

Vapor-Liquid Equilibrium of the Binary Carbon Dioxide + Diethyl Ether System

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Ethers are often used in the various field of chemical engineering such as solvent of many materials, production of rubber, and general anesthetics. Specially, diethyl ether is one of the most fundamental structures in ethers, so that thermodynamic behavior of diethyl ether is based on advanced study of ethers. Isothermal vapor-liquid equilibrium (VLE) phase compositions were measured for binary systems of carbon dioxide with diethyl ether at temperatures from 313.15K to 333.15K up to 3600 kPa. To measure the solubility of diethyl ether in carbon dioxide, a circulation type apparatus with on-line gas chromatography was used in this study. The experimental results were also correlated by SRK Equation of State. The relative accuracy of the data was discussed for the measured and calculated data of carbon dioxide and diethyl ether system.