87f Experimental Determination and Predicted Solubilities of Thiophene + N-Nonane, or + N-Decane in Dense and Supercritical CO2

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The aim of this work is to obtain phase equilibrium data of thiophene in CO2 influenced by a n-alkane. These data are needed for the design of an extraction process of sulfur compounds from hydrocarbons. Isothermal vapor-liquid equilibrium (VLE) data of the ternary systems thiophene (1) + nonane (2) + CO2 (3) and thiophene (1) + decane (2) + CO2 (3) were obtained at temperatures from 333 to 383 K and pressures ranging from 1.9 to 15.3 MPa. The initial loading for the solutes in the equilibrium cell was at a volume ratio of 1 : 4.52; and 1 : 1.25 for thiophene : nonane and thiophene : decane, respectively. Experimental solubilities of thiophene (y1) obtained in these systems were compared with those previously measured for the binary system thiophene + CO2.

Keywords: Solubilities, Equation of state, Selectivity