

15th International Conference on

Environmental Chemistry and Engineering

August 15-16, 2019 | Rome, Italy

Experimental micro emulsion flooding study to increase low viscosity oil recovery using glass micro-model

Hamed Hematpur¹, Mohsen Safari¹ and Sara Moallemian²¹Research Institute of Petroleum Industry, Iran²National Iranian Oil Company, Iran

Chemical flooding is one of the Enhanced Oil Recovery methods. However, there is not much reported experience in the literatures that compared the macroscopic and microscopic efficiency of different EOR methods. In this work, several micro emulsion flooding tests were performed on glass micromodel as porous medium. Two different One-quarter 5-spot network patterns were utilized for these tests. Image analysis technique were applied and saturation of phased with different color within the micromodel were measured. Micro emulsion states using two surfactant types were analyzed. Effects of main parameters on the oil recovery were examined. The results of the tests showed that among three important parameters. From micro emulsion types runs, it can be concluded that micro emulsion type A resulted in higher recovery. As flow rate tests showed, it became cleared that by increasing rate of injection ultimate recovery was gone downward. The recovery, however, was rate-dependent especially for the less viscous microemulsion. According to pore structure's tests, it seems that, permeability has little effect on recovery.