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, Structure and Reactivity of Carboxylate Phosphabetaines

V. I. Galkin^a; Yu. V. Bakhtiyarova^a; N. A. Polezhaeva^a; R. A. Cherkasov^a; D. B. Krivolapov^b; A. T. Gubaidullin^b; I. A. Litvinov^b

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

 $\begin{tabular}{ll} \textbf{To cite this Article} & Galkin, V. I. & Bakhtiyarova, Yu. V. & Polezhaeva, N. A. & Cherkasov, R. A. & Krivolapov, D. B. & Gubaidullin, A. T. and Litvinov, I. A. & Structure and Reactivity of Carboxylate Phosphabetaines', Phosphorus, Sulfur, and Silicon and the Related Elements, 147: 1, 91 \\ \end{tabular}$

To link to this Article: DOI: 10.1080/10426509908053526 URL: http://dx.doi.org/10.1080/10426509908053526

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, Structure and Reactivity of Carboxylate Phosphabetaines

V.I GALKIN^a, YU. V. BAKHTIYAROVA^a, N. A. POLEZHAEVA^a, R. A. CHERKASOV^a, D. B. KRIVOLAPOV^b, A. T. GUBAIDULLIN^b and I. A. LITVINOV^b

^aDepartment of Chemistry, Kazan State University, Kazan, 420008, Russia and ^bA.E. Arbuzov Institute of Organic and Physical Chemistry, Kazan, 420083, Russia

Triphenylphosphoniumethylcarboxylate 1 has been obtained in the reaction of triphenylphosphine with acrylic acid.

$$Ph_3P + CH_2 = CH - COOH \longrightarrow [Ph_3P - CH_2CHCOOH] \longrightarrow Ph_3P - CH_2CH_2COO$$

The significant role of protonodonor reagents in phosphabetaine stabilization has been shown and confirmed by the methods of NMR spectroscopy, X-ray analysis, quantum chemical calculations. Reactions of 1 with a series of electrophilic reagents are investigated. Products are studied by X-ray analysis.

$$\begin{array}{c} RI \\ \oplus \\ Ph_3P-CH_2CH_2COO \\ I \end{array} \xrightarrow{\begin{array}{c} R'N=C=NR' \\ \hline Ph-N=C=O, \ H_2O \\ \hline \end{array}} \begin{array}{c} Ph_3P-CH_2CH_2COOR \\ \oplus \\ Ph_3P-CH_2CH_2COO \\ \hline \end{array} \xrightarrow{\begin{array}{c} \Theta \\ Ph_3P-CH_2CH_2COO \\ \hline \end{array}} \begin{array}{c} PhN+C=C+NR \\ \oplus \\ PhN+C=C+NR \\ \hline \end{array}$$

Kinetics and mechanism of phosphabetaine 1 reaction with arylisocyanates has been investigated

The work is realized under financial support of RFFI (grant N 96-03-32864a) and Scientific Programs «Russian Universities» and «Thin Organic Synthesis».