

Abstract Submitted
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Measurement of Concentration Field in Miscible Displacement in a Hele-Shaw Cell by Means of Micro Electrode TAKASHI OGAWA, YUICHIRO NAGATSU, YOSHIHITO KATO, YUTAKA TADA — Miscible displacement is a phenomenon a more-viscous fluid filled in a minute space is displaced by a less-viscous one which has the miscibility with the more-viscous one. In the miscible displacement in a Hele-Shaw cell, it is suggested the thickness of the less-viscous fluid layer in the cell's gap direction becomes thin near the front of the displacement. We call this shape 'sheet structure'. We conducted experiment about the miscible displacement with a chemical reaction in a Hele-Shaw cell, and proposed a physical model of the reactive flow field in which the sheet structure plays important roles. The present study aims to examine whether the sheet structure is actually formed and the proposed model is appropriate, by the measurement using a micro electrode. The electrode was inserted in the cell through a hole in the cell's glass plate, and the concentration profile of the less-viscous fluid in the cell's gap direction was measured. When the no chemical reaction is included, the concentration profile has been obtained which suggests the presence of the sheet structure.

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