

Excess molar volumes and refractive index for the binary and ternary systems of {propyl vinyl ether (PVE) + ethanol + benzene} at 303.15K

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Alkyl vinyl ethers are used increasingly as industrial solvents and chemical intermediates in the chemical or pharmaceutical industry. For the process development of synthesis and separation of these compounds, reliable physical properties and phase equilibrium data are required. However, very few investigations were reported for alkyl vinyl ether compounds, and there are no data for propyl vinyl ether (PVE) systems at 303.15 K except our previous reports as far as we know.

In this work, excess molar volumes and refractive index at 303.15 K are reported for the binary systems of {PVE + ethanol}, {PVE + benzene} and {ethanol + benzene} and also for the ternary system {PVE + ethanol + benzene}. Densities (ρ) and refractive indices (n_D) at 298.15 K for the binary and ternary systems have been measured by using a digital vibrating tube densimeter and a precision digital refractometer. Then V_E and ΔR were derived from measured densities and refractive indices. The experimental binary and ternary V_E and ΔR were correlated with the Redlich–Kister polynomial or Radojkovič equation.