PERFORMANCE OF A NEW COPOLYMER KINETIC HYDRATE INHIBITOR POLY(N-VINYL-2-PYRROLIDONE -CO- 2- VINYL PYRIDINE)S WITH TBAB

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ABSTRACT
The application of kinetic hydrate inhibitors (KHIs) independently in high subcooling and high water-cut situation in oil and gas field has been not credible due to their present performance. One feasible method to solve this problem is the combined use of KHIs and some synergists, which would enhance KHIs’ inhibitory effect on both hydrate nucleation and hydrate crystal formation. In this study, a new kind of KHI copolymer- poly(N-vinyl-2-pyrrolidone -co- 2-vinyl pyridine) is present, and it performs well on hydrate inhibition combined with TBAB in our refrigeration system of six cells. The performance of a series of poly(N-vinyl-2-pyrrolidone -co- 2- vinyl pyridine)s (HGs) with different monomer ratio in structure II tetrahydrofuran (THF) hydrate is investigated. With the combined gas hydrate inhibitor at the concentration of 1 wt % in a high subcooling, the induction time of 19 wt % THF solution can be prolonged to 501 min.

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