

Investigations on the Polymer Induced Incompatibility in Mixed Micellar Systems

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Abstract — The effects of addition of polyvinyl pyrrolidones (PVP) of varying molar masses on the micellar properties of the mixed cationic micellar system of cetyltrimethyl ammonium and tetradecyl trimethyl ammonium bromides were investigated. The values of critical aggregation and critical micellar concentrations were determined employing conductivity technique. A regular solution approach was employed to determine the effects of the polymers on the values of the interaction parameter (β) and the composition of the mixed micelles. The excess Gibbs free energy of mixing was also calculated. The results have been explained on the basis of an increase in the incompatibility between the surfactant monomers in the mixed state due to interaction of the polymers with the surfactant monomers and the steric hindrance caused by the PVP adsorption at the micelle-solution interface.
