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## Phosphorus, Sulfur, and Silicon and the Related Elements

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### Reversible Phosphorylation of Trimethylsilylthiocyanate

Andrei B. Ouryupin<sup>a</sup>; Pavel V. Petrovskii<sup>a</sup>; Ivan A. Rakhov<sup>a</sup>; Tatyana A. Mastryukova<sup>a</sup>

<sup>a</sup> A.N. Nesmeyanov Institute of Organo-element compounds, Russian Academy of sciences, Moscow, Russia

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## Reversible Phosphorylation of Trimethylsilylisothiocyanate

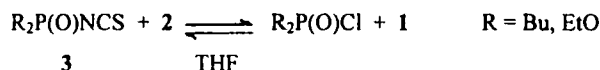
ANDREI B. OURYUPIN, PAVEL V. PETROVSKII, IVAN A. RAKHOV  
and TATYANA A. MASTRYUKOVA

*A.N. Nesmeyanov Institute of Organo-element compounds, Russian Academy of  
sciences, Moscow, 117813, Russia*

The reaction of trimethylsilylisothiocyanate with phosphorus acids chlorides was demonstrated to be reversible.

**Keywords:** phosphorylation; trimethylsilylisothiocyanate

The reaction of O,O-dialkylphosphoric acids chlorides with trimethylsilylisothiocyanate (1) in the presence of N-methylmorpholine could be applied to the synthesis of commercially important phosphorylisothiocyanates under mild conditions. Here provided is exhaustive evidence in support of the reversibility of aforementioned reaction. The mixtures of like composition have been formed both from methanephosphonic acid dichloride and (1) and from methanephosphonic acid diisothiocyanate and chlorotrimethylsilane (2). The partial transformation of isothiocyanates (3) to corresponding chlorides has been demonstrated when (3) were treated by (2):



The equilibrium is established according to structural peculiarities of phosphorus compounds and reaction conditions.