

phase behavior for the binary mixtures of isoalkyl acetate in supercritical CO₂

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High pressure phase behavior for the CO₂ + isobutyl acetate, CO₂ + isopentyl acetate and CO₂ + isooctyl acetate systems are measured on a variable view cell apparatus at various temperatures of 313.2 K to 393.2 K and pressures up to 18.24 MPa. These three systems exhibit maximums in pressure at temperatures of these systems with the critical temperatures. These systems have continuous critical mixture curves that exhibit maximums in pressure - temperature (P-T) space between the critical temperatures of CO₂ and isobutyl acetate or isopentyl acetate or isooctyl acetate. The solubility of CO₂ for three systems decreases as the temperature increases at a constant pressure. The experimental results for three systems are correlated with the Peng-Robinson equation of state using a mixing rule including binary interaction parameters.