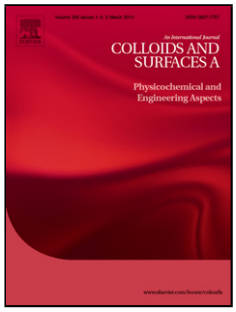

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Experimental Study of Low Molecular Weight Polymer/Nanoparticle Dispersed Gel for Water Plugging in Fractures

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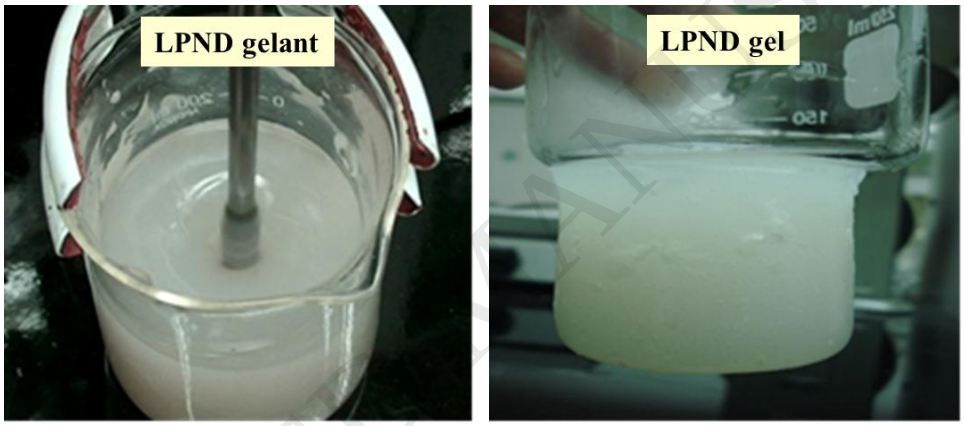
Graphical Abstract



Abstract

A low molecular weight polymer/nanoparticle dispersed (LPND) gel system applied for water plugging in fractured media was studied. Results of rheological and gelation properties measurements show that the LPND gelant has a satisfactory shear resistance performance and its shear viscosity can continuously level off under high shear rate condition. The internal structure of the LPND gelant which shows a state of "buttery" can rapidly recover from the state of nanoparticle random distribution to the foliated structure and finally to the reticular