

Supercritical Pressure-Density-Temperature Measurements on CO₂-Ar Binary Mixture

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Carbon dioxide capture and storage (CCS) is currently considered as a promising option of mitigation actions for stabilization of atmospheric greenhouse gas concentrations. The thermodynamic properties of CO₂-rich streams are particularly important and indispensable for optimum design of pipeline transportation from the point of carbon capture to the storage site. In this work accurate pressure-density-temperature data for binary mixture of carbon dioxide with argon (the molar fraction of CO₂ was greater than 85%) were obtained using the Burnett-isochoric coupling method for temperatures between 293 K and 393 K and pressures between 1 MPa and 12 MPa. The experimental measurement uncertainties were estimated to be within ± 5 mK for temperature and ± 0.7 kPa for pressure.