Effect of the nature of counterions on the sphere-to-rod transition in cetyltrimethylammonium micelles

Gamboa,

Ríos,

Sepúlveda,

The critical micelle concentration, cmc, the dissociation degree, ?, and the transfer free energy of anions ??t° from water to micelle for different cetyltrimethylammonium salts CTAS (S = benzenesulfonate, OBSP-; tosylates, OTOS-; p-ethylbenzenesulfonate, OEBS-; and isopropylbenzenesulfonate, OIBS-) were determined. It was found that correlations exist between the cmc, ?, and ??t° values and that these correlations extend to CTAX salts (X = OH-, F-, Cl-, Br-, NO3 -). Viscosity measurements indicate that the more hydrophobic counterions induce a sphere-to-rod transition at lower concentrations. Partial molar volume changes of CTAOTOS also indicate a sphere-to-rod transition.