A Model for Hydrate Inhibition of Methane by Polymers

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The effect of polymeric inhibitors on formation of methane hydrate was modeled using catalytic deactivation theory. The ratio of unconsumed methane in a hydrate formation process in the presence and in the absence of inhibitor was defined as the inhibition parameter. The proposed model can predict inhibition as a function of inhibitor concentration. Optimum values of inhibition parameters were calculated using the present model for two kinds of inhibitors; polyethylene oxide (PEO) and poly (N-vinylpyrrolidone). Using the optimized model parameters for polymers PEO and PVP, the performance of these inhibitors were compared.

Keywords: Hydrate Formation, Inhibition Model, Deactivation Parameter, Hydrate Methene, Polymeric Inhibitors.