Investigation of Property Methods for CO2 Conditioning, Transport and Sequestration

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Knowledge of physical properties are required in the design and operation of CO_2 conditioning, transport and sequestration. In this work, several property methods such as REFPROP, GERG2008, CPA are investigated for the properties of pure CO_2 and its mixtures. The model predictions are compared to available experimental data including vapor pressure, density, heat capacity, viscosity, thermal conductivity and phase equilibria in the wide ranges of temperature and pressure for CO2 conditioning, transport and sequestration. It was found that REFPROP and GERG2008 are highly accurate and the results from other methods can be improved by properly regressing the adjustable parameters to experimental data.