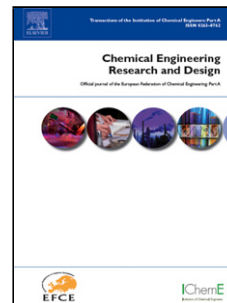


Accepted Manuscript

Title: Characterization of Viscous Fingering during Displacements of Low Tension Natural Surfactant (LTNS) in Fractured Multi-Layered Heavy Oil Systems

Author: Milad Arabloo Amin Shokrollahi Mohammad H. Ghazanfari Davood Rachtchian



PII: S0263-8762(15)00017-9
DOI: <http://dx.doi.org/doi:10.1016/j.cherd.2015.01.009>
Reference: CHERD 1771

To appear in:

Received date: 6-6-2014
Revised date: 11-1-2015
Accepted date: 20-1-2015

Please cite this article as: Arabloo, M., Shokrollahi, A., Ghazanfari, M.H., Rachtchian, D., Characterization of Viscous Fingering during Displacements of Low Tension Natural Surfactant (LTNS) in Fractured Multi-Layered Heavy Oil Systems, *Chemical Engineering Research and Design* (2015), <http://dx.doi.org/10.1016/j.cherd.2015.01.009>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Characterization of Viscous Fingering during Displacements of Low Tension Natural Surfactant (LTNS) in Fractured Multi-Layered Heavy Oil Systems

Milad Arabloo*, Amin Shokrollahi*, Mohammad H. Ghazanfari, Davood Rachtchian
Department of Chemical and Petroleum Engineering, Sharif University of Technology, Tehran, Iran

*corresponding authors.

Email: milad.arabloo@gmail.com (M. Arabloo). Tel.: (+98) 917 140 5706.

Email: shokrollahi.amin@gmail.com (A. Shokrollahi). Tel.: (+98) 936 382 6336.

Abstract

Characterization of viscous fingering in low tension displacements especially for heavy oil surfactant pair in heterogeneous systems is neither straight forward nor well understood. A major technical challenge in low tension flooding is that a fingered pattern at the displacement front may occur. Therefore, it is essential to predict the nature of instability, to avoid viscous fingering, or, where it is inevitable, to be capable of applying it as an additional modeling parameter. In this work layered porous models containing fractures with different geometrical properties were used and the finger behavior during displacement of LTNS, as a new EOR agent, in heavy oil was quantified. Dynamic propagation of the fingers independent to the type of heterogeneity is well correlated with the dimensionless displacement time in a linearly form. And also, the rate of finger growth is nearly independent to the type of medium heterogeneity. When injection is scheduled through high permeable region in a multi-layer heterogeneous media, the number of macrofingers increased. The level of bypassed oil linearly decreases with increase in dimensionless distance traveled by front with a good precision for all heterogeneous patterns. In

Download English Version:

<https://daneshyari.com/en/article/7007363>

Download Persian Version:

<https://daneshyari.com/article/7007363>

[Daneshyari.com](https://daneshyari.com)