

# SYNTHESIS OF SOME PERFLUORINATED TERTIARY AMINES AND DIALKYL ETHERS

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The paper reports syntheses of partially fluorinated trialkylamines and ethers by the reactions of perfluoroolefins (hexafluoropropylene, its dimer and trimer) and polyfluoroaromatic compounds ( $C_6F_6$ ,  $C_6F_5CF_3$ ) with secondary amines (diallylamine, dibutylamine, dipropylamine, diethylamine) and polyfluorinated alcohols  $CF_3CH_2OH$ ,  $C_6F_5CH_2OH$ ,  $H(CF_2CF_2)_nCH_2OH$  [ $n=1-4$ ] under the nucleophilic catalysis conditions by bases ( $CaF$ ,  $NEt_3$ ). Optimization of the process has been carried out. The effect of reaction conditions (solvent, temperature, catalyst) on the yield of target products and isomerization processes of the starting perfluoroolefins has been found. Substitution of polyfluorinated alcohols by their trimethylsilyl ethers resulted in increased yields of target products and milder reaction conditions. The partially fluorinated tertiary amines produced were subjected to electrochemical fluorination in anhydrous hydrogen fluoride, and ethers to catalytic fluorination with elementary fluorine. In the ECF of partially fluorinated trialkylamines, the yield of target product per unit quantity of the electricity passed was found to be much higher than that of hydrocarbon analogues. The fluorination products were analysed for purity by chromatomass-spectrometry.