Interaction of Some Amino Acids with Sodium Dodecyl Sulphate in Aqueous Solution at Different Temperatures

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The density ρ , and viscosity η of 0.00, 0.05, 0.10, 0.15, and 0.20 mol kg⁻¹ glycine (Gly), dlalanine (Ala), dl-serine (Ser), and dl-valine (Val) have been measured in 0.002 mol kg⁻¹ aqueous sodium dodecyl sulphate (SDS) at 298.15, 303.15, 308.15, and 313.15 K. These data have been used to calculate the apparent molar volume ϕ_{v} , infinite dilution apparent molar volume ϕ_{v}° , and the standard partial molar volumes of transfer $\phi_{v}^{\circ}(tr)$, of the amino acids from water to the aqueous SDS solutions. Falkenhagen coefficient *A*, Jones-Dole coefficient *B*, free energies of activation per mole of solvent (aqueous SDS) $\Delta \mu_1^{\circ*}$, and per mole solute (amino acids) $\Delta \mu_2^{\circ*}$, also enthalpy ΔH^* and entropy ΔS^* of activation of viscous flow were evaluated using viscosity data. The molar refraction R_D was calculated by using experimental values of the refractive index n_D of the systems. The results have been interpreted in terms of ion-ion, ion-polar and hydrophobic-hydrophobic group interactions. The volume of the transfer data suggest that ion-ion intertactions are predominant.

Key words: Density; Viscosity; Refractive Index; Amino Acids.