PREPARATION AND PROPERTIES OF PERFLUOROALKYLATED BENZENE SULFONATES

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Two types of benzene sulfonates, $R_FCOC_6H_4SO_3Na$ (II) and $R_FC_6H_4SO_3Na$ (IV) $R_F=C_nF_{2n+1}$ n=1-8, were prepared to study their surface activities. Benzene sulfonates II were prepared by Friedel-Crafts-acylation of benzene with perfluoroalkanoic acid chloride followed by sulfonation with fuming sulfuric acid.

$$R_{p}COC1 + C_{6}H_{6} \xrightarrow{A1C1_{3}} R_{p}COC_{6}H_{5}$$
(I)
$$I \xrightarrow{SO_{3}} R_{p}COC_{6}H_{4}SO_{3}Na$$
(II)

Ketones I were fluorinated using sulphur tetrafluoride as fluorinating agent to obtain perfluoroalkylated benzenes III. III which were sulfonated subsequently with fuming sulfuric acid to IV.

$$I \xrightarrow{SF_4} R_F^{CF_2C_6H_5} \xrightarrow{SO_3} R_F^{CF_2C_6H_4SO_3Na}$$
(III) (IV)

Surface properties of benzene sulfonates II and IV are presented and discussed in relation to structure and chain length.