Volumetric Properties of L-Phenylalanine in Aqueous Solutions of Salbutamol Sulphate in the Temperature Range 298.15 to 318.15K

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Abstract

Densities $\rho$, have been measured for L-Phenylalanine in aqueous Salbutamol Sulphate solutions of concentrations (0.0125, 0.0250 and 0.0375M) mol kg$^{-1}$ at $T = 298.15 – 318.15K$. Apparent molal volumes $V_\psi$ have been determined from the experimental densities. Several thermodynamical parameters such as standard partial molal volume $V_\psi^0$, transfer volume $\Delta_v V_\psi^0$, hydration number $n_H$, the second derivative of infinite dilution of partial molal volume with respect to temperature, viz., $\partial^2 V_\psi^0 / \partial T^2$ have been calculated using the density data. Furthermore the pair and triplet interaction coefficients $V_{AM}$ and $V_{AMM}$ have been calculated and reported. These results interpreted through a co-sphere overlap model indicate the presence of strong solute-co-solute interactions in the reported systems.

Keywords: Apparent molal volume, standard partial molal volume, transfer volume, hydration number, L-Phenylalanine, Salbutamol Sulphate.

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