

Phase Behavior of Binary and Ternary Mixtures for P(MMA-co-PA) by Supercritical Dispersion Polymerization

조상하, 윤순도, 변현수†

전남대학교

(hsbyun@jnu.ac.kr†)

The poly(methyl methacrylate-co-n-pentyl acrylate) [P(MMA-co-PA)] was prepared using supercritical dispersion polymerization in supercritical carbon dioxide. Experimental cloud-point up to 434K and 206 MPa are reported for binary and ternary mixtures of P(MMA-co-PA) in supercritical CH_2F_2 , CHF_3 and CHClF_2 . Phase behavior of binary system for the P(MMA-co-PA) (25:1, AIBN: 1.0, 2.0 and 4.0 wt%) + CH_2F_2 , CHF_3 and CHClF_2 mixtures at temperature range from 332 K to 434 K and pressure up to 160 MPa are measured the upper critical solution temperature (UCST) type behavior with negative slope for the P(MMA-co-PA) + CH_2F_2 , and lower critical solution temperature (LCST) type curve with positive slope for the P(MMA-co-PA) + CHF_3 and P(MMA-co-PA) + CHClF_2 mixtures. The P(MMA-co-PA) + CH_2F_2 + MMA (or CHClF_2) systems were measured in change of the pressure-temperature slope and with MMA (or CHClF_2) mass fraction. The phase behavior data on the P(MMA-co-PA) + CH_2F_2 + MMA(or CHClF_2) systems show that the pressure-temperature curve changes from UCST region to LCST region as the MMA (or CHClF_2) mass fraction grows.