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**Miscible viscous fingering with chemical reaction involving precipitation.** SI-KYUN BAE, YUICHIRO NAGATSU, YOSHIHITO KATO, YUTAKA TADA, Nagoya Institute of Technology — When a reactive and miscible less-viscous liquid displaces a more-viscous liquid in a Hele-Shaw cell, reactive miscible viscous fingering takes place. The present study has experimentally examined how precipitation produced by chemical reaction affects miscible viscous fingering pattern. A 97 wt % glycerin solution containing iron(III) nitrate (yellow) and a solution containing potassium hexacyano ferrate(II) (colorless) were used as the more- and less-viscous liquids, respectively. In this case, the chemical reaction instantaneously takes place and produces the precipitation being dark blue in color. The experiments were done by varying reactant concentrations, the cell's gap width, and the displacement speed. We compared the patterns involving the precipitation reaction with those in the non-reactive cases. We have found fylfot-like pattern is observed, depending on the experimental condition, which has never been formed in the non-reactive experiments. As the reactant concentrations are increased or the displacement speed is decreased, the effects of the precipitation on the patterns are more pronounced.

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