

Measurement and Correlation of Vapor-Liquid Equilibrium For 1-Alkanol + Ketone Systems at 101.325 kPa

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The vapor-liquid equilibrium behavior of mixtures composed of alcohol + ketone is relatively complex because an alcohol is strongly polar component and a ketone is weakly polar component. Considering the hydrogen bond, alcohols have both proton donor and acceptor whereas ketones only have proton acceptor. For the understanding of such mixtures, vapor-liquid equilibrium(VLE) data for binary systems composed of ethanol + methyl isobutyl ketone, 1-butanol + methyl ethyl ketone and 1-butanol + methyl propyl ketone were measured at atmospheric pressure. A circulation type phase equilibrium measurement apparatus was used and each phase was sampled and analyzed by gas chromatography. The measured data were correlated by the UNIQUAC activity coefficient model and Nonrandom Lattice Fluid Equation of State with Hydrogen Bonding (NLF-HB EoS). The measured data were tested for consistency using Herrington Method.