3 ways to efficiently develop green crystallization processes

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Batch crystallization is still the most widely used purification and form giving method in the specialty and pharmaceutical industry. Typical green crystallization process development targets are: minimization of solvent volume, off-spec batches (with regard to polymorphic form, crystal purity and size), product characteristics variability, active substance loss and batch time reduction thus asset utilization maximization.

This talk highlights several methods and BASF case studies to reach the targets outlined above: e.g. in-silico solvent screening for a new molecule, in-situ process analytical technology (PAT) [1], [2] based process understanding to minimize off-spec batches and efficient implementation of advanced feedback process control methods using “Crystbench” - a highly automated state-of-the-art reaction-crystallization-filtration process R&D laboratory platform.

References:
Levente L Simon.
Organic Process Research & Development, PAT Special Issue Editorial, 2015, 19, 1, 1-2

[2] Assessment of recent process analytical technology (PAT) trends: a multiauthor review
Organic Process Research & Development, PAT Special Issue, 2015, 19, 1, 3-62

Interests:
- Conceptual chemical process design with focus on separation technologies
- Crystallization process R&D
- Implementation of Process Analytical Technologies (PAT)