

NEW SYNTHESIS OF ALKYL-FURANS

I. I. Ibragimov, M. M. Guseinov,
R. A. Gadzhily, V. G. Dzhaferov,
and S. P. Godzhaev

UDC 547.722.2.07:542.953:
543.422.25.4'51

We have found that condensation of carboxylic acid chlorides with allyl chloride or methallyl chloride in the presence of aluminum chloride in dichloroethane or methylene chloride at temperatures no higher than -15°C gives β, γ -dichloro ketones, which undergo splitting out of hydrogen chloride and conversion to alkylfurans (Table 1) during vacuum distillation (80-100 mm) in a stream of nitrogen.



TABLE 1. 2-Alkyl- and 2,4-Dialkylfurans

R	R'	bp, $^{\circ}\text{C}$	n_D^{20}	d_4^{20}	Yield, %
C_3H_7	H	117-118	1.4417	0.8872	67
<i>i</i> - C_3H_7	H	106-107	1.4405	0.8804	64
C_4H_9	H	143-144	1.4448	0.8857	73
C_5H_{11}	H	167-168	1.4480	0.8804	82
C_6H_{13}	H	188-189	1.4503	0.8781	84
C_7H_{15}	H	209-210	1.4521	0.8732	92
C_3H_7	CH_3	144-145	1.4450	0.8853	69
C_4H_9	CH_3	165-166	1.4488	0.8834	86
C_5H_{11}	CH_3	208-209	1.4526	0.8740	92
$(\text{CH}_2)_4\text{CH}$	H	171-172	1.4850	0.9830	89
$(\text{CH}_2)_5\text{CH}$	H	60-63 ^a	1.4855	0.9840	87
$(\text{CH}_2)_4\text{CH}$	CH_3	65-67 ^b	1.4840	0.9748	92
$(\text{CH}_2)_5\text{CH}$	CH_3	72-73 ^b	1.4855	0.9604	91

^aAt 7 mm. ^bAt 5 mm.

The structure of the furan homologs obtained was proved by means of IR, PMR, and mass spectroscopy, and their purity was monitored by gas-liquid chromatography. The physical chemical characteristics of the synthesized 2-alkyl- and 2,4-dialkylfurans and their adducts with maleic anhydride are in agreement with the literature data.

Sumgait Branch, Institute of Petrochemical Processes, Academy of Sciences of the Azerbaidzhan SSR. Translated from Khimiya Geterotsiklicheskikh Soedinenii, No. 10, pp. 1434-1435, October, 1973. Original article submitted March 22, 1973.

© 1975 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 \$15.00.