

## Abstract

The drilling phase of 8"1/2 wells of Hassi Messaoud in Algeria is a most difficult step, namely the nature of the geological and the choice of parameters governing drilling operations. The fall recurrently in alkalinity and pH of the mud was observed during the use of local barites towards higher salt saturated mud, resulting in a deterioration of rheological properties (plastic viscosity, yield value). For this purpose, the objective of this work is to study the physical-chemical problem of deterioration of rheological parameters caused by the effect of alkalinity and the nature of the basic solution [Ca(OH)<sub>2</sub> and Ba(OH)<sub>2</sub>] on the electrokinetic stability and rheology of the drilling mud. The results show that the alkalinity of the mud can be ensured by the presence of a basic solution [Ca(OH)<sub>2</sub> and Ba(OH)<sub>2</sub>] and has clearly improved rheological properties of the mud's. Also the nature of the basic solution has a positive effect on the rheological behaviour of saturated salt muds