

Alkali and Surfactant Synergy for Recovering Trapped Residual Oil from Assam (Indian) Reservoirs

Rahul Saha*, Ramgopal V. S Uppaluri and Pankaj Tiwari

Department of Chemical Engineering, Indian Institute of Technology Guwahati, India

Chemical enhanced oil recovery (EOR) is a technique of recovering trapped residual from oil reservoirs (matured reservoirs) which cannot be achieved by normal primary and secondary water flooding methods. Chemicals such as alkali, surfactant and polymer are injected in reservoirs which alters the interfacial tension, emulsify the crude oil, modifies mobility ratio and changes wettability of the reservoir. The effect of alkali on interfacial IFT, emulsification, wettability alteration and sweep efficiency were scrutinized by performing sand pack flooding experiments. The synergy of alkali and surfactant were also investigated with detail characterization of reservoir crude oil and rock properties. Flooding experiments revealed that residual oil recovery of 24.25% and 38.79% initial oil place could be recovered using alkali and alkali-surfactant chemical scheme.

Biography:

Rahul Saha is a researcher scholar (PhD*) at the Department of Chemical Engineering, Indian Institute of Technology Guwahati. His research area primarily addresses chemical based enhanced oil recovery (Chemical EOR) based on insights gained from simultaneous analysis associated to crude oil characterization, adsorption behaviour, interfacial interaction, wettability alteration, emulsification and application of nanoparticles. He did his Bachelor of Engineering from Pune University (India) and Masters of Technology from Indian Institute of Technology Guwahati. His Master's degree dissertation involved sonication assisted biodiesel preparation from non-edible oil sources. Till date, he published five International Journal publications in peer reviewed journals of repute.