

عنوان مقاله:

Investigation of the effect of clay nanoparticles on oil recovery factor during polymer flooding in a sand packed model

محل انتشار:

چهاردهمین کنگره ملی مهندسی شیمی ایران (سال: 1391)

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خلاصه مقاله:

There are several proper methods for increasing the sweep efficiency in carbonate reservoirs i.e. increase the injection phase viscosity, wettability alteration of the rock, lowering the interfacial tension and decreasing mobility ratio. The mechanism of enhanced oil recovery by dispersed nanoparticles during polymer flooding, is not well known. In this study, a series of injection experiments were performed in Sandpack models after saturation with water and Fahlian light oil. Two different fluids i.e. Polyacrylamide solution and dispersed clay nanoparticles in polyacrylamide solution were used as injection fluids. The result showed that the polymer solution increased oil recovery to 10% while the clay nanoparticles in polymer solution caused enhanced oil recovery up to 12%. This research showed that higher viscosity of displacing fluid resulted in more efficient displacement; that is, as the viscosity of displacing fluid was increased, mobility ratio was decreased and displacement efficiency was increased. also the results showed that using the clay nanoparticles during polymer flooding increased polymer strength at high temperature and salinity.

کلمات کلیدی:

Mobility ratio, Polymer flooding, Clay nanoparticles, Polymer strength, Polyacrylamide

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