Abstract Submitted
for the DFD12 Meeting of
The American Physical Society

Experimental Investigation of the Growth of Mixing Zone in Miscible Viscous Fingering SAHIL MALHOTRA, ERIC R. LEHMAN, MUKUL M. SHARMA, The University of Texas at Austin — An experimental study is performed to study the growth of the mixing zone in miscible viscous fingering. Rectilinear flow displacement experiments are performed in a Hele-Shaw cell over a wide range of viscosity ratios (1 to 700) by injecting water into Glycerol solutions at different flow rates. A linear growth in mixing zone is observed in all the experiments. The mixing zone velocity increases with the viscosity ratio up to viscosity ratios of 330 and the trend is consistent with Koval's model (Koval 1963). However, at higher viscosity ratios the mixing velocity plateaus signifying no further effect of viscosity contrast on the growth of mixing zone.

Sahil Malhotra
The University of Texas at Austin

Date submitted: 31 Jul 2012 Electronic form version 1.4