

## **Evaluation of New Chemical Compounds as Low Dosage Hydrate Inhibitors**

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Plugs caused by gas hydrate formation are a great problem in the oil and gas industry. Low dosage hydrate inhibitors (LDHIs) are part of a developed hydrate control technology. Two classes of LDHIs are known, kinetic inhibitors (KHIs) and antiagglomerants (AAs). Several different specific LDHIs are already being successfully used in the field. This work presents results on the performance of some newly synthesized chemical compounds. In the present work the experiments to determine the performance of the new chemical compounds were carried out in a device that has a high-pressure stainless steel cell with sapphire windows and temperature and pressure probes logged on a computer to obtain results as function of time. The method used is the constant cooling test, with a rate of 2 °C/h. After the cooling, the warming was 5 °C/h. At least four cooling-warming cycles were carried out to verify the reproducibility of results and minimize the stochastic effect. The method is based on the drop of pressure as temperature decreases with which, it is possible to detect the pressure change due to the formation of the natural gas clathrate hydrate. Also, it is possible to determine by comparison with a reference system, in diagrams temperature vs time and pressure vs time, the efficiency of the new low dosage hydrate inhibitors at known concentrations, at the initial pressure of 6 MPa and in the temperature range of (293.15 to 274.85.15) K. The experimental results show a positive performance as LDHIs for some of the evaluated compounds in the concentration range (0.5 to 1.0) mass % and at relatively large subcooling temperature.