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Antisolvent crystallization: Effect of ethanol on batch crystallization of α glycine

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Abstract

This article concerns the crystallization of glycine in a water/antisolvent medium in batch mode. The influence of the presence of ethanol on the crystallization characteristics, saturation and supersaturation limits, and the fundamental mechanisms of nucleation and crystal growth was investigated. The stage controlling growth, diffusion or integration, was determined, and the effect of ethanol on diffusion was analyzed. Results show that increasing the percentage of ethanol in the crystallization medium decreases its solubility, reduces the supersaturation limit and accelerates the nucleation of glycine. The study of ethanol's effect on the growth kinetics of the α -glycine polymorph revealed that the presence of the alcohol slows down crystal growth. This work also made it possible to determine the stage limiting crystal growth at the point of integration with the crystal lattice.

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