

Small-Scale Experiments Supporting the MicroFactory

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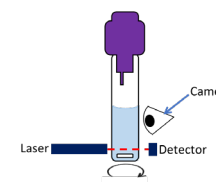
Introduction

Background

- Small-scale crystallisation experiments allow for rapid screening and the minimisation of material use.
- Crystallisation kinetics can be estimated from images taken during small-scale crystallisation experiments.
- Possible trade-off in accuracy compared with more time-intensive methods but is useful for giving “order of magnitude results” in process development i.e. candidates can be more quickly ruled out.
- These techniques are being developed and used by several researchers within CMAC..

Methods

- Small-scale crystallisation experiments performed in 8 mL Technobis Crystalline reactors.

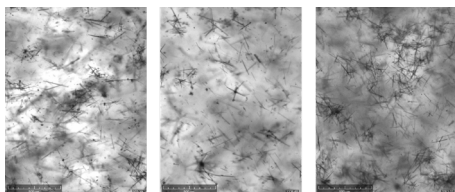


- Experiments can be seeded or unseeded depending on the conditions being investigated.

Solvent Screening

Solvent Selection & Solubility

- In-silico solvent screening generated shortlist of potential solvents.
- Shortlist of potential solvent screened for solubility in addition to other factors such as solid form and propensity for fouling.



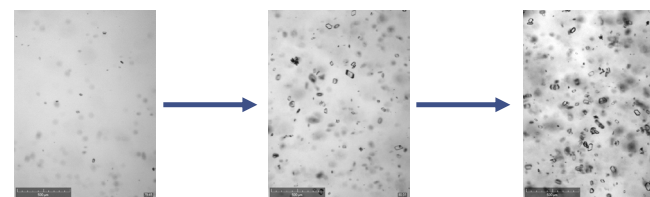
2-Butanol Product

- Solvent screen resulted in 2-butanol being selected as the crystallisation solvent for mefenamic acid.

Kinetics Estimation

Images to Kinetics

- Images from experiments used to estimate crystallisation kinetics.



Induction Times	>	Primary Nucleation Rates
Particle Number Increase	>	Secondary Nucleation Rates
Particle Size Increase	>	Growth Rates