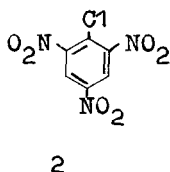
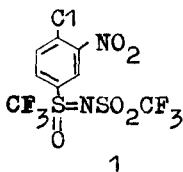


INFLUENCE OF SUPERSTRONG ELECTRONACCEPTING SUBSTITUENT
 $\text{CF}_3\text{S}(\text{O})=\text{NSO}_2\text{CF}_3$ ON NUCLEOPHILIC SUBSTITUTION REACTIONS
 IN AROMATIC RING

V.Boiko, N.Kirii and L.Yagupolskii

Institute of Organic Chemistry of Academy of Sciences
 of Ukrainian SSR, Kiev, 252660, Ukrainian SSR

The $\text{CF}_3\text{S}(\text{O})=\text{NSO}_2\text{CF}_3$ group is a superstrong electronaccepting substituent. With its σ_p value 1,40 it is approximately equal to electronic influence of two nitro groups placed at ortho- and para-positions. Comparing reactivity of 1 and 2 with different nucleophiles has been studied. As it has turned out reactivity of 1 and 2 with CH_3OH and $\text{CF}_3\text{CH}_2\text{OH}$ in the presence of KHCO_3 are approximately equal. But with N_3^- and $p\text{-O}_2\text{NC}_6\text{H}_4\text{NH}_2$ the 1 is not as strong as 2 and with anion I^- the former does not react at all under conditions when 2 quantitatively converts to picryl iodide.



According to the relative mobility of chlorine in 1 and 2 (1/2) nucleophilic reagents settle down in the following order: $\text{I}^-(0) < p\text{-O}_2\text{NC}_6\text{H}_4\text{NH}_2(0,13) < \text{N}_3^-(0,47) < \text{CF}_3\text{CH}_2\text{O}^-(1) < \text{CH}_3\text{O}^-(1,32)$, which indicates that $\text{CF}_3\text{S}(\text{O})=\text{NSO}_2\text{CF}_3$ group creates a hard reaction centre in contrast to the soft centre in case of nitro groups only.

The high electron-accepting power of $\text{CF}_3\text{S}(\text{O})=\text{NSO}_2\text{CF}_3$ is also evidenced by the fact that chlorine in 1 is substituted quantitatively by PhNH_2 and $\text{CF}_3\text{CH}_2\text{O}^-$ whereas in 3 under the same conditions — only to 10%.

