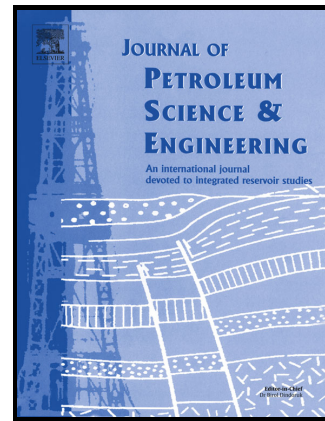


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Experimental Study of Air Foam Flow in Sand Pack Core for Enhanced Oil Recovery

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Abstract

As an innovative way of Enhancing Oil Recovery (EOR), the air foam flooding technique comprises the merits of air flooding and foam flooding, which not only has the double effects on profile controlling and oil displacement, but also avoids the gas channeling weakness. In this paper, a series of flow experiments of the simultaneous injection of air and air foam through artificial sand pack core was conducted to investigate changes in gas and oil composition and oil displacement efficiency. The effects of foaming agent concentration and slug were investigated. The results show that in low temperature oxidation process, oxygen content decreases, and carbon dioxide content increases. Aromatic hydrocarbon content decreases, while resins and asphaltene content increases. Oil displacement efficiency of air foam flooding is much higher than air flooding. The Foam blocking ability and the function of profile controlling of the foam, significantly prolongs gas breakthrough. The displacement efficiency was dropped due to the decrease of foaming agent concentration or the decrease of the foam slug.

Keywords

air foam flooding; experimental study; low temperature oxidation; enhanced oil recovery

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