

Abstract Submitted
for the DFD15 Meeting of
The American Physical Society

Miscible viscous fingering involving production of gel by chemical reactions YUICHIRO NAGATSU, KENICHI HOSHINO, Tokyo Univ of Agri & Tech — We have experimentally investigated miscible viscous fingering with chemical reactions producing gel. Here, two systems were employed. In one system, sodium polyacrylate (SPA) solution and aluminum ion (Al^{3+}) solution were used as the more and less viscous liquids, respectively. In another system, SPA solution and ferric ion (Fe^{3+}) solution were used as the more and less viscous liquids, respectively. In the case of Al^{3+} , displacement efficiency was smaller than that in the non-reactive case, whereas in the case of Fe^{3+} , the displacement efficiency was larger. We consider that the difference in change of the patterns in the two systems will be caused by the difference in the properties of the gels. Therefore, we have measured the rheological properties of the gels by means of a rheometer. We discuss relationship between the VF patterns and the rheological measurement.

Yuichiro Nagatsu
Tokyo Univ of Agri & Tech

Date submitted: 01 Aug 2015

Electronic form version 1.4