Synthesis of 4,5-Dichloro-3-cyanoisothiazole and Its Functional Derivatives

V. I. Potkin, Yu. S. Zubenko, N. I. Nechai, A. I. Bykhovets, and P. V. Kurman

Institute of Physical Organic Chemistry, National Academy of Sciences of Belarus, Minsk, 220072 Belarus
e-mail: potkin@ifoch.bas-net.by

Received November 13, 2007

Abstract—By treating with phosphorus pentoxide the 4,5-dichloroisothiazole-3-carboxamide 4,5-dichloro-3-cyanoisothiazole was synthesized whose reactions with piperidine, phenyl- and benzylthiols occurred with replacement of the chlorine atom in the position *5* by the residue of the corresponding nucleophile. Reactions with sodium thiobytylate and also with sodium methylate in methanol led to the formation both of the products of chlorine substitution by BuS or MeO groups respectively and of addition products of methanol to the cyano group. The reaction of butanethiol with cyanoisothiazole in 2-propanol in the presence of sodium 2-propylate was more selective and resulted in the replacement of the chlorine atom in the position *5* by the residue of the butanethiol.

DOI: 10.1134/S1070428008070154