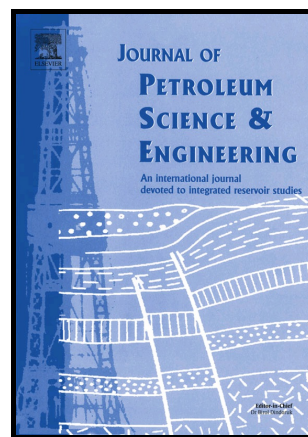


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## Oil-based self-degradable gels as diverting agents for oil well operations

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### Abstract

Different formulations of oil-based self-degradable gels have been evaluated as possible diverting agents during oil wells operations. The time dependent rheological behavior of the gels was measured to verify polymer crosslinking, maximum gel strength and gel degradation, all of which can be adjusted by varying formulation depending on operation needs. Single core tests were performed to evaluate pressure resistance as a function of gel strength for different saturation conditions. Parallel cores tests were also carried out to validate diversion efficiency and mobility restoration. Gel degradation in porous media was evaluated for single core tests and a simple scaling rule was applied to calculate productivity recovery during degradation. Compatibility tests with acids and corrosion tests were also performed.

Additionally, a remedial formulation to accelerate gel degradation was evaluated. The pressure resistance of the protected zone was determined by gel strength, invasion depth and initial saturation, and it may be scaled linearly. Both diversion and productivity recovery can be considered successfully. The remedial formulation accelerates the gel degradation process,

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