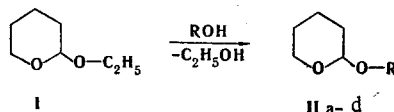


M. S. Klyavlin, R. A. Karakhanov, D. L. Rakhmankulov,
S. S. Zlot-skiif

UDC 547.811.812:543.544

Substituent exchange occurs when a mixture of 2-ethoxytetrahydropyran (I) with an alcohol is passed through aluminum oxide at 200-240°C (this is similar to the exchange observed in the liquid phase [1]).



Secondary and tertiary alcohols are less active than primary alcohols in this reaction. Data obtained at 210° and a reagent molar ratio of 1:1 under pulse conditions are presented in Table 1.

TABLE 1. Yields of 2-Alkoxytetrahydropyrans

Alcohol	Compound	Yield, %
<i>n</i> -C ₃ H ₇ OH	IIa	78,5
iso-C ₃ H ₇ OH	IIb	44,1
<i>n</i> -C ₄ H ₉ OH	IIc	78,2
tert-C ₄ H ₉ OH	IId	20,4

The products were identified by gas-liquid chromatography with respect to authentic samples with an LKhM-8MD chromatograph with a thermal-conductivity detector at an analysis temperature of 100-110°; the column was 4 m long with a diameter of 3 mm, the stationary phase was FS, the carrier gas was hydrogen, and the flow rate was 4 liters/h.

LITERATURE CITED

1. V. B. Mochalin, A. N. Kornilov, A. N. Vul'fson, and I. S. Varpakhovskaya, *Khim. Geterotsikil. Soedin.*, No. 2, 167 (1975).

Ufim Petroleum Institute, N. D. Zelinskii Institute of General Chemistry, Academy of Sciences of the USSR. Translated from *Khimiya Geterotsiklicheskikh Soedinenii*, No. 5, p. 714, May, 1976. Original article submitted November 18, 1975.

This material is protected by copyright registered in the name of Plenum Publishing Corporation, 227 West 17th Street, New York, N. Y. 10011. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, microfilming, recording or otherwise, without written permission of the publisher. A copy of this article is available from the publisher for \$7.50.