Effect of Continuously Expanding Taylor Vortex on Crystal Agglomeration

MAYRA MARITZA QUEME PENA, 김우식*
경희대학교
(wskim@khu.ac.kr*)

The crystal agglomeration reaction in continuously expanding Taylor vortex c in the non-constant gap width of the Couette-Taylor crystallizer was investigated. The radial and axial velocity components crucially influence the generation of the vortices. Both of them depend on the angular rotation speed of the inner cylinder and the axial position. The meridional flow, which considerably influences the vortices is not uniform, because of the different gap cross-sections. This results in a three-dimensional flow, which has a crucial influence on the produced vortices. The geometry crucially affects the flow and the occurring vortices, as it was demonstrated in the case of the classical Couette-Taylor arrangement (concentric cylinders) with different gap width. Thus, in this study, the rotation speed and the direction of the inner cylinder was changed in order to evaluate how the different Taylor vortices generated inside the crystallizer influence the shape, and size distribution of the agglomerate crystal in order to get spherical agglomerate particles with narrow size distribution.