Excess Molar Enthalpies and Excess molar Volumes of Binary Mixtures of 1,2-dichloropropane with branched 1-alkanols at T=298.15 K and Atmospheric Pressure

최원석, 심효원, 김문갑*
경북대학교
(mg_kim@knu.ac.kr*)

The excess molar volumes V^E and excess molar enthalpies H^E for the binary systems of 1,2-dichloropropane and branched 1-alkanols (2-methyl-1-propanol, 2-methyl-1-butanol, and 3-methyl-1-butanol) at T=298.15 K and atmospheric pressure have been determined from density and heat flux measurements, respectively. The densities have been measured by using a digital vibrating-tube densimeter whereas heat flux measurements have been determined using an isothermal microcalorimeter with flow-mixing cell. All V^E and H^E values of the binary mixtures are positive over the whole composition range, which could be explained by considering the breakdown of the hydrogen bonding and the structure of pure branched 1-alkanol molecules. The experimental results of both H^E and V^E were fitted to Redlich-Kister equation to correlate the composition dependence of excess properties. In this work, the experimental excess enthalpy data have been also correlated using thermodynamic models (Wilson, NRTL, and UNIQUAC). The experimental results of excess properties have been qualitatively discussed.