE OF A KINETICALLY STABILIZED 1,3,6-TRIPHOSPHAFULVENE

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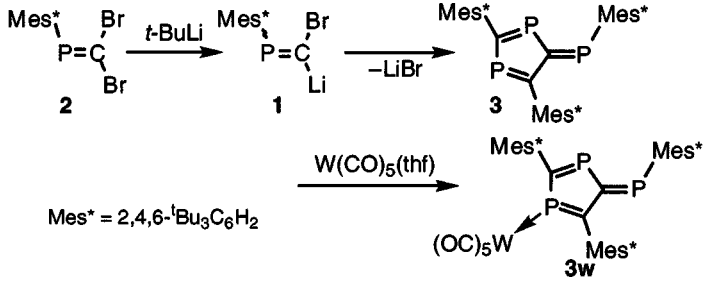
(Received July 29, 2001; accepted December 25, 2001)

Kinetically stabilized phosphanylidene carbenoid **1** is one of the precursors for novel low-coordinated phosphorus compounds. We report the novel trimerization of phosphanylidene carbenoid **1** affording 1,3,6-triphosphafulvene **3**. Dibromophosphaethene **2** was allowed to react with 2 molar equivalent of *t*-butyllithium at −78°C to generate the phosphanylidene carbenoid **1**, and the reaction mixture was warmed to 25°C. After purification, 1,3,6-triphosphafulvene **3** was obtained as a deep red solid. The NMR and MS spectrum of **3** supported the 1,3,6-triphosphafulvene structure. Furthermore, triphosphafulvene **3** was treated with an excess amount of $W(CO)_5$(thf) to afford the pentacarbonyltungsten(0) complex **3w** as a deep red solid. Complex **3w** was recrystallized from toluene at 0°C to afford a suitable crystal for x-ray analysis. The x-ray crystallography of **3w** was confirmed the 1,3,6-triphosphafulvene structure with the coordination of tungsten at the P3 position.[1,*]



SCHEME 1

*In ref. [1], the phosphorus chemical shifts at the P6 position for **3** and **3w** should read $\delta_P = 399.0$ and $\delta_P = 397.1$, respectively.

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REFERENCE

[1] S. Ito, H. Sugiyama, and M. Yoshifuji, *Angew. Chem., Int. Ed.*, **39,** 2781 (2000).