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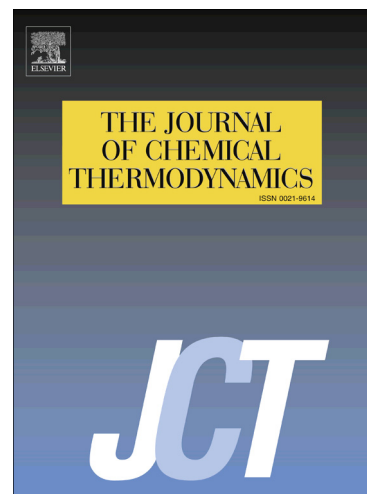
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Volumetric and ultrasonic properties of ternary sucrose-water-protic ionic liquid solutions

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In this work, apparent molar volume and apparent molar isentropic compressibility of sucrose in aqueous solutions of ammonium based protic ionic liquid (PIL) have been evaluated from experimentally determined values of density and speed of sound at (293.15, 298.15, 303.15, 308.15, 313.15 and 318.15) K and at 101.3 kPa. The types of interactions occurring between sucrose and PIL (3-hydroxypropylammonium formate; 3HPAF) in aqueous solutions were studied and are discussed on the basis of infinite dilution partial molar volumes, V_2° , and isentropic compressibility, $K_{s,2}^\circ$, transfer volumes ($\Delta_t V_2^\circ$ and $\Delta_t K_{s,2}^\circ$), expansion coefficients, $[(\partial V_2^\circ/\partial T)_P$ and $(\partial^2 V_2^\circ/\partial T^2)_P]$, interaction coefficients, (Y_{AB} and Y_{ABB}) and hydration numbers, N_w . Further, apparent specific volume, ASV and apparent specific isentropic compression, ASIC were determined and analysed to evaluate the effect of PIL on the basic taste quality of sucrose.

Keywords: apparent molar volume; isentropic compressibility; protic ionic liquid; sucrose.

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