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## Analyzing effects of acidic surface modified multi-wall carbon nanotubes, large size Multi-Wall Carbon Nanotubes, Polyethylene Glycol (PEG) and surfactants on performance of Water Based Mud (WBM)

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Due to the significance and unique properties of Multi-Wall Carbon Nanotubes (MWCNT), in the present investigation, the viability of these materials in the water-based mud (WBM) is assessed. The impacts of various kinds of MWCNT, mud additives and surfactants on the rheological properties, water loss and drilling fluid stability of the WBM are experimentally investigated. The results have demonstrated various kinds of MWCNT, additives, and surfactants have affected the rheological properties of the WBM. Acidic surface modified carbon nanotube improves rheological properties of the WBM

such as increases the quantity of plastic viscosity, yield point and water loss of the sample and increases the shale recovery. In the presence of Polyethylene Glycol (PEG), Acidic surface modified carbon nanotube increases the plastic viscosity and yield point of the sample more than PCNT and Greater Not Modified Carbon Nanotube (MCNT) all in all, the presence of Multi-Wall Carbon Nanotubes increases the efficiency of polymers and improves the rheological properties and performance of the water base mud.

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