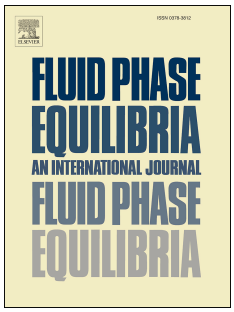

Influence of 1–alkyl–3–methylimidazolium based ionic liquids on the thermodynamic and transport properties of L(+)–lactic acid in aqueous solutions of polyethylene glycol

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Influence of 1–alkyl–3–methylimidazolium based ionic liquids on the thermodynamic and transport properties of L(+)–lactic acid in aqueous solutions of polyethylene glycol

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Abstract

In this study, effect of some ionic liquids on the thermodynamic and transport properties of L(+)–lactic acid in aqueous polyethylene glycol solutions have been investigated. Density, speed of sound and viscosity of L(+)–lactic acid in the aqueous solutions of polyethylene glycol, (polyethylene glycol + 1–hexyl–3–methylimidazolium bromide) and (polyethylene glycol + 1–octyl–3–methylimidazolium bromide) were measured at temperatures 288.15–318.15 K. Apparent molar volumes, transfer apparent molar volume, apparent molar isentropic compressibility and viscosity B–coefficient of L(+)–lactic acid were calculated by using experimental data and were discussed in terms of solute–solute and solute–solvent interactions. The results reveal that solute–solvent interactions were decreased by increasing concentration of ionic liquid, length of alkyl group of ionic liquid and temperature.

Keywords: L(+)–lactic acid; Polyethylene glycol; Ionic liquid; Viscosity; Volumetric.

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