Densities and refractive index for the ternary system of PVE + 1-Propanol + Benzene and the binary sub-systems

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Recently, alkyl vinyl ethers are increasingly produced as industrial solvents and chemical intermediates in the chemical or pharmaceutical industry. However their reasonable volatility caused significant emission into the urban atmosphere. Consequently they will be oxidized by OH- and NO3 radicals. For the synthesis and separation of these compounds, a reliable data of the physical properties and phase equilibrium behavior are required. However, relatively few investigations were reported for alkyl vinyl ether compounds and there is no data for propyl vinyl ether (PVE) as far as we know. In this work, densities and refractive index at 298.15 K are reported for the binary systems of Propyl vinyl ether (PVE) + 1-Propanol, 1-Propanol + benzene and PVE + benzene, and also for the ternary system PVE + 1-Propanol + benzene. The excess molar volumes and changes of refractive index of the binary and ternary systems were derived and correlated with the Redlich-Kister and Cibulka equation.