

Polysoap Solutions: Air-Water Interfacial Properties

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Four sodium polysoaps from poly[maleic anhydride-co-styrene] were synthesized and the surface properties of their aqueous solutions at the air-water interface were determined. The surface tension lowering was directly dependent on the length of the side aliphatic group. Results made it possible to determine the excess surface concentration Γ , the area covered by each monomer unit, and the free energy of adsorption. From these results it can be concluded that the adsorption process is similar to that occurring in small molecule systems. The dependence of the free energy of adsorption on the number of carbon atoms of the side chain is nearly linear. This dependence made it possible to determine a contribution of -510 cal to the adsorption process for each methylene group and the thermodynamic parameters of this process are found to be of the same order of magnitude as those reported in surfactant systems. From the temperature dependence of the surface tension it was possible to conclude t