

Effect of inlet velocity and inner cylinder rotation speed on residence time distribution of Taylor–Couette flow reactor

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Taylor–Couette flow is generated in the gap between co-axial cylinders by the rotation of the inner cylinder. When flow condition is above the critical Taylor number, flow regimes in Taylor–Couette reactor are changed from laminar Couette flow to unique periodic Taylor vortex. Residence time is one of the key factors for the application of continuous Taylor–Couette flow to the chemical reaction and crystallization. We studied flow regime and residence time distribution in continuous Taylor–Couette reactor by experiment and numerical simulation. We also confirmed the influence of inlet velocity and rotation speed of inner cylinder on the residence time distribution of continuous Taylor–Couette flow.