Contribution ID: **846** Type: **Poster**

Transport of polymer particles in an oil-water flow in porous medium: enhancing oil recovery

Wednesday, 16 May 2018 18:30 (15 minutes)

We study a simple model for the transport of polymer particles injected along with water in a porous rock containing oil. The main goal of this technique is to recover oil that remains trapped after waterflood. Such enhancement occurs through a microscopic diversion of the water flow caused by clogging of narrow pore throats by the injected particles. The diverted flow may lead to the mobilization of oil which was initially trapped. Experimental results indicate that heterogeneous cores are more favorable to accumulation of particles in pore throats. Moreover, that the accumulation of particles is a dynamic process: unclogging may occur as well. We propose a simple model which accounts for the transport of polymer particles and accumulation and release of them at pore throats. We show that a non-equilibrium reaction model can reproduce qualitatively the experimental results.

References

K. Spildo, A. Skauge, M.G. Aarra, M.T. Tweheyo
A new polymer application for North Sea reservoirs
SPE 113460 (2009)

T. Skauge, S. Hetland, K. Spildo, A. Skauge
Nano-sized particles for EOR
SPE 129933 (2010)

C. Gruesbeck, R.E. Collins
Entrainment and deposition of fine particles in porous media
Soc. Petroleum Engineering J. December 1992, pp. 847-856

F. Civan
Modified formulations for particle deposition and removal kinetics in saturated porous media
Transp. Porous Media 111 (2016), pp. 381-410

Acceptance of Terms and Conditions

Click here to agree

Primary authors: ENDO KOKUBUN, Max (University of Bergen); Prof. RADU, Florin (University of Bergen); KEILEGAVLEN, Eirik (University of Bergen); KUMAR, Kundan (University of Bergen); Dr SPILDO, Kristine (University of Bergen)

Presenter: ENDO KOKUBUN, Max (University of Bergen)

Session Classification: Poster 3

Track Classification: GS 1: Fundamental theories of porous media