

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>

Chloroformylation of Ketophosphonates

Ding-Quan Qian^a; Guo-Xiang Xu^a; Hu Chen^a; Yu-Xiu Liu^a; Xiao-Dong Chen^a; Ru-Zhen Cao^a; Lun-Zu Liu^a

^a National Key Laboratory of Elemento-Organic Chemistry, Institute of Elemento-Organic Chemistry, Nankai University, Tianjin, P.R. China

To cite this Article Qian, Ding-Quan , Xu, Guo-Xiang , Chen, Hu , Liu, Yu-Xiu , Chen, Xiao-Dong , Cao, Ru-Zhen and Liu, Lun-Zu(1999) 'Chloroformylation of Ketophosphonates', Phosphorus, Sulfur, and Silicon and the Related Elements, 147: 1, 221

To link to this Article: DOI: 10.1080/10426509908053591

URL: <http://dx.doi.org/10.1080/10426509908053591>

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.

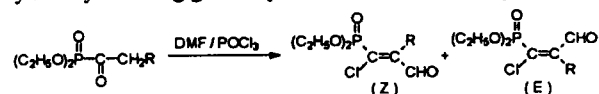
The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any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

Chloroformylation of Ketophosphonates

DING-QUAN QIAN, GUO-XIANG XU, HU CHEN, YU-XIU LIU,
 XIAO-DONG CHEN, RU-ZHEN CAO and LUN-ZU LIU

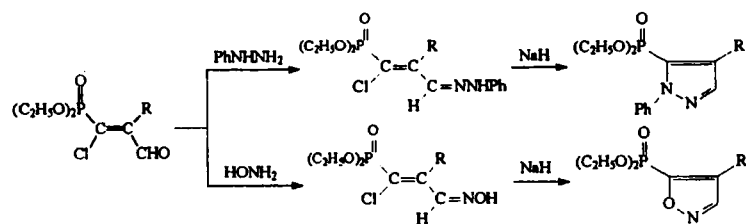
National Key Laboratory of Elemento-Organic Chemistry, Institute of
 Elemento-Organic Chemistry, Nankai University, Tianjin 300071, P.R. China

Recently we have developed a reaction pathway for a novel type of phosphonyl
 chlorovinylaldehydes using general procedure of chloroformylation[1].



This reaction led stereoselectively to the products with (Z)-configuration along
 with a small amount of (E)-isomers. Z or E isomers was separated by column
 chromatography, and assigned by the $^3\text{J}_{\text{HP}}$ coupling constant measurement in
 ^1H NMR spectra[2]. Moreover, when the isolation pure Z or E isomers ($\text{R} =$
 H) are refluxed in ethyl acetate for about 10 h respectively, the equilibration of
 the geometrical isomers ($\text{Z} \rightleftharpoons \text{E}$) takes place, and the ratio of Z/E (93/7) is
 almost the same in each case.

The reactions of phosphonylchlorovinylaldehyde with phenylhydrazine or
 oxymmonia gave phosphonyl pyrazoles or phosphonyl isoxazole
 respectively in presence of sodium hydride. Hydrazone and oxime ($\text{R} = \text{H}$) could
 be separated in absence of sodium hydride.



References

- [1] G. Alvernhe, B. Langlois, A. Laurent, Z.L. Drean and A. Selmi, *Tetrahedron Lett.*, **32**, 643, (1991).
- [2] B. Costisella, I. Keitel and H. Gross, *Tetrahedron*, **37**, 1227, (1981).