CONTRIBUTION TO THE CHEMISTRY OF PERFLÜOROALLYL CHLORIDE AND SOME OTHER CHLOROFLUOROPROPENES

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The synthesis of these substances is based on the ionic addition reaction of Freon 11 with fluorinated ethylenes. This reaction yields halogenopropanes, which, by means of fluorination, dehalogenation and photochemical reduction, were converted to the following fluoropropenes: $ClCF_2-CF=CF_2$, $CF_3-CF=CClF$, $CF_3-CF=CCl_2$, $ClCF_2-CF=CCl_2$, $ClCF_2-CF=CCl_2$, and $CF_3-CF=CHCl$.

The chemical properties of the fluoropropenes were studied on their reactions with KF, with CH₃OH under basic catalysis, and under the conditions of a photochemically initiated reaction with alcohols.

The treatment with KF under different conditions results in the substitution of chlorine and in the formation of perfluoropropene and perfluoropropene oligomers:

$$X-CF_2-CF=CFY + KF \longrightarrow (C_3F_6)_n$$

X,Y = Cl,F n = 1-4

The reaction with methanol is of preparative significance in some cases only.

The main product of the photochemical addition of simple alcohols to the fluoropropenes $CF_3-CF=CXY$ (X,Y = H,Cl,F) are fluorinated alkanols of a general formula $CF_3CHF-CXY-C(OH)R_2$. The regioselectivity of the addition is influenced by the presence of chlorine atoms on the terminal carbon atoms of the double bond.