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Thermodynamics of the Dissociation of Chromium Soap Solutions in Benzene-Dimethyl Formamide

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Abstract: Critical micelle concentrations and dissociation constants for chromium soaps (myristate, palmitate and stearate) in a mixture of benzene and dimethyl formamide (7:3, vol/vol) were determined by means of conductivity measurements. These soaps behave as simple moderate electrolytes in dilute solutions. Critical micelle concentrations and dissociation constants decreased with increasing numbers of carbon atoms in the soap molecules. Thermodynamic parameters such as heat of dissociation, ΔH_d, change in free energy, ΔG_d, and entropy, ΔS_d, per mole for the dissociation process were also evaluated.

Key Words: chromium soaps, conductivity, critical micellar concentration, dissociation constant, thermodynamics.

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