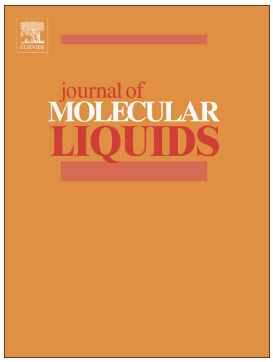

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Micellization of sodium dodecyl sulfate in presence and absence of alkali metal halides at different temperatures in water and methanol-water mixtures

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ABSTRACT

The micellization of sodium dodecyl sulfate (SDS) in presence and absence of KCl, KBr, NaBr and NaCl in water and methanol-water mixtures containing 8, 16, 25, and 34 wt. % of methanol at 298.15 to 323.15 K have been assessed from conductometric measurements. The concentrations of SDS were varied from ~ 0.001 to ~ 0.05 mol L^{-1} and salts concentration was 0.01 mol L^{-1}. The critical micelle concentration (CMC) of SDS in presence and absence of salts in water as well as in methanol-water mixtures are found to increase with the increase in temperature and found to decrease with the addition of salts. The CMC of SDS in water and methanol-water mixtures in presence of studied salts is found in the order NaCl > NaBr > KCl > KBr.

Thermodynamic properties of micellization such as the standard free energy of micellization, standard enthalpy of micellization, the standard entropy of micellization, the standard free energy of transfer and heat capacity of micellization of SDS in presence and absence of salts have been examined. The micellization of SDS with presence and absence of salts has been assessed in terms of different solvent parameters. The solvophobic parameters have been presented.

Keywords: