Amelioration of Stability and Rheological Properties of a Crude Oil-Based Drilling Mud

Authors : Hammadi Larbi, Bergane Cheikh

Abstract : Drilling for oil is done through many mechanisms. The goal is first to dig deep and then, after arriving at the oil source, to simply suck it up. And for this, it is important to know the role of oil-based drilling muds, which had many benefits for the drilling tool and for drilling generally, and also and essentially to know the rheological behavior of the emulsion system in particular water-in-oil inverse emulsions (Water/crude oil). This work contributes to the improvement of the stability and rheological properties of crude oil-based drilling mud by organophilic clay. Experimental data from steady-state flow measurements of crude oil-based drilling mud are classically analyzed by the Herschel-Bulkley model. The effects of organophilic clay type VG69 are studied. Microscopic observation showed that the addition of quantities of organophilic clay type VG69 less than or equal to 3 g leads to the stability of inverse Water/Oil emulsions; on the other hand, for quantities greater than 3g, the emulsions are destabilized.

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Keywords : drilling, organophilic clay, crude oil, stability

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