

This article was downloaded by:

On: 30 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>

P^{II} Compounds. Electrical Properties and Structure of Phospha-alkenes and Phospha-azenes

I. I. Patsanovsky^a; E. A. Ishmaeva^b; J. Z. Stepanova^a; V. D. Romanenko^a; L. N. Markovsky^a

^a Kazan State University, Kazan, USSR ^b Institute of Organic Chemistry Academy of Sciences of Ukrainian SSR, Kiev, USSR

To cite this Article Patsanovsky, I. I. , Ishmaeva, E. A. , Stepanova, J. Z. , Romanenko, V. D. and Markovsky, L. N.(1987) 'P^{II} Compounds. Electrical Properties and Structure of Phospha-alkenes and Phospha-azenes', Phosphorus, Sulfur, and Silicon and the Related Elements, 30: 3, 777

To link to this Article: DOI: 10.1080/03086648708079269

URL: <http://dx.doi.org/10.1080/03086648708079269>

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.

P^{II} Compounds. Electrical Properties and Structure of Phospha-alkenes and Phospha-azenes

I.I.Patsanovsky, E.A.Ishmaeva*, J.Z.Stepanova,
V.D.Romanenko, L.N.Markovsky

Kazan State University, 420008, Kazan, USSR

Institute of Organic Chemistry Academy of Sciences of
Ukrainian SSR, 252660, Kiev, USSR

Chemistry of twocoordinated phosphorus compounds has been rapidly developed in last years. Parallel with synthesis of new such compounds and investigating of their chemistry research of their spatial and electron structure assumes ever greater importance. Electrical methods are very informative in this aspect and also permit to determine unknown polarities of P^{II}-bonds, that have great self-dependent interest. We have been studied for the first time the acyclic P^{II}-compounds containing P=N, P=C, P=P, P=As, P=Sb - double bonds. Phosphaazenes R^IP=NR², where R^I: (Me₃Si)₂N, 2,4,6-^tBu₃C₆H₂; R²: Me₃Si, ^tBu, 2,4,6-^tBu₃C₆H₂ have small polarity 1.5-2.0 D, which describes by one set of parameters. The main role in stabilization of -P=N-fragment having E-configuration belongs to sterical factors.

Conjugative effects are observed evidently in phosphaalkenes R^IP=CR₂² (R^I=H, Me₃Si, R²=Alk₂N) - their polarity increases to 4 D - especially in (Me₂N)₂C=P-P=C(SiMe₃)₂ (5.05 D). Double bond P=C in nonconjugated phosphaalkenes is almost nonpolar: m(P=C)=0.0 D.

The conversion of polarity of P=E double bond is observed in the row R^IP=ER² (E=N, As, Sb) : m(P=N) ≈ 2 D, m(As=P) ≈ 1 D, m(Sb=P) ≈ 2.5 D.