

## عنوان مقاله:

Thermal and Rheological Properties Improvement of Oil-based Drilling Fluids Using Multi-walled Carbon Nanotubes ((MWCNT

## محل انتشار:

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## خلاصه مقاله:

In this paper, we detail our results for the impact of MWCNT on the thermal and rheological properties of oil-based drilling muds. Our analysis considers the effects of time, temperature, and MWCNT volume fraction. The scanning electron microscopy imaging technique was used to monitor the MWCNT dispersion quality. The experimental results unveil a considerable enhancement in the thermal conductivity of the MWCNT-oil-based mud by ۴۰.۳% (and ۴۳.۱% in case of functionalized MWCNT) and ۱% vol. MWCNT. The rheological properties results for the MWCNT-oil-based mud exhibit a similar (improvement) trend by reducing annular viscosity and increasing yield point and gel strength. The high-temperature high-pressure filtration tests conducted at ۲۸۰°F and ۵۰۰ psi show a reduction of ۱۶.۶۷% for the filtrate amount in case of MWCNT-oil-based mud (with ۱% vol. MWCNT). The effect of time on thermal conductivity reduction in both unfunctionalized and functionalized systems was observed to equalize (at ۹.۷%), after ۱۰۰ hours of sample preparation. The performance results of MWCNT-oil-based mud are presented for an actual industrial drilling .operation case

## کلمات کلیدی:

Multi-walled Carbon Nanotube, Oil-based Drilling Fluid, Thermal Conductivity, Annular Viscosity, Scanning Electron (Microscopy) (SEM)

## لینک ثابت مقاله در پایگاه سیویلیکا:

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