

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>

New Routes to (*E*)-Halophosphaalkenes

Jan B. M. Wit^a; Marcel Van der Sluis^a; Fridrich Bickelhaupt^a

^a Scheikundig Laboratorium, Vrije Universiteit, Amsterdam, HV, The Netherlands

To cite this Article Wit, Jan B. M. , Van der Sluis, Marcel and Bickelhaupt, Fridrich(1996) 'New Routes to (*E*)-Halophosphaalkenes', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 111: 1, 187

To link to this Article: DOI: 10.1080/10426509608054816

URL: <http://dx.doi.org/10.1080/10426509608054816>

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.

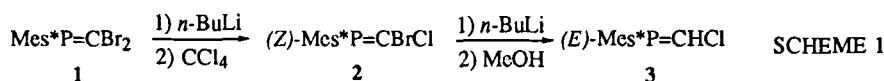
The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any 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.

NEW ROUTES TO (*E*)-HALOPHOSPHAALKENES

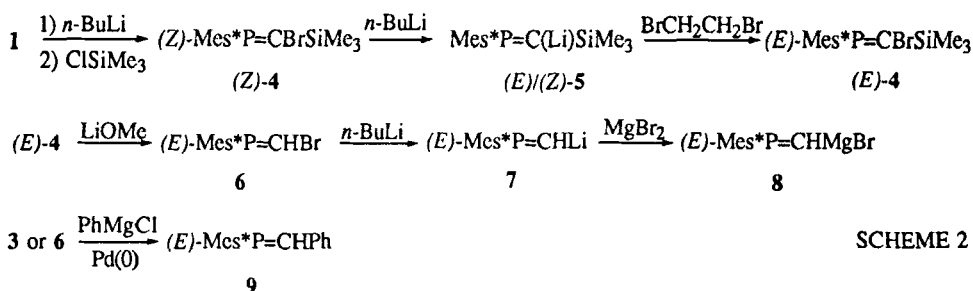
JAN B. M. WIT, MARCEL VAN DER SLUIS AND
 FRIEDRICH BICKELHAUPT

Scheikundig Laboratorium, Vrije Universiteit, De Boelelaan 1083,
 NL-1081 HV Amsterdam, The Netherlands

Starting from dihalophosphaalkenes Mes*P=CHal₂ (Hal = Cl, Br, I) we have been developing methodologies for the synthesis of (*E*)-Mes*P=CHHal, which can be converted to reactive phosphalkenyl metal reagents. Dibromophosphaalkene **1** was reacted with *n*-butyllithium at -120 °C, furnishing **2** after chlorination of the intermediate carbenoid. Compound **2** was transformed to the (*E*)-chlorophosphaalkene **3** as shown (SCHEME 1).



(*E*)-Bromophosphaalkene **6** was obtained from **1** via **4** and (*E*)/(*Z*)-**5** as illustrated in Scheme 2. Compound **6** was obtained in 54 % yield with respect to **1**.



Halogen-lithium exchange of **6** furnished **7** which was converted to the stable phosphalkenyl-Grignard reagent **8**. Phosphaalkenes **3** and **6** were subjected to Stille-type cross coupling reactions with phenylmagnesium chloride; *trans*-phosphastilbene **9** was isolated in 76% yield from **3** and in 90% yield from **6**. In both cases, **9** was obtained with 100% isomeric purity (SCHEME 2).