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Experimental study on intensity of change in viscosity by a chemical reaction on a liquid flow SHOHEI IWATA, YUICHIRO NAGATSU, YOSHITO KATO, YUTAKA TADA, Nagoya Institute of Technology, Japan — We have recently investigated a liquid flow involving viscosity change by chemical reactions. The liquid flow involves the displacement of the more viscous liquid by the less viscous one in a Hele-Shaw cell. So far, we reported the effects of Damkohler number (Da), which is defined as the ratio between a characteristic time of fluid motion and that of chemical reaction, on the flow. In reacting liquid flows involving viscosity changes, an intensity of change in viscosity, as well as Da , is supposed to be important. In the present study, we have experimentally investigated the effect of the intensity of decrease in viscosity by the chemical reaction on the liquid Hele-Shaw flow for the condition of infinite Da . We have found a threshold value of the intensity, beyond which the flow is dramatically changed by the reaction.

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