

529a Overview of Modeling Approaches to Better Understand and Control Crystallization Processes

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Control the crystal size distribution (CSD) is key to many pharmaceutical crystallization processes. CSD control is important to ensure product quality and successful operation of a crystallizer. The final size distribution often affects downstream processing such as filtration, centrifugation, milling etc. One of the ways of understanding crystallization behavior is through modeling. This paper will outline the different approaches to modeling crystallization behavior and the benefits and shortcomings of each approach. The models will look at the interactive effects of mixing, fluid mechanics, solid and liquid chemical-physical properties, supersaturation history, crystallization kinetics and crystal size distribution.