

## عنوان مقاله:

Synthesis and application of the drilling mud additive in the presence of surfactants

## محل انتشار:

مجله بین المللی ابعاد نانو، دوره 7، شماره 4 (سال: 1395)

تعداد صفحات اصل مقاله: 8

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## خلاصه مقاله:

Drilling fluid is the most important lifeline of the drilling operation, that main task is facilitate the cuttings removal of the drilling. There are varieties of drilling fluids such as sodium bentonite based-drilling fluid is called "mud" and drilling foam or surfactant based-drilling fluid is called "soap". The present work aims are study on the modified drilling mud properties by using the TiO<sub>2</sub>/ Polyacrylamide (PAM) as a nanocomposite additive. This additive was obtained through the aqueous solution polymerization of acrylamide monomer in the presence of TiO<sub>2</sub> nanoparticles and high hydrophilic-lipophilic balance (HLB) surfactants such as sodium dodecyl sulfate (SDS) and polyoxyethylene sorbitan mono-oleate (Tween ۸۰). At first, the TiO<sub>2</sub>/PAM nanocomposite was characterized by XRD, UV-Vis, FTIR, DLS and SEM. Then the viscosity, density -specific gravity- and filtration properties of the modified drilling mud were investigated in different amount of nanocomposite compounds. The results indicated that the density, fluid loss and filter cake thickness of the modified drilling mud were decreased with the increase of the surfactant concentration, whereas the viscosity was increased. With the increasing amount of SDS from ۰.۱ to ۱.۲ g in the synthesis process, the viscosity was increased approximately ۴ cP and the density was decreased about ۰.۱ specific gravity. The nanoparticle and HLB value were affected in the filtration properties, but in general, that improved the fluid loss and filter cake thickness about ۲۸ and ۳۸% compared the based drilling mud, respectively.

## کلمات کلیدی:

Drilling mud, Nanocomposite, Polyacrylamide, surfactant, TiO<sub>2</sub>

## لینک ثابت مقاله در پایگاه سیویلیکا:

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