

Phase Equilibria and Raman spectra of R22(CHClF₂) Hydrate in the presence of NaCl

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There are a lot of practical application of gas hydrate such as gas separation process, natural gas storage and transportation, CO₂ sequestration and desalination. In particular the desalination system using gas hydrate is expected to be as a efficient and energy saving method can be used to replace evaporation system. In this study, phase equilibrium, Raman spectra of R22 + NaCl hydrate system and X-ray diffraction were observed with variable concentration of NaCl. The concentration of NaCl was 4, 13, 20 wt% that replicating NaCl percentage of industrial waste water. The concentration of NaCl increased, the inhibition of hydrate formation was stronger. And we measured the Raman spectroscopy of (Gaseous R22), (Solid R22), (NaCl with Ice), (R22 hydrate) and (R22 hydrate in presence of NaCl) and X-ray diffraction to confirmed the structural difference of R22 hydrate and that with NaCl.