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THERMODYNAMICS AND CHEMICAL.....

含离子液体溶化1-丙基-3-甲基咪唑的二元和三元体系的蒸气压测定

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摘要 **Vapor pressure values of binary systems water + ethanol, water + ionic liquid 1-propyl-3- methylimidazolium bromide（[PMIM] [Br]）, ethanol + [PMIM] [Br] and ternary system water + ethanol + [PMIM] [Br] at different temperatures were measured by using a modified boiling point method in various concentrations of（16.66%, 33.7%）,（17.4%, 33.9%）and（16.5%, 32%）mass percent of ionic liquid, respectively. The experimental vapor pressures of solvent were well correlated by the Antoine-type equation, and the overall average absolute deviation（AAD）was found to be 0.39%. The experimental results for mixtures containing ionic liquid indicate that the vapor pressure of the solvents can be decreased noticeably to different extent due to the affinity difference between ionic liquid and solvent, which is similar to the salt effect of common inorganic salts. As a result, ionic liquid may find industrial applications in extractive distillations for the system with a low separation factor or even for an azeotropic mixture.**

关键词

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Determination of Vapor Pressures for Binary and Ternary Mixtures Containing Ionic Liquid 1-propyl- 3-methylimidazolium Bromide

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Abstract Vapor pressure values of binary systems water + ethanol, water + ionic liquid 1-propyl-3- methylimidazolium bromide（[PMIM] [Br]）, ethanol + [PMIM] [Br] and ternary system water + ethanol + [PMIM] [Br] at different temperatures were measured by using a modified boiling point method in various concentrations of（16.66%, 33.7%）,（17.4%, 33.9%）and（16.5%, 32%）mass percent of ionic liquid, respectively. The experimental vapor pressures of solvent were well correlated by the Antoine-type equation, and the overall average absolute deviation（AAD）was found to be 0.39%. The experimental results for mixtures containing ionic liquid indicate that the vapor pressure of the solvents can be decreased noticeably to different extent due to the affinity difference between ionic liquid and solvent, which is similar to the salt effect of common inorganic salts. As a result, ionic liquid may find industrial applications in extractive distillations for the system with a low separation factor or even for an azeotropic mixture.

Key words

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