

Measurement of Vapor-Liquid Equilibria for the Binary Mixture Iso-butane (R-600a) + Propylene (R-1270)

호광누, 이병권*, 임종성, 유계상
한국과학기술연구원
(bglee@kist.re.kr*)

In recent years, the utilization of light hydrocarbons as effective refrigerants is believed as good solution for developing CFC Alternative refrigerant in the future because these hydrocarbons are rather cheap, plentiful and environmentally benign chemicals. In order to use mixture of hydrocarbons as multi-component refrigerants, VLE data are required to evaluate the performance of refrigeration cycles and to determine their optimal compositions. In this work, isothermal VLE data for the binary mixture of iso-butane (R-600a) + propylene (R-1270) at seven equally spaced temperatures between 283.15 and 313.15K were measured by using a circulation-type equilibrium apparatus. The experimental data were correlated with the Peng-Robinson equation of state in combination with the Wong-Sandler mixing rule. It was confirmed that the data calculated by this equation of state have a small difference with experimental values. The azeotropic behaviour was not found in this mixture for all the temperature range studied here.