

# 5-(2-Thienylsulfanyl)thiophene-2-carbaldehyde: Thioacetalization, Chloromethylation, and Oxidation

L. K. Papernaya, E. P. Levanova, L. V. Klyba, and A. I. Albanov

*Favorskii Irkutsk Institute of Chemistry, Siberian Division, Russian Academy of Sciences,  
ul. Favorskogo 1, Irkutsk, 664033 Russia  
e-mail: papern@irioch.irk.ru*

Received September 9, 2008

**Abstract**—5-(2-Thienylsulfanyl)thiophene-2-carbaldehyde reacted with propane-1-thiol and propane-1,3-dithiol in the presence of chloro(trimethyl)silane to give previously unknown 5-[bis(propylsulfanyl)methyl]-2-(2-thienylsulfanyl)thiophene and 2-[5-(2-thienylsulfanyl)thiophen-2-yl]-1,3-dithiane. Chloromethylation of 5-(2-thienylsulfanyl)thiophene-2-carbaldehyde with formaldehyde in a stream of hydrogen chloride in the presence of zinc chloride resulted in the formation of an oligomeric product consisting of thiophene rings connected alternately by sulfur and methylene bridges. The oligomer is formed via fast polycondensation of the primary chloromethylation product with the initial aldehyde. 5-(2-Thienylsulfanyl)thiophene-2-carbaldehyde was oxidized at the sulfide and aldehyde groups with 30% hydrogen peroxide in glacial acetic to produce 5-(2-thienylsulfonyl)thiophene-2-carboxylic acid.

**DOI:** 10.1134/S1070428009070094