

J. Surface Sci. Technol., Vol 22, No. 3-4, pp. 89-100, 2006  
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## Conductometric and Surface Tension Studies on the Micellization of Some Cationic Surfactants in Water-Organic Solvent Mixed Media

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**Abstract** Micellar behaviour of Cetyl Trimethyl Ammonium Bromide (CTAB) and Tetradecyl Trimethyl Ammonium Bromide (TTAB) in water-organic solvent mixed media has been studied by means of conductivity and surface tension measurement at 303.15 K. The organic solvents chosen for the study are (a) Ethylene Glycol (EG) and its homologues, Mono Methyl (MME) and Mono Ethyl (MEE) Ethylene glycols, (b) cyclic ethers, Tetrahydrofuran (THF) and 1,4-Dioxane, and (c) Ethanolamine (EA), Diethanolamine (DEA) and Triethanolamine (TEA). It was observed that the presence of EG and MME, and the cyclic ethers generally led to an increase in critical micelle concentration (cmc) of the surfactants except for MEE. However, the presence of ethanolamines forced the surfactant monomers to micellize at lower surfactant concentrations decreasing the cmc of the surfactant. From the conductance and surface tension data, the degree of counter ion binding,  $\nu$  and the surface excess concentration,  $G_{\max}$  for all the systems have been evaluated. The results have been discussed in terms of breaking or making of the water structure and solvation of the hydrophobic tail of the surfactants by the hydrophobic (hydrocarbon) part of the organic solvents.

**Keywords :** Micellization, mixed media, solvation, hydrophobic effect, solvent hydrophobicity.

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