

Experimental Study on the Hydrate-containing Phase Equilibria for CO₂-N₂-SO₂ mixtures

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In carbon dioxide sequestration, data of hydrate phase equilibria for carbon dioxide are important for flow assurance. Some impurities existent in the captured carbon dioxide affect the carbon dioxide hydrate-forming conditions.

In this work, three phase equilibrium(Hydrate-Liquid-Vapor) conditions for guest carbon dioxide-nitrogen-sulfur dioxide and water mixtures were determined by measuring isobaric hydrate-free temperature using an indirect method with predetermined overall loading compositions. Additionally, the effect of the amount of nitrogen and sulfur dioxide was observed and modeling for this work using e-NLFHB (electrolyte Nonrandom Lattice Fluid with Hydrogen Bonding) equation of state was studied