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Micelle Formation in Sodium Dodecyl Sulfate and Dodecyltrimethylammonium Bromide at Different Temperatures

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Abstract: pH changes as a function of concentration for sodium dodecyl sulfate (SDS) and dodecyltrimethylammonium bromide (DTAB) were observed by the addition of 1 N HCl and 1 N KOH. pH values increased up to the critical micellar concentration (CMC) for the SDS/HCl system and decreased for the DTAB/KOH system. In the SDS/HCl and DTAB/KOH systems, the micellar phase had a fixed composition and was homogeneous and monodisperse above the CMC. However, in the SDS/KOH and DTAB/HCl systems, pH values increased in a continuous and gradual manner below and above the CMC, and the properties of the micellar phase changed with temperature as a function of concentration, giving rise to inhomogeneity and polydispersity

Key Words: Critical micellar concentration, dodecyltrimethylammonium bromide, sodium dodecyl sulfate, hydrochloric acid, potassium hydroxide, pH, phase separation.

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