

Salinity Dependent Wettability Alteration in Oil/Brine/Silicate Systems

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Abstract: Reducing the salinity of sea water that is injected into the ground to recover crude oil substantially enhances the efficiency because it renders the rock more water wet compared to high salinity sea water. We studied the dependence of the contact angle of aqueous salt solutions on mica in ambient decane containing surface-active fatty acids as a function of the composition of the fluid. In a temperature range from 20 to 60°C, we find that the contact angle variation is primarily determined by the presence or absence of divalent cations, whereas the total salinity is of minor importance.

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