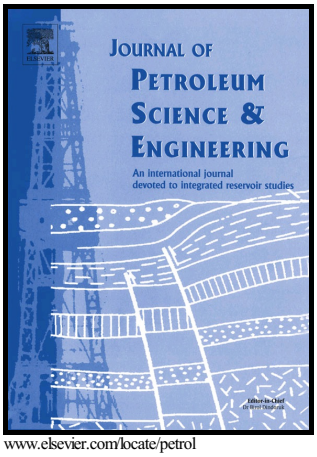

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The stability study of CO_2 foams at high pressure and high temperature

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ABSTRACT

CO_2 foam is effective for mobility control and blocking of high permeability channels in the process of CO_2 flooding for enhanced oil recovery. CO_2 foams are much less stable than nitrogen foams due to the specific properties of CO_2, and selection of surfactants as foaming agents is important for foam performance under harsh reservoir conditions. In this study, different surfactants and their mixtures were tested to evaluate their performance as CO_2 foam agents, and the experiments were conducted using a visualized foam meter and a core flooding facility at high pressure and high temperature conditions. The influences of temperature, pressure, salinity and the HLB value of surfactants on CO_2 foaming capability were investigated. The synergistic effect of the surfactants was also evaluated in order to increase high temperature tolerance of the foams. The experimental results show that the performance of CO_2 foams at high temperature is