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## Geochemical modeling of core-scale bioclogging in chalk porous media

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Bioclogging is an environmentally friendly approach for sealing the fluid leakage pathways in hydrocarbon layers. This approach relies on making the system saturated with carbonate ion through a set of reactions that are catalyzed by enzymes produced by bacterial species. In this research, a ureolytic bacteria is used in core-flooding experiments, and the permeability reduction in the carbonate core samples is analyzed. In addition, a single-phase multi-component bio-chemical modeling approach is developed to simulate the bacterial activity, chemical interactions, and the changes of hydraulic conductivity in the system.