

Universal correlation for gas hydrates suppression temperature of inhibited systems

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Reliable prediction of hydrate suppression temperature in presence of inhibitors, such as salts, over a wide range of pressures (up to 200 MPa) is critically important, especially in the area of deepwater oil and gas production. However, the existing models and correlations that account for salts have severe limitations and deficiencies in estimating the hydrate suppression temperature. Herein, we propose a new correlation, to be called Hu-Lee-Sum correlation, that significantly improves the predictions of the hydrate suppression temperature by considering the salt species and concentrations, system temperature and pressure, and hydrate structure.

We will detail the development of the correlation and demonstrate the generality and universality of the correlation to predict the hydrate suppression temperature for any system of (i) single salt, (ii) mixed salts, and (iii) any combination of inorganic salts and organic inhibitors. A comprehensive comparison between the literature data and predicted results demonstrate the reliability of the HLS correlation.