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## Effect of Additives on Gas Hydrate Formation and Stability

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### Abstract

This study examines the effects of two additive including hydroxyethyl cellulose (HEC) and sodium dodecyl sulfate (SDS) for increasing stability and gas content of natural gas hydrates. SDS can used as a hydrate promoter and HEC as a stabilizer. A high-pressure reactor in a laboratory-scale is used for to measure hydrate formation rate and stability. Hydrate stability tests were performed at temperature of -5 °C and pressure 15 bar. Induction time was obtained around 40 minutes at an optimum value of SDS.

**Keywords:** induction time, hydrate formation, stability

### Research Highlights

- The effect of additives was investigated on natural gas hydrate formation.
- SDS reduced the induction time of hydrates formation
- HEC as the hydrate stabilizer increased hydrate stability