

Hydrate Phase Equilibrium Measurements of water and NO system using the QCM technique

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In CO₂ sequestration, gas hydrate can be formed in CO₂ transport condition and it causes the pipe plugging. To prevent the pipe plugging, study for CO₂ hydrate forming condition is required. The captured CO₂ stream contains the nitric mono oxide (NO) as an impurity. Since the impurity affects the CO₂ hydrate phase equilibria, effects of NO on CO₂ hydrate need to be investigated. To describe the phase behavior of NO-CO₂-water system using the thermodynamic model, hydrate phase equilibrium data of NO and water systems that have not been reported to present are also required. In this study, NO hydrate phase equilibria are measured in L-H-V region using QCM technique. The QCM technique measure the hydrate phase equilibria by frequency change of the quartz crystal. The QCM technique reduced the measurement time than the typical method.