

This article was downloaded by:

On: 28 January 2011

Access details: *Access Details: Free Access*

Publisher *Taylor & Francis*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



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>

Trialkylsilyl Substituted Phosphanides of Yttrium

S. Schneiderbauer^a; S. Weinrich^a; M. Westerhausen^a

^a Ludwig-Maximilians-Universität, Germany

Online publication date: 27 October 2010

To cite this Article Schneiderbauer, S. , Weinrich, S. and Westerhausen, M.(2002) 'Trialkylsilyl Substituted Phosphanides of Yttrium', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 177: 8, 2251 — 2252

To link to this Article: DOI: 10.1080/10426500213377

URL: <http://dx.doi.org/10.1080/10426500213377>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

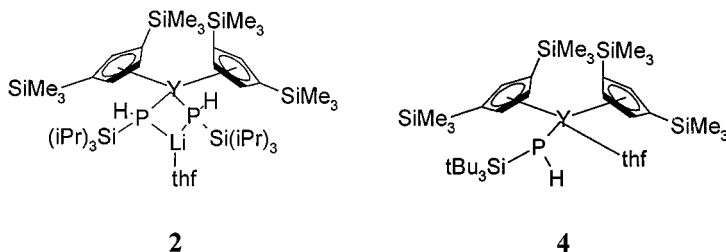
The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

TRIALKYLSILYL SUBSTITUTED PHOSPHANIDES OF YTTRIUM

*S. Schneiderbauer, S. Weinrich, and M. Westerhausen
 Ludwig-Maximilians-Universität, Germany*

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

The phosphanides of yttrium are extremely moisture- and air-sensitive. The metalation of $\text{HP}(\text{SiMe}_3)_2$ with trialkyl yttrium in benzene yields homoleptic dimeric $\text{Y}[\text{P}(\text{SiMe}_3)_2]_3$ (**1**).¹ Compound **1** is soluble in hydrocarbons. However, ethers are cleaved within a few hours. The synthesis of heteroleptic yttrium phosphanides succeeds if the reactive Y–P bond is shielded by demanding groups.² Therefore, the metathesis reaction of $\text{Cp}_2\text{Y}(\mu\text{-Cl})_2\text{Li}(\text{thf})_2$ [$\text{Cp} = 1,3\text{-(Me}_3\text{Si)}_2\text{C}_5\text{H}_3$] with two equivalents of a primary phosphanide $\text{MP}(\text{H})\text{SiR}_3$ gives yellow $\text{Cp}_2\text{Y}[\text{P}(\text{H})\text{SiR}_3]_2\text{M}(\text{L})$ ($\text{R} = i\text{Pr}$; **2**, $\text{M} = \text{Li}$; **3**, $\text{M} = \text{K}$) with Y–P distances of approximately 284 pm. An equimolar reaction leads to the coordination of a solvent molecule and to the formation of $\text{Cp}_2\text{Y}(\text{thf})\text{P}(\text{H})\text{SiR}_3$ (**4**; $\text{R} = t\text{Bu}$) with a Y–P bond length of 278 pm.³ The crystals of **4** decompose slowly even in an argon atmosphere.



SCHEME 1

Address correspondence to M. Westerhausen, Department Chemie, Ludwig-Maximilians-Universität, München Butenandtstr. 9 (House D), D-81377 Munich, Germany. E-mail: man@cup.uni-muenchen.de

REFERENCES

- [1] M. Westerhausen, M. Hartmann, and W. Schwarz, *Inorg. Chim. Acta*, **269**, 91–100 (1997).
- [2] M. Westerhausen, S. Schneiderbauer, N. Makropoulos, M. Wanchhold, H. Nöth, H. Piotrowski, and K. Kanaghiaoff, *Organometalics*, **21** (2002), in press.
- [3] M. Westerhausen, S. Schneiderbauer, H. Nöth, M. Wanchhold, and Z. Anoig, *Allg. Chem.* **628**, 330–332 (2002).