Vapor-Liquid Equilibria for 1,1,1,2,3,3,3-Heptafluoropropane(HFC-227ea) + Propane(HC-290)

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Generally, vapor liquid equilibrium(VLE) data are required as one of the most important types of information in evaluating the performance of refrigeration cycles and determining their optimal compositions. In the present study, a blend of propane and nonflammable HFC refrigerant are reduced both in global warming impact and flammability. In this work, at 283.15K, 293.15K, 303.15K and 313.15K conditions, the VLE data of binary mixture containing 1,1,1,2,3,3,3-Heptafluoropropane + propane were measured. The system is investigated by using circulation type experimental apparatus. The experimental data were correlated with Wong-Sandler mixing rules combined with the Peng-Robinson equation of state. We compared the data obtained by using the PR EOS with experimental data and reached a satisfactory consistency. Azeotropic behavior has been found in this work temperature.