

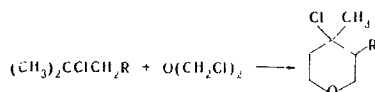
## LETTERS TO THE EDITOR

### SYNTHESIS OF 4-CHLOROTETRAHYDROPYRANS BY THE REACTION OF DI(CHLOROMETHYL) ETHER WITH ALKYL HALIDES

A. A. Gevorkyan, Sh. O. Badanyan,  
and A. A. Manukyan

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We have found that the reaction of tertiary alkyl chlorides with di(chloromethyl) ether leads to 4-chlorotetrahydropyrans. The reaction takes place readily both in the presence of a solvent and without one under the influence of Friedel-Crafts catalysts (0.5-1% of  $ZnCl_2$ ,  $FeCl_3$ ,  $SnCl_4$ , etc.). To prevent the formation of telomeric products, the reaction is best performed in ether at 30-40°C. The structure of the compounds obtained was shown by IR spectroscopy (absence of the absorption of a  $C=C$  bond), by elementary analysis, and by independent synthesis.



4-Chloro-4-methyltetrahydropyran, yield 53%, bp 43°C (9 mm),  $d_4^{20}$  1.0742,  $n_D^{20}$  1.4580. Found, %: Cl 26.4.  $\overline{MR}_D$  34.17.  $C_6H_{11}ClO$ . Calculated, %: Cl 26.6.  $\overline{MR}_D$  34.22. The same compound [bp 45°C (10 mm),  $n_D^{20}$  1.4590] was obtained by the chloromethylation of methallyl carbinol. According to GLC (column 420 cm long, 7% of PEG-1500 on Chromaton, temperature 130 and 150°C, rate of flow of the carrier gas, nitrogen, 40-60 ml min) the two samples were identical.

4-Chloro-3,4-dimethyltetrahydropyran, yield 40%, bp 76-77°C (22 mm),  $d_4^{20}$  1.040,  $n_D^{20}$  1.4590. Found, %: Cl 23.9.  $\overline{MR}_D$  39.04.  $C_7H_{11}ClO$ . Calculated, %: Cl 23.9.  $\overline{MR}_D$  38.79.

Under the conditions described, primary and secondary alkyl halides give mainly high-boiling telomeric products.

#### LITERATURE CITED

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Institute of Organic Chemistry, Academy of Sciences of the Armenian SSR, Erevan. Translated from Khimiya Geterotsiklicheskikh Soedinenii, No. 8, p. 1143, August, 1973. Original article submitted January 3, 1973.

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