

Determination of liquid-liquid equilibrium for ternary system {water + ethanol + ethyl acetate} at 293.15 K

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Abstract. Phase equilibrium of the ternary system {water + ethanol+ ethyl acetate} was measured experimentally at 293.15 K and under atmospheric pressure. The liquid-liquid equilibrium data are represented in ternary diagrams by binodal curves and tie-lines. Refractive index measurement was employed to determine the concentration of all species in each phase. Reliability of the experimental data was ascertained by applying the Othmer-Tobias and the Bachman equations. In addition, distribution coefficients and separation factors of the studied ternary system were calculated using the equations from the experimental liquid-liquid equilibrium data and discussed in detail.

Keywords: Liquid-liquid equilibrium, Ethanol, Binodal curve, tie-lines, Correlations.