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Reaction characteristics of reactive miscible viscous fingering of water soluble polymer solution in a Hele-Shaw cell YUJI HOSOKAWA, YUICHIRO NAGATSU, YOSHIHITO KATO, YUTAKA TADA, Department of Material Engineering, Graduate School of Engineering, Nagoya Institute of Technology — Reactive miscible viscous fingering occurs when a reactive and miscible less-viscous liquid displaces a more-viscous liquid in a Hele-Shaw cell. In the present study, to investigate the effect of polymeric characteristics of liquid on this issue, we experimentally compared reactive miscible viscous fingering in a Hele-Shaw cell formed in a water-soluble polymer solution with that formed in a glycerin solution having the almost same viscosity as the water-soluble polymer solution has. Under the present experimental condition, product distributions in the fingering formed in the glycerin solution depends on the ratio between initial reactant concentrations included in the more- and less-viscous liquids normalized by the stoichiometric ratio of the chemical reaction, ϕ_v; the product significantly exists inside the fingers for $\phi_v << 1$, while it concentrates around the fingertips for $\phi_v >> 1$. On the other hand, product distributions in the fingering formed in the water-soluble polymer are independent of ϕ_v

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