ABSTRACT

The increasing demand for energy drives the optimization of oil exploration through techniques like Enhanced Oil Recovery (EOR). EOR methods used incude the use of nanofluids. Nanofluids are fluids that contain nano materials, the nano materials used in this research is MWCNTs. It is known that MWCNT is difficult to disperse in water, so it requires the use of surfactants to help dispersion. Ultrasonication also ensures uniform dispersion. In this study, MWCNT-based nanofluids with the surfactant sodium dodecyl sulfate were synthesized with varying concentrations using an ultrasonic probe homogenizer. The performance of the nanofluids was evaluated by viscosity analysis, fluid stability, and contact angle measurements. The results indicated the angle decreased as the MWCNT concentration increased with the smallest contact angle value of 31.22° at a MWCNT mass concentration of 0.001 g/100 ml solvent, and the fluid remained stable for 48 hours with increasing viscosity as the MWCNT concentration increased.

Keywords: EOR, MWCNT, Nanofluids, Surfactants