

Measurement of Vapor-Liquid Equilibria for the Binary Mixture of 1, 1, 1, 2-tetrafluoroethane (HFC-134a) + n-butane (R-600)

노희국, 성기명, 유기풍, 이병권¹, 임종성*
서강대학교; ¹한국과학기술연구원
(limjs@sogang.ac.kr*)

After having announcing the restriction of using CFC in Montréal and Kyoto, many advanced countries made a great effort to find replacement of CFC. Although many countries tried to reduce the use of CFCs, the emission of CFCs has increased nearly twice higher than forecasts. Therefore, finding proper replacement of CFCs should be accelerated by many scientists and engineers. In view of the situation, mixing HFCs and HCs is a good solution for developing new refrigerants in near future.

In this work, VLE data for binary mixture of HFC-134a + n-butane at three equally spaced temperatures between 293.15 and 323.15K were measured by using a circulation-type equilibrium apparatus. The experimental data were correlated with the Peng-Robinson equation of state used the Wong-Sandler mixing rule with combine NRTL excess Gibbs free energy model. Almost all the calculated values with this model give a good agreement with the experimental data and these system exhibit azeotropes.