

## Influence of Taylor vortex flow on promotion the phase transformation of GMP in continuous Couette-Taylor crystallizer

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A new continuous crystallizer exploiting the turbulent fluid motion of Couette-Taylor vortex was developed for promotion of GMP phase transformation in drowning-out crystallization. Generally, during the drowning-out crystallization, amorphous GMP initially generated is transformed into hydrate GMP crystal via consecutive steps of dissolution of amorphous GMP and growth of hydrate GMP crystals. Both dissolution and re-crystallization processes in the phase transformation were strongly influenced by the fluid dynamic motions in crystallizer. In the present work, therefore, it was found that the Taylor vortex generated by the rotation of inner cylinder provided the intensive radial mixing, resulting in the promotion of the mass transfer for the dissolution and growth (re-crystallization) of GMP solids, bring the complete phase transformation within 7 min of the mean residence time at 300rpm and 150g/l of GMP feed concentration. Such effective phase transformation of GMP solids would be originated from the efficient energy dissipation in Couette-Taylor crystallizer in comparing with MSMR crystallizer.