Experimental Measurement of Cloud-point for the Poly(methyl methacrylate-co-pentafluoropropyl methacrylate) [P(MMA-co-PnFPMA)] in Supercritical Fluoric Solvents

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In this study, the poly(methyl methacrylate-co-2,2,3,3,3-pentafluoropropyl methacrylate) [P(MMA-co-PnFPMA)] as a fluoric copolymer was prepared using supercritical dispersion polymerization in supercritical carbon dioxide. Experimental cloud-point up to 435K and 168 MPa are reported for binary and ternary mixtures of P(MMA-co-PnFPMA) in supercritical CH_2F_2, CHF_3 and $CHClF_2$. Phase behavior of binary system for the P(MMA-co-PnFPMA) (25:1, AIBN: 1.0 wt%, 2.0 wt%, and 4 wt%) + supercritical fluoric solvents (CH_2F_2, CHF_3 and $CHClF_2$) mixtures at temperature range from 333 K to 435 K and pressure up to 168 MPa are measured the upper critical solution temperature (UCST) type behavior with negative slope for the P(MMA-co-PnFPMA) + CH_2F_2, and lower critical solution temperature (LCST) type curve with positive slope for the P(MMA-co-PnFPMA) + CHF_3 and P(MMA-co-PnFPMA) + $CHClF_2$ mixtures.