Surfactant Polymer (SP) flooding in carbonate reservoirs is still considered as a considerable challenge today. Indeed, adsorption of anionic surfactants onto carbonate rocks is known to be much higher than onto sandstone rocks. This limits drastically the efficiency of the process. We develop here new methods on reducing surfactant adsorption in carbonate reservoirs using new additives: adsorption inhibitors. First we illustrate the impact of lithology (dolomite, limestone) on surfactant adsorption. We demonstrate how high adsorption clearly limits chemicals flooding performances in carbonate rocks under realistic conditions, i.e. moderate amount of injected chemicals at reservoir flowrates. Then, static adsorption tests show that careful selection of additives can significantly decrease surfactant adsorption onto carbonate rocks. This is further confirmed by dynamic adsorption tests. These laboratory results clearly demonstrate that surfactant flooding can be successfully applied in matrix carbonate reservoirs but it is crucial to consider lithology as it plays a significant role on final process performances, showing high variabilities in porous medium. The use of adsorption inhibitors appears as a significant advance for surfactant flooding in carbonate reservoirs, opening new opportunities for surfactant flooding in these challenging conditions.

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