

Abstract

Several polymer types compounds are currently used in the water-based mud's, as a filtration control agents, viscosity agent, etc. However, each type of these polymers may have a different effect on the physical, chemical and rheological properties of drilling fluids especially in the presence of an inorganic material such as bentonite. In addition, under geological conditions of wells and during the drilling operation, some compositions of the water-based mud's (clay-polymer system), is sometimes not effective for the operation success of the drilling oil wells in Algeria (South Algeria). For this purpose, the aim of this present work is essentially the study of the polymer actions (xanthan, cellulose polyanionic, partially hydrolyzed polyacrylamide) on the physical, chemical and rheological properties of the drilling muds in the presence of bentonite. An experimental study was conducted on formulations of water-based muds with different types of biopolymers. The results shows that the electrokinetic and rheological study of drilling mud's based different polymers, has permitted to better understanding of the interaction of water-polymers system at different concentrations. Also, the best compositions of drilling mud with concentrations of biopolymers can be used for drilling of wells