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

Synethesis and Some Photo-Decomposition Studies of Arylphosphetane Chalcogenides

Hu Qiana; Peter P. Gaspara

^a Department of Chemistry, Washington University, St. Louis, MO

To cite this Article Qian, Hu and Gaspar, Peter P.(1999) 'Synethesis and Some Photo-Decomposition Studies of Arylphosphetane Chalcogenides', Phosphorus, Sulfur, and Silicon and the Related Elements, 147: 1, 351

To link to this Article: DOI: 10.1080/10426509908053655 URL: http://dx.doi.org/10.1080/10426509908053655

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.

Synthesis and Properties of Some Derivatives of Chloromethylphosphonic and Bis(Chloromethyl)Phosphinic Acids

MIKHAEL PUDOVIK, LUDMILA KIBARDINA, SVETLANA TERENT'EVA and ARKADY PUDOVIK

A.E. Arbuzov Institute of Organic and Physical Chemistry Russian Academy of Sciences, Kazan Scientific Centre, Kazan 420088, Russia

Reactions of chloromethylchlorophosphonates with heptamethyldisilazane(1:1 ratio) proceed with the formation of silylamidophosphonates, while with bis(chloromethyl)phosphinate P-N-P compounds were formed.

$$\begin{array}{c} O \\ \parallel \\ RO\text{-P-Cl} + \text{MeN}(\text{SiMe}_3)_2 & \longrightarrow \\ -\text{Me}_3\text{SiCl} & \text{RO-P-NSiMe}_3 \\ | CH_2\text{Cl} & \text{CH}_2\text{Cl} & \text{R=Et; Pl} \end{array}$$

Interaction of chloromethylchlorophosphonates(phosphinates) with bis(trimethylsilyl)acetamide or diethylsilylamidophosphate results in the formation of appropriate siloxyphosphonates(phosphinates).

A novel method of synthesizing phosphorylated isocyanates by the reaction of $P(\Gamma Y)$ -chlorides with trimethylsilylisocyanate was elaborated. Silylamidochloromethylphosphonates were added to arylisocyanates with the formation of 1,4,2-diazaphospholidin-5-ones.

$$\begin{array}{c|c} O \text{ Me} & Me & \\ \parallel & \parallel & PhNCO \\ RO-P-NSiMe_3 & PhNCO \\ CH_2Cl & CH_2Cl & SiMe_3 \end{array} \xrightarrow{T} \begin{array}{c} RO-P & N-Me \\ \parallel & -Me_3SiCl \\ \hline \\ Ph \end{array}$$

The interaction of silylamidochloromethylphosphonates with trichlorophosphorus oxide(thiooxide) results in the formation of diphosphorylated methylamine. These compounds when heated are easily decomposed into chlorophosphonates.

Acknowledgment. This work was supported by the grant N 96-03-33397 from the Russian Foundation for Basic Research.