عنوان مقاله:

EXPERMENTAL Investigation Effect of Hydrophobic Nano-Silica on Interfacial Tension for EOR Implication

محل انتشار:

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خلاصه مقاله:

Investigation of applicability of nanoteclmology in enhanced oil recovery processes has received a great deal ofattention in recent years. An emerging application of nanotechnology in oil reservoir engineering is developingnew types of nano-tluidls tor improved/enhanced oil recovery, drilling, etc. Nano-tluids are colloidal suspensionsof nano particles in a base fluid, which is commonly water or organic liquids. These fl uids are prepared byintroducing small volumetric fractions of nano particles into the liquid phase in order to enhance or improvesome of the fluid properties. Recent research has demonstrated that nano-fluids have attractive properties forinterfacial tension (liT) reduction. AEOROSIL R816 implemented as hydrophobic nanoparticle to exhibitsurfactant like behavior of partially hydrophobic nanosilica due to hydrophobic (alkyle chain) and hydrophilic(silanol) parts in its structure. For despite this fact, interfac ial measurements were performed at differentconcentration of R816 nanosilica which dispersed in distilled water. Pendant drop measurements show thatAEOROSIL R816 were able to reduce the interfacial tension between oil and water from 32.456 mN/m to 23.619mN/m. Results from this study are beneficial for appropriate selection of surfactants in design of EOR processesand reservoir stimulation for carbonate or sandstone reservoirs.

کلمات کلیدی:

Hydrophobic Nano-Silica, Interfacial Tension, Enhanced Oil Recovery, Surfactant