

## Isothermal vapor-liquid equilibrium and excess molar volume for the binary mixtures of dibutyl ether(DBE) + ethanol, ethanol + benzene, and DBE + benzene

오중혁, 한규진<sup>1</sup>, 황인찬<sup>1</sup>, 박소진<sup>1,\*</sup>  
한국원자력연구소; <sup>1</sup>충남대학교 공과대학 화학공학과  
(sjpark@cnu.ac.kr\*)

Vast amounts of thermodynamic data needed for process modeling and the development of the parameters for thermodynamic models. However, the number of phase equilibria and mixing properties for the other ether compounds, such as ETBE, TAME, IPE and DBE, are much smaller than those of MTBE.

In this work, isothermal vapor-liquid equilibrium(VLE) at 323.15 K for the binary systems of dibutyl ether(DBE) + ethanol, ethanol + benzene, and DBE + benzene were measured with the help of headspace gas chromatography(HSGC). and excess molar volumes(VE) at 298.15 K for the same binary mixtures were determined from experimentally measured densities by using digital vibrating tube densimeter. The experimental VLE data were correlated with common gE model equations, and they were also compared with the predicted values by modified UNIFAC. The measured VE were compared with the correlated results by Redlich-Kister polynomial. All the measured data in this work showed good agreements with the calculated values.