

## The calculation of phase equilibria containing gas hydrates in the presence of NaCl

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Phase equilibria involving gas hydrates are of importance in natural gas recovery and carbon dioxide sequestration. Due to high equilibrium pressures two- and three-phase equilibria for gas hydrates containing systems have been computed using equations of state for fugacity of guest components in gas hydrates and van der Waals and Platteeuw model. So far the inhibition effect of electrolytes in phase equilibria containing gas hydrates has been mainly accounted for by excess Gibbs energy models, which are less appropriate than an equation of state for high-pressure applications. In the present study, Phase equilibria containing gas hydrates and electrolytes were predicted using the electrolyte lattice fluid equation of state, in which long-range electrostatic interactions were modeled using the mean spherical approximation and solvation effects were considered by Veytsman statistics. The present model was found to predict various phase equilibria including inhibition and salting-in effects.