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Effects of Nanoparticle Types on Carbon Dioxide Foam Flooding in Enhanced Oil Recovery

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nanopar ia solid NPs
can pote conducted
to ex equired for
variot rmance of
silicon d nium dioxide
(TiO_2) of factant
(AOS) or 0.5 wt%,
and 1 wt were
perform h
nanopar Miles
method using half-life measurements. All experiments were conducted at room

temperature and pressure. The results revealed that all different NPs used were able to improve the stability of CO_2 foam at certain concentrations. However, aluminum oxide NPs showed better results compared to others in terms of foam stability and half-life time. In addition, 0.1 wt% of all NPs types gave the highest foam stability and half-life time. In conclusion, a low concentration of NPs is recommended regardless of type for improving form stability.

Keywords:

foam stability | nanoparticle | enhanced oil recovery | immiscible flooding | surfactant