

Control your Crystallization

The path to tailor-made particles

High product yield efficiency and purity at low production costs - these are typical demands for chemical processes. Theoretically, crystallization is very simple - heat and dissolve the raw material then cool down slowly, finished!

Industrial processes face a variety of challenges:

- Are there any requirements for the particles other than sufficient purity?
- Is the right crystal modification obtained?
- What is the particle size distribution?
- Is a filtration possible or are there undesirable fractions of small, spicular or dendritic crystals, which complicate a subsequent separation or drying?
- Is the nucleation inhibited and therefore the process time consuming?
- How good is the batch reproducibility?

A typical problem - A crystallization resulted in very fine spicular crystals, having high residual moisture after filtration. There were extremely long filtration times and large quantities of water required to wash the filter cake.

Our Approach - After gathering the solubility data, the process was optimized. Its yield was increased by 10 %, the capacity of the plant by 25 % while the waste water was down by 35 %. The process was successfully scaled-up and transferred to production.

Our tools

- Inline particle measurement
- Process video microscopy
- Inline spectroscopy (IR / NIR / Raman)

Project examples

- Detection of hormone crystallization by inline spectroscopy and optimization of the seeding strategy
- Inline measurement & supersaturation control for an API
- Avoidance of a grinding step by adjusting a specific particle size distribution.

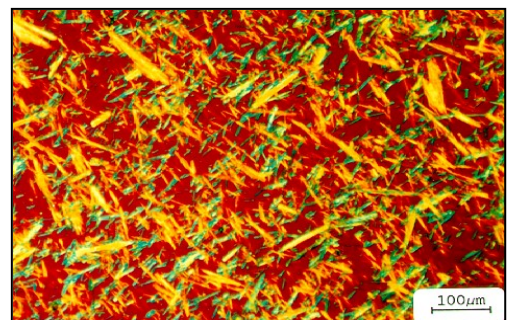
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Your Benefit

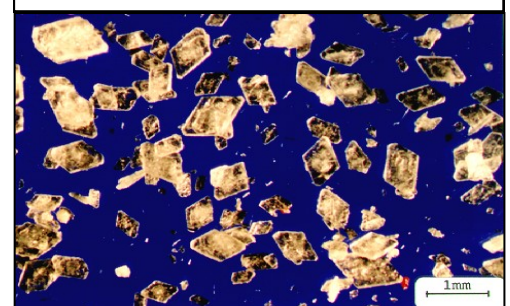
- Improved product quality
- Safe Scale-Up
- Cheaper and more robust processes
- reduced cycle times
- Expertise independent from equipment manufacturers

Our range of services

- Optimization of crystallization and precipitation processes in terms of yield, purity or filterability
- Transfer of laboratory recipes to production scale
- Troubleshooting for existing processes



Crystalline intermediate before...



...and after the optimization.