Isothermal vapor–liquid equilibria and excess enthalpies of binary mixtures of propyl ethanoate + 1-hexyne, +2-hexyne, +3-hexyne

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Abstract :

The vapor pressures of (propyl ethanoate + 1-hexyne), (propyl ethanoate + 2-hexyne) and (propyl ethanoate + 3-hexyne) and of all the pure components were measured by means of a static device at temperatures between 273 and 363 K. The data were correlated with the Antoine equation. From these data excess Gibbs functions were calculated for several constant temperatures and fitted to Redlich–Kister equation. Additionally, molar excess enthalpies, *HE*, for the three binary systems of propyl ethanoate with 1-hexyne, 2-hexyne and 3-hexyne at a temperature of 298.15 K have been carried out using a C80 II (Setaram) calorimeter. The data on excess molar Gibbs energies and excess molar enthalpies of the three binary mixtures have been examined on the basis of the DISQUAC group contribution model which provides a fairly consistent description of phase equilibria and the related excess functions.

Keywords: Vapor–liquid equilibria; Ester; Hexynes; Excess enthalpy; Isoteniscope; DISQUAC model.

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