

High pressure phase behavior of tetrahydrofurfuryl acrylate in supercritical carbon dioxide

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Tetrahydrofurfuryl acrylate(THF-A) is interesting chemicals which used as an intermediate in the manufacture of plasticizers and coating materials, and printing materials. However, some part of them have a difficulty of general separation process due to chemical characters of THF-A. This separation problem can be solved by supercritical carbon dioxide(ScCO₂) which is easily extraction. For the design and operation of SCF purification of THF-A, the thermodynamic data of the CO₂ + THF-A system are required. Therefore, we measured the pressure-composition(P-x) isotherm for CO₂ + THF-A binary mixture system. The static method with a variable volume view cell was employed to obtain the experimental data at temperature from 313.15K to 363.15K. Experimental datas are correlated with the Peng-Robinson Equation of state(PR-EOS). The critical constants(T_c, P_c) and acentric factor(ω) for PR-EOS were estimated with Constantinou/Gani group contribution method.