

Solubility Measurement of Cosolvents Impact for Poly(dodecyl acrylate) and Dodecyl Acrylate in Supercritical Fluid Solvents

변헌수*, 윤순도, 서재, 양동선
전남대학교 공학대학 생명화학공학과
(hsbyun@chonnam.ac.kr*)

High pressure phase behavior data are reported for poly(dodecyl acrylate) [P(DDA)] in propane, propylene, butane, 1-butene, and dimethyl ether (DME) and for P(DDA) + dodecyl acrylate (DDA) (or DME) in CO₂. Cloud-point curves for the P(DDA) in C₄ hydrocarbons are at ca. 90 °C higher than the P(DDA) + C₃ hydrocarbons curves at fix pressure of ca. 100 bar. The P(DDA) + DME cloud-point curve located between C₃ hydrocarbons and C₄ hydrocarbons at pressure below ca. 2000 bar. The location of the P(DDA) + CO₂ cloud-point curve shifts to lower temperatures and pressures when DDA or DME is added to the P(DDA) + CO₂ solution. High pressures phase behavior data is presented for the CO₂ + DDA system at temperatures range from 40 to 120 °C and pressures up to ca. 260 bar. The CO₂ + DDA system exhibits type-I phase behavior with a continuous mixture-critical curve and the system is adequately modeled with the Peng-Robinson equation of state.