

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>

Synthesis and Structure of the Heterocyclic Phosphorus Containing Derivatives of [60] Fullerene

Oleg G. Sinyashin^a; Irina P. Romanova^a; Gulshat G. Yusupova^a; Valery I. Kovalenko^a; Yuri Y. Efremov^a; Irina I. Vandyukova^a; Yuri V. Badeev^a; Yuri V. Badeev^a; Nail M. Azacheev^a

^a A. E. Arbuzov Institute of Organic and Physical Chemistry Russian Academy of Sciences, Kazan Scientific Center, Kazan, Russia

To cite this Article Sinyashin, Oleg G. , Romanova, Irina P. , Yusupova, Gulshat G. , Kovalenko, Valery I. , Efremov, Yuri Y. , Vandyukova, Irina I. , Badeev, Yuri V. , Badeev, Yuri V. and Azacheev, Nail M.(1999) 'Synthesis and Structure of the Heterocyclic Phosphorus Containing Derivatives of [60] Fullerene', Phosphorus, Sulfur, and Silicon and the Related Elements, 147: 1, 477

To link to this Article: DOI: 10.1080/10426509908053718

URL: <http://dx.doi.org/10.1080/10426509908053718>

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.

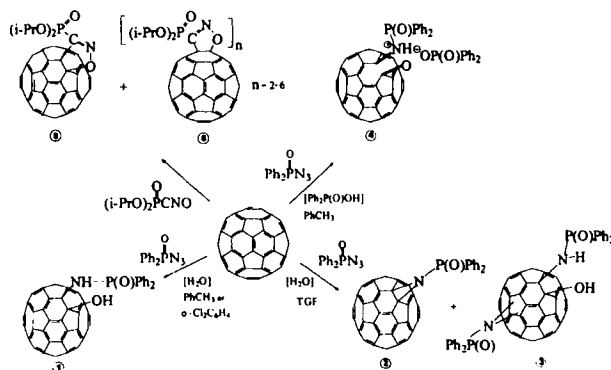
The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any 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 Structure of the Heterocyclic Phosphorus Containing Derivatives of [60]Fullerene

OLEG. G. SINYASHIN, IRINA P. ROMANOVA,
 GULSHAT G. YUSUPOVA, VALERY I. KOVALENKO,
 YURI Y. EFREMOV, IRINA I. VANDYUKOVA YURI V. BADEEV,
 YURI V. BADEEV and NAIL M. AZANCHEEV

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

Data on the structure of cycloadducts of organophosphorus dipolar reagents and fullerenes are absent, to our knowledge. We studied the reactions and the structure of cycloadducts of phosphorylated azides and nitrile oxide with [60]fullerene. The cycloaddition of diphenylphosphinic azide to fullerene has been determined to lead to the 1-[(N-diphenylphosphoryl)amino]-2-hydroxy[60]fullerene (1), the mixture of phosphorylated aziridinofullerene (2) and derivative of fullerene (3) with one aziridine fragment and one aminohydroxy-fragment, or to product (4), depending on the conditions of reaction.



The phosphorylated nitrile oxide in the reaction with [60]fullerene gives both phosphorylated mono isoxazoline derivative of fullerene (5), and isoxazoline polyadducts (6). These products are the first heterocyclic phosphorus containing derivatives of [60]fullerene.

This research was supported by Foundation for Intellectual Collaboration, grant № 96156.