

# Micellar Behaviour of Anionic Surfactants (NaDeS, KDeS) in Alkanol + Toulene System by Conductivity Method

Mayank<sup>1</sup> and Mukesh Chand<sup>2</sup>

## ABSTRACT

The micellar behaviour of anionic surfactants sodium decylsulfate (NaDeS) and potassium decyl sulfate (KDeS) in alkanol (methanol, propanol-1, butanol-1, and t-butanol) + toluene systems of varying compositions has been examined by conductivity. Conductivity ( $\kappa$ ) of surfactant-solvent systems increases with increasing concentration of surfactant and temperature as well. The plots of  $\kappa$  vs. C are characterized by the intersection of two straight lines corresponding to their critical micelle concentration (CMC). The results obtained for different solvents systems are summarized below: Micelle formation of these surfactants has been accounted on the basis of hydrophobic character of the surfactants, their polarity, and the dielectric constant of the solvent.

- (a) The CMC values for both the surfactants exhibit the trend: **t-BuOH < BuOH-1 < PrOH-1 < MeOH**
- (b) The CMC values decrease with increasing amount of toluene in methanol for methanol + toluene systems.
- (c) In alkanol (methanol, propanol-1, butanol-1 and t-butanol) + toluene systems, the CMC values for all the surfactants studied show the trend:  
**MeOH < PrOH-1 < BuOH-1**
- (d) The CMC was found to increase with increasing temperature.

**Key Words:** Micellar behavior, NaDeS, CMC, alkanol + toluene system, Conductivity, Gibbs energy.