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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>

New Cyclization of Some N -Thiophosphorylthioureas

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Online publication date: 27 October 2010

To cite this Article Sokolov, Felix D. , Zabiroy, Nail G. , Brusko, Vasiliy V. , Litvinov, Igor A. , Krivolapov, Dmitry B. , Verat, Alexander Yu. and Cherkasov, Rafael A.(2002) 'New Cyclization of Some N -Thiophosphorylthioureas', *Phosphorus, Sulfur, and Silicon and the Related Elements*, 177: 8, 2147

To link to this Article: DOI: 10.1080/10426500213381

URL: <http://dx.doi.org/10.1080/10426500213381>

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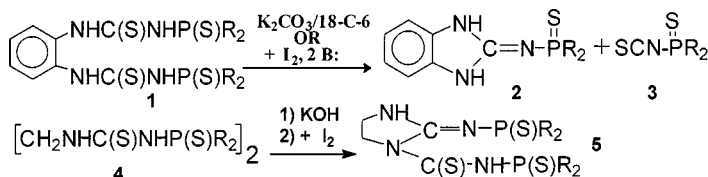
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NEW CYCLIZATION OF SOME N-THIOPHOSPHORYLTHIOUREAS

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(Received July 29, 2001; accepted December 25, 2001)

We determined that the bis-thiourea **1** react with base bringing to elimination molecule of the isothiocyanate **3** and formation the N-thiophosphorylbenzimidazolime **2** (80% yield). Structure of compounds **1** and **2** was determined using single-crystal X-ray diffraction. Process of cyclization greatly accelerated by oxidizer (I_2). In contrast to **1** the bis-thiourea **4** is converted to potassium salt by treatment with a base. This salt reacts with iodine and forms iminoimidazolidine **5**. One thiourea group kept safe in this compound. Nucleophilic activity of the endocyclic nitrogen atom of **5** more than nitrogen atom of strongly conjugated imidazolime **2**, therefore compound **5** don't eliminate phosphorylisothiocyanate **3** (All R = OPr-i).



SCHEME 1

The support of the RFBR (grant # 00-03-32742) and Joint Program of CRDF and Russian Ministry of Education "Basic Research & High Education" (grant REC-007) is gratefully acknowledged.

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