

عنوان مقاله:

Effects of Flowrate and Wettability on Ultimate Oil Recovery during Nanofluid Injection into Glass Micromodel

محل انتشار:

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خلاصه مقاله:

Most of the oil reservoirs are reaching the decline period of their life. Many researchers have observed nanoparticles increase the recovery factor by IFT reduction between the water-based injected fluid and the residual oil, changing the wettability of porous media and increasing the viscosity of the injection fluid. In this experiment, glass micromodel was used instead of a core as porous media due to its displacement mechanisms visibility. First, micromodel was saturated with 19 API, and then, water-based silica nanofluid with a concentration of 100 mg/l was injected at different rates of 0.03 and 0.05 cc/h into water-wet and mixed-wet micromodels. Results show that maximum ultimate recovery is obtained at water-wet condition and flowrate of 0.03 cc/h. As a conclusion, the higher rate has higher shear stress that has a bad influence on nanoparticles stability and water-wet micromodel helps much better to recover the residual oil

کلمات کلیدی:

Nanofluid Injection; Glass micromodel; Recovery factor; Water-wet; Mixed-wet

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