

عنوان مقاله:

Measurements of Non-Wetting Phase Trapping in Porous Media using Sand Packs

محل انتشار:

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خلاصه مقاله:

The trapping of non-wetting phase in a porous medium as discontinuous phase by capillary trapping, has been studied comprehensively because of its importance to oil recovery and pollutant remediation. In this paper, the trapped non-wetting phase saturation is measured as a function of initial saturation in sand packs. The trapped saturation initially rises linearly with initial saturation to a value of around 0.107, followed by a constant residual as the initial saturation increases further. The best match to our experimental data was achieved with the Ma and Youngren and Spiteri et al.'s trapping model. Spiteri et al.'s fit gives a quadratic response based on the fitting parameters $\alpha=0.2164$ and $\beta=0.0009$. Ma and Youngren and Spiteri et al.'s models give R-squared value of 0.9793 and 0.9998. In addition, the trapping capacity increases approximately linearly with initial saturation until an initial saturation of around 52%.

کلمات کلیدی:

Trapping, Non-wetting phase, Residual saturation, Initial saturation, Trapping model

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