

### Phase Behavior on the Binary and Ternary Systems of Poly(isopropyl acrylate) and Poly(isopropyl methacrylate) in Supercritical fluid Solvents

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Experimental cloud-point data to 210°C and 2,770 bar are measured for binary and ternary mixtures of Poly(isopropyl acrylate) - CO<sub>2</sub> - isopropyl acrylate and Poly(isopropyl methacrylate) - CO<sub>2</sub> - isopropyl methacrylate systems. Also, the cloud-point curves show the binary mixtures for Poly(isopropyl acrylate) in supercritical CO<sub>2</sub>, dimethyl ether, propylene, propane, n-butane and 1-butene. The phase behavior for the system Poly(isopropyl methacrylate) - CO<sub>2</sub> - isopropyl methacrylate is measured in changes of the pressure-temperature (P-T)slope and with cosolvent concentrations of 0.0, 5.9, 10.0, 19.9 and 30.7wt%. With 44.5wt% isopropyl methacrylate to the Poly(isopropyl methacrylate) - CO<sub>2</sub> solution significantly changed, the phase behavior curve takes on the appearance of a typical lower critical solution temperature (LCST) boundary. The cloud-point curves for the Poly(isopropyl acrylate) - CO<sub>2</sub> 0.0, 8.2, 19.0, 27.6, 32.1 and 41.5wt% isopropyl acrylate system change the P-T curve from the upper critical solution temperature region to the LCST region as the isopropyl acrylate concentration increases.