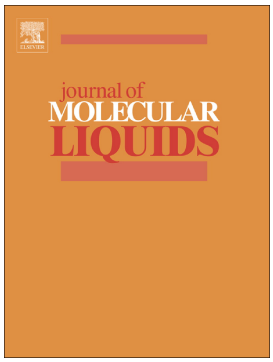

A new proposed thermodynamic model for aqueous polymer solutions

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A new proposed thermodynamic model for aqueous polymer solutions

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Abstract

In this research a novel model was proposed for calculation of the phase behavior in polymer solutions. The proposed model consists of modified Freed-FV, non-randomness factor and the new expression derived volume-based group contribution local composition model activity coefficients. Firstly the proposed model was considered without pseudo chemical part to obtain the interaction parameters of functional groups (This is for the use of interaction parameters of functional groups in various systems). The binary interaction parameters of the functional groups of new local composition model have been calculated by correlation of the experimental vapor-liquid equilibria (VLE) data with different molecular weights (M_W) and temperatures of several polymers. The interaction parameters of functional groups were reported and the deviations of new local composition model were compared with UNIFAC and Entropic-FV