

## Synthesis of esters of phosphonic acids containing heterocyclic radicals - communication 4. Esters of phosphonic acids containing isoxazole and quinoxaline radicals

Arbuzov B., Zoroastrova V.  
*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

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### Abstract

1. Reaction of sodium dialkyl phosphite and of trialkyl phosphite with 3-chloromethylisoxazole gave esters of phosphonic acids containing the isoxazole ring. 2. Reaction of trialkyl phosphites with 2,3-di( $\omega$ -bromomethyl)-quinoxaline led to the methyl, ethyl and isopropyl esters of 2,3-di(phosphonomethyl)-quinoxaline. 3. The phosphonic ester could not be isolated after reaction of sodium diethyl phosphite with 2,3-di( $\omega$ -bromomethyl)-quinoxaline. 4. Diethylphosphorous acid adds on to quinoxaline under the influence of sodium alcoholate to form 1,4-dihydro-2-3-di(diethylphosphono)-quinoxaline. © 1954 Consultants Bureau, Inc.

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