SYNTHESIS OF AROMATIC ALDEHYDES BY THE REACTION OF 2-ETHOXYDIOXOLANE WITH AROMATIC COMPOUNDS

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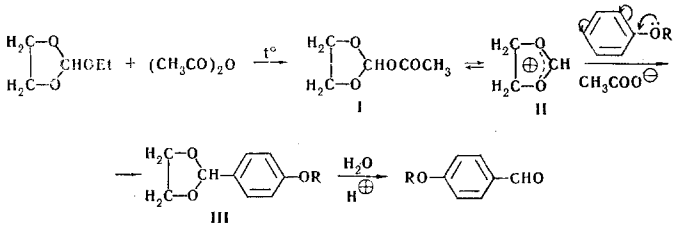
UDC 547.729'571.07

It has been observed that refluxing a mixture of 2-ethoxydioxalane with ethers of phenols in acetic anhydride yields cyclic acetals of aromatic aldehydes, the acid hydrolysis of which results in the formation of aromatic aldehydes. The reaction is probably accomplished through a step involving formation of the more reactive intermediate 2-acetoxydioxolane (I) which, by reacting as the dioxolanium acetate (II), attacks the aromatic compound to form a 2-substituted dioxolane (III) [1].



Similar replacement of an ethoxy group by an acetoxy group occurs when orthoformates are refluxed in acetic anhydride; this is widely used for the activation of ortho esters [2].

The aldehydes are synthesized by prolonged refluxing (20-24 h) of equimolecular amounts of the components in excess acetic anhydride with subsequent hydrolysis of the reaction mixture with 5% hydrochloric acid. We obtained anisaldehyde and p-ethoxybenzaldehyde in 30 and 25% yields, respectively, from anisole and phenetole using this method.

LITERATURE CITED

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2. H. Post and E. Erickson, J. Org. Chem., 2, 260 (1937).

Rostov-on-Don State University. Translated from Khimiya Geterotsiklicheskikh Soedinenii, No. 4, p. 569, April, 1971. Original article submitted September 17, 1970.