Measurement and Correlation of Vapor-Liquid Equilibria for the n-Hexane + 1-Propanol System near the Critical Region

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In the near critical region, vapor-liquid equilibrium measurements for polar and non-polar mixtures are necessary, because the properties of such mixtures cannot be predicted from corresponding pure-component values. Therefore, we have measured isothermal vapor-liquid equilibrium for the (n-hexane + 1-propanol) system at near-critical temperature by the circulation method. The critical pressures were also determined from the critical opalescence of the mixtures. These mixtures presented highly non-ideal behavior because of the association of alcohols. The experimental data were correlated with sufficient accuracy by using the Peng-Robinson-Stryjek-Vera (PRSV) equation of state with Wong-Sandler mixing rules, multi-fluid nonrandom lattice fluid (MF-NLF) equation of state and statistical association fluid theory (SAFT). These correlation results showed the good capacity of each EOSs at high temperature and high pressure conditions. These data were compared with published work for n-hexane ethanol and n-hexane + 2-propanol systems.