



The use of Green Scale Inhibitors for Squeeze Treatments, Carbonate Coreflooding Experiments

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Many of the conventional phosphonates used as scale inhibitors are thought to be quite environmentally unfriendly. Due to the new governmental regulations, the oil industry is currently facing severe restrictions concerning the discharge of oilfield chemicals into the environment. The purpose of this study is to test the possibility of replacing phosphonate scale inhibitor by more environmentally friendly “green” species: Green Scale Inhibitors.

In this paper, we present the results from three core floods using core material sourced from the Jurassic Portlandian limestone ($\delta \sim 19.80\%$ and $k = 606$ mD). Core floods P2 and P3 were carried out with 23,000ppm active at pH 7.82 (flood P7) and 135,000ppm active at pH 6 (flood P8) of Carboxy Methyl Inulin (CMI) scale inhibitor. Both core floods have been performed at a temperature of 40°C. The results of the floods P2 and P3 are comparables with the results of core flood P1 performed at room temperature with 5,000ppm partly neutralized DETPMP at pH 6, as well as with those obtained by the Institut Français du Pétrole (Bazin et al., 2004). In flood P2, the scale inhibitor levels dropped quite rapidly, reaching ~ 1 ppm around 100 PV of post-flush. Flood P3 showed better results, the scale inhibitor levels dropped to ~ 1 ppm after ~ 127 PV of post-flush. These promising results could be improved by reducing the pH of the CMI scale inhibitor and by changing the chemistry of post-flush brine.