

Simulation of Taylor vortex properties in
Couette-Taylor reactor using CFD

김대현, 양대륙^{1,*}

고려대학교; ¹고려대학교 화공생명공학과
(dryang@korea.ac.kr*)

Couette-Taylor reactor is often used as mixing devices, bio-reactor, alternative of rotating devices. Furthermore Couette-Taylor reactor has applied to crystallizer of crystallization field lately. Couette-Taylor flow is occurred between two concentric cylinders because centrifugal force and pressure make instability. in the Couette-Taylor reactor, inner cylinder rotate only and outer cylinder is stationary. So, centrifugal force is occurred form rotating Inner cylinder. If inner cylinder velocity is increased, and when the cylinder velocity reached certain critical velocity, critical Re or critical Ta, the flow is changed from Couette flow to Couette-Taylor flow. The Taylor flow has many vortices which depend on L/D ratio. the vortex velocity is affected to the RPM and axial velocity. in this study, the relation is simulated using CFD.