

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 Spatial Structure of 2,5-Dioxo-4-Dialkoxy-Phosphoryl-4-Aryl-6,7-Benzo-1,3,2-Dioxaphosphepines

Irina V. Konovalova^a; Liliya M. Burnaeva^a; Vladimir F. Mironov^b; Sergey V. Romanov^a; Gulnara A. Ivkova^a; Aidar T. Gubaidullin^b; Igor A. Litvinov^b; Rafael A. Cherkasov^a

^a Kazan State University, Kazan, Russia ^b A. E. Arbuzov Institute of Organic and Physical Chemistry, Kazan, Russia

To cite this Article Konovalova, Irina V. , Burnaeva, Liliya M. , Mironov, Vladimir F. , Romanov, Sergey V. , Ivkova, Gulnara A. , Gubaidullin, Aidar T. , Litvinov, Igor A. and Cherkasov, Rafael A.(1999) 'Synthesis and Spatial Structure of 2,5-Dioxo-4-Dialkoxy-Phosphoryl-4-Aryl-6,7-Benzo-1,3,2-Dioxaphosphepines', Phosphorus, Sulfur, and Silicon and the Related Elements, 147: 1, 487

To link to this Article: DOI: 10.1080/10426509908053723

URL: <http://dx.doi.org/10.1080/10426509908053723>

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.

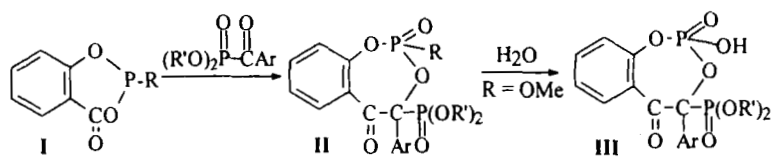
The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any 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 Spatial Structure of 2,5-Dioxo-4-Dialkoxy-Phosphoryl-4-Aryl-6,7- Benzo-1,3,2-Dioxaphosphepines

IRINA V. KONOVALOVA^b, LILIYA M. BURNAEVA^b,
 VLADIMIR F. MIRONOV^a, SERGEY V. ROMANOV^b,
 GULNARA A. IVKOVA^b, AIDAR T. GUBAIDULLIN^a,
 IGOR A. LITVINOV^a and RAFAEL A. CHERKASOV^b

^aA.E. Arbuzov Institute of Organic and Physical Chemistry, Kazan, 420088, Rus-
 sia and ^bKazan State University, Kazan, 420008, Russia

Phosphorus (III) containing derivatives of salicylic acid easily react with carbonyl compounds with formation of cycloexpansion products - 1,3,2- or 1,4,2-dioxaphosphepines. For the first time we have shown that dialkyl-1-oxoalkylphosphonates react with 2-R-4-oxo-5,5-benzo-1,3,2-dioxaphosphorinanes and yield 1,3,2-dioxaphosphepines (I) with high stereoselectivity. The configuration of the preferable diastereoisomer (II^d) has been determined by X-ray analysis. The hydrolysis of compounds (II^{a-c}) leads to formation of 2-hydroxy-2-oxo-1,3,2-dioxaphosphepines (III). The structure of phosphepine (III^b) in crystal is shown on the figure. The work is supported by the Leading Scientific School Foundation of Russia (grant N 96-15-97330) and the Russian Foundation for Basic Research (grant N 98-03-33266).



R, R' = OMe, Et, Ph (I^a),
 OMe, Me, 4-Cl-C₆H₄ (I^b),
 OCH₂CF₂CHF₂, Et, Ph (I^c),
 Ph, Et, Ph (I^d)

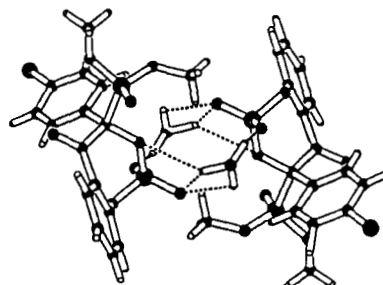


Fig. Structure of (III^b)
 in crystal.