High-Pressure Phase Behavior of Polycaprolactone, Dichloromethane, and Carbon Dioxide Ternary Mixture Systems

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Phase behavior data are presented for Polycaprolactone (PCL MW = 56,000) in supercritical mixtures of dichloromethane and carbon dioxide. Cloud point pressures were measured using a variable-volume view cell apparatus as functions of temperature, dichloromethane composition in a mixed solvent, molecular weight of PCL at the polymer concentration of 0.01, 0.02 and 0.03 mass fraction in solution, and for temperatures up to about 353.15K. This system exhibited the characteristics of lower critical solution temperature phase behavior. The experimental data were correlated with the hybrid equation of state for the CO2 – polymer systems.