Formation Damage Induced by Water-base Alumina Nanofluids during Enhanced Oil Recovery: Influence of Post-flush Salinity

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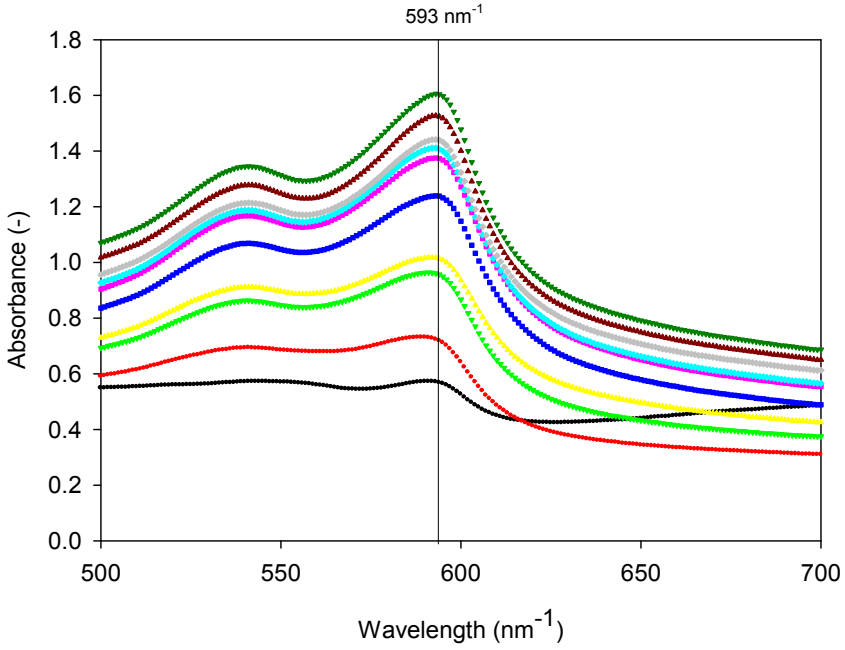
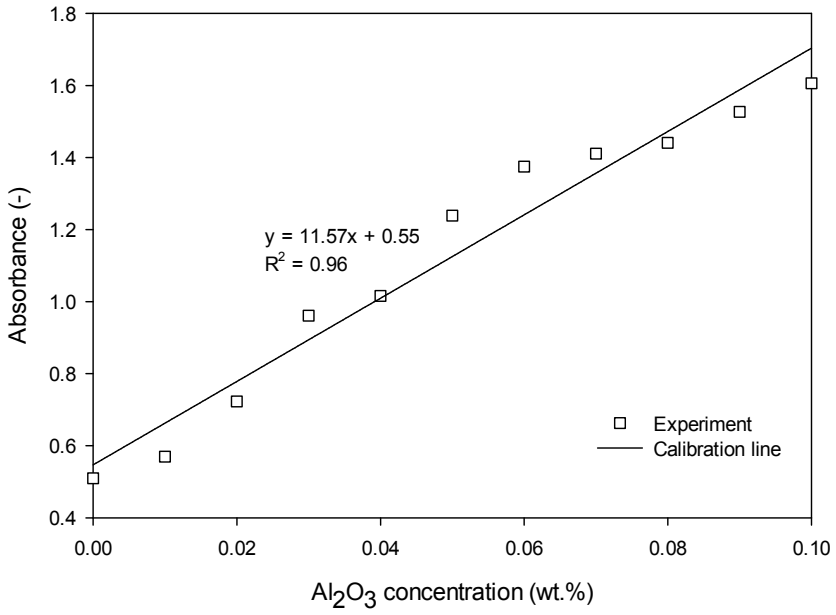
Determination of Al_2O_3 concentration

The concentration of Al_2O_3 nanoparticles was determined followed the Beer-Lambert principle using UV-visible spectrophotometer (model 2450, Shimadzu, Japan). Spectrophotometric reagent solution was prepared by dissolving 0.1 of 1-(2-pyridylazo)-2-naphthol (PAN) into 100 ml deionized water. A ratio of 5:1 of effluent sample to reagent solution was used (Figure S1a). The results of the light absorbance are given in Figure S1b. The obtained equation from calibration line then used to compute nanoparticles concentration within the collected sample (Figure S1c).

(a) Visualized color changing with Al_2O_3 nanoparticles concentration (0 to 0.1 wt.%)



(b) Absorbance of nanofluids and PAN mixtures



(c) Calibration of absorbance against nanoparticles concentrations

Figure S1 Al_2O_3 nanoparticles concentration determination