

Liquid-liquid equilibria of polymer solutions: Associated Flory Huggins Theory

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We developed a new Flory-Huggins model by adding a specific interaction parameter which is from modified double-lattice model for Helmholtz energy of mixing for the binary liquid mixtures. This model is very simple and easy to the engineering application. Using the proposed model, we can successfully describe the phase behaviors of polymer solutions having an upper critical solution temperature (UCST), a lower critical solution temperature (LCST), both UCST and LCST, and a closed miscibility loop. It is found that our model shows fitting well to the experimental data of the real complex phase behavior of polymer solutions