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NUCLEOPHILIC ADDITION OF ALCOHOLS TO 1,1-DIFLUOROETHYLENES

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The reactions of 1,1-difluoroethylenes with sodium alkoxides in parent alcohol solutions were studied.

 $CF_2 = CXY + R - OH \longrightarrow RO - CF_2 - CXYH$

Relative reactivities of 1,1-difluoroethylenes in the competitive addition reaction with methanol were found to be in the following order

$$CF_2 = CHC1 > CF_2 = CC1_2 > CF_2 = CFC1 > CF_2 = CFH > CF_2 = CF_2$$

Competitive reactions of various alcohols and phenol with chlorotrifluoroethylene were carried out. The order of reactivity of alcohols and quantitative ratios were estimated.

methanol
$$>$$
 ethanol $>$ 1-propanol $>$ 1-butanol

1-butanol>2-butanol=2-methyl-1-propanol>2-methyl-2-propanol

phenol>cyclohexanol>cycloheptanol≅cyclopentanol>3-pentanol

Quantitative analyses of products of the competitive reactions were performed by gas chromatography. The relationship between the relative reactivity and the structure of alcohols and 1,1--difluoroethylenes is discussed.