

## High pressure phase equilibria for the binary mixture of 1H,1H,2H,2H-perfluoro-1-octanol and 1H,1H,2H-perfluoro-1-octene in supercritical carbon dioxide

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High pressure phase equilibria for the carbon dioxide(CO<sub>2</sub>) + 1H,1H,2H,2H-perfluoro-1-octanol and CO<sub>2</sub> + 1H,1H,2H-perfluoro-1-octene systems are measured in static apparatus at five temperatures 313.2, 333.2, 353.2, 373.2 and 393.2 K and pressures up to 17.22 MPa. Temperature-pressure diagram of the CO<sub>2</sub> + 1H,1H,2H,2H-perfluoro-1-octanol and CO<sub>2</sub> + 1H,1H,2H-perfluoro-1-octene systems mixture was between the critical temperature of CO<sub>2</sub> and 1H,1H,2H,2H-perfluoro-1-octanol or CO<sub>2</sub> and 1H,1H,2H-perfluoro-1-octene. The solubility of 1H,1H,2H,2H-perfluoro-1-octanol and 1H,1H,2H-perfluoro-1-octene in the two systems will gradually increase the temperature up at a fixed pressure. The CO<sub>2</sub> + 1H,1H,2H,2H-perfluoro-1-octanol and CO<sub>2</sub> + 1H,1H,2H-perfluoro-1-octene two experimental data shows a graph of the phase behavior of the curve type-I. Correlation of experimental results for the CO<sub>2</sub> + 1H,1H,2H,2H-perfluoro-1-octanol and CO<sub>2</sub> + 1H,1H,2H-perfluoro-1-octene systems are given by the Peng-Robinson equation of state using a mixed state equation having two variables (k<sub>ij</sub>, n<sub>ij</sub>).