Development of a Continuous Crystallization Process Model including Ostwald Process

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Population balance model, which has been most frequently used to describe crystallization, has several drawbacks. Its lack of ability to explain formation of sub-critical radius crystals and enlargement of critical radius forces the model to adopt a hybrid model consisting of separate and inconsistent models. In this work, we further develop works of Kaschiev and Iggland group which employs kinetic rate equation to describe behaviors of sub-critical radius crystals and Ostwald ripeging in a single model. The developed model shows change in crystallization process through control of variables, but not limited to, supersaturation and temperature.