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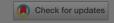
**Original Articles** 

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

M. A. Manan, S. Farad, A. Piroozian 🔀 & M. J. A. Esmail

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# Abstract

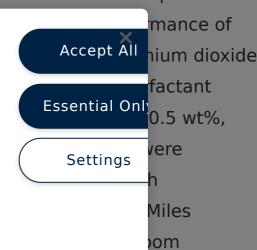
Enhancement of foam stability has been recently evidenced with addition of nanoparticles (NPs), especially in the case of CO<sub>2</sub> foams. Stabilized foams via solid NPs can potentially withstand high reservoirs temperatures. Studies have been conducted to examine the effect of NPs on foam stability; however, more research is required for

various silicon d (TiO<sub>2</sub>) of (AOS) and perform nanopar

method

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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.

Q Keywords: foam stability nanoparticle enhanced oil recovery immiscible flooding surfactant

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