

## Study on polymorphism and crystal size of GMP produced by drowning-out crystallization in batch crystallizer

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GMP (disodiumn guanosine -5'-monophosphate) is recrystallized by adding methanol in batch crystallizer. In drowning-out (water-out or salting-out) crystallisation, supersaturation is generated by addition of another solvent or solvent mixture in order to reduce the solubility of the compound. The GMP is highly soluble in water and a heat-sensitive substance. So, the drowning-out process is necessary to reduce the solubility.

We want to avoid the fines (small crystals) since they may cause difficulties in filtration, and affect both product quality and process economics, so narrow CSD (crystal size distribution), large crystal size, and small aspect ratio are needed. Effect of additives on polymorphism is also studied, for prediction of crystal habit.

The GMP concentration and methanol fraction are higher, solution became more saturated so many nuclei are generated, and its mean particle size is reduced. The supersaturation profile in a batch crystallizer has a profound effect on the nucleation and growth processes.