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# (POLYFLUOROORGANOXYALKYL)TRIALKOXYSILANES

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Fluorine-containing organosilicon monomers and polymers are of great importance for manufacturing anti-adhesive hydrophobic coatings, heat resistant lubricants, etc.

We have worked out a process for manufacturing a new class of polyfluoroorganosilicon compounds, (polyfluoroorganoxyalkyl)trialkoxysilanes. (Polyfluorophenoxyalkyl)trialkoxysilanes are synthesized by the reaction of (haloalkyl)trialkoxysilanes with alkali polyfluorophenoxides in a medium of aromatic hydrocarbons and dimethylsulfoxide at 80-90°C:

$$Ar_FOM + Cl(CH_2)_nSi(OR)_3 \longrightarrow Ar_FO(CH_2)_nSi(OR)_3 + MCl$$

M = Na, K; $Ar_F$ = $C_6F_5$, $C_6F_4OMe$, $C_6F_4Cl$, $C_6F_3Cl_2$, $C_6F_4H$; n = 1, 3; R = Me, Et

The reaction of (haloalkyl)trialkoxysilanes with polyfluorinated alkoxides is carried out in a similar way. This reaction, however, is accompanied by some side-processes due to which the yield of (polyfluoroalkoxyalkyl)trialkoxysilanes does not exceed 20%. Besides, the products of transetherification and Si-C bond cleavage are formed. The reaction of (polyfluoroorganoxyalkyl)trialkoxysilanes with triethanolamine leads to the corresponding 1-substituted silatranes, $R_FO(CH_2)_nSi(OCH_2CH_2)_3N$ (I) with $R_F$ = $C_6F_5$, $C_6F_4Cl$, $C_6F_3Cl_2$, $CH_2CF_2CF_2H$, $CH_2(CF_2CF_2)_2H$, $CH_2(CF_2)_3CF_3$. The toxicity of (I) ranges within $LD_{50}$ = 16-900 mg/kg. Some of these compounds display a bacteriostatic activity with respect to Staphylococcus aureus.