

Liquid-Liquid Equilibria Data for ternary mixtures of 2,3-butanediol + Water + 2-methyl-2-butanol

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Abstract

In this work, liquid-liquid equilibrium (LLE) data has been measured for the water + 2,3-butanediol + 2-methyl-2-butanol ternary system at 298.2, 308.2, and 318.2 K under atmospheric pressure. Complete phase diagrams were obtained by evaluating tie-line data. For measuring the binodal solubility curve data, the cloud point method was used. Using the Othmer-Tobias plot & Hand plot verify the consistency of data obtained. The distribution coefficient and separation factors have been evaluated for the each temperature. Also, the measured experimental data were correlated by NRTL and UNIQUAC modeling method using Aspen Plus program. Both models successfully predict the experimental tie-line data within average root-mean-square deviations (RMSD) being less than 1.5% and 1.6% from the NRTL and UNIQUAC models, respectively.

Keywords: LLE, 2-methyl-1-pentanol, NRTL, UNIQUAC