



Characterization of an industrial pharmaceutical precipitation process through experimental exploration of process parameter

Wenxin Yang, Sara Canle Babío(Novo Nordisk A/S), Solange I. Mussatto(DTU)

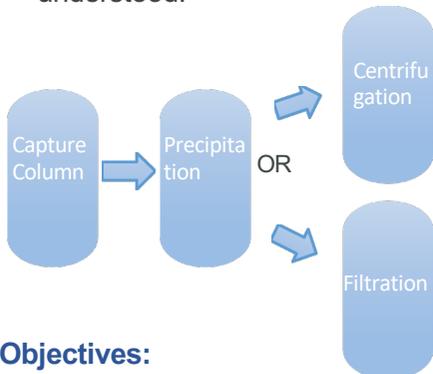


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Introduction

Problem:

- Precipitation has shown varied performance.
- The exact resulting particle distribution and its sensitivity to upstream changes are not fully understood.



Objectives:

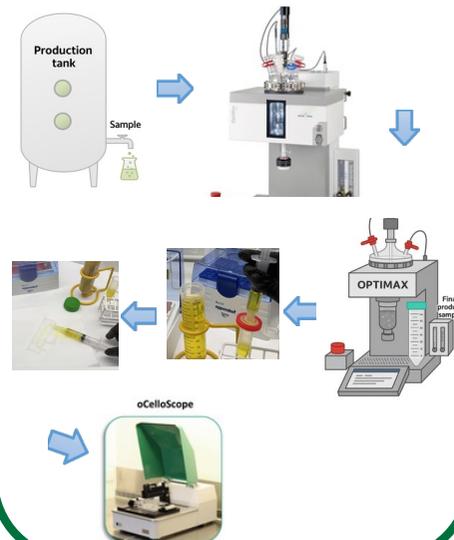
- Develop an understanding of precipitation parameters
- Estimate relevant process parameters
- Characterize baseline particle size distribution
- Perform sensitivity analysis
- Conclude and provide recommendations

Methods

Parameters are tested:

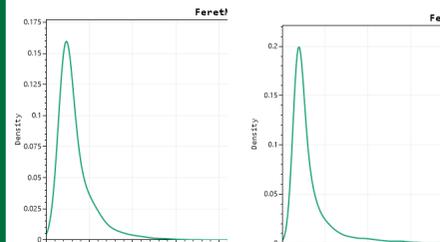
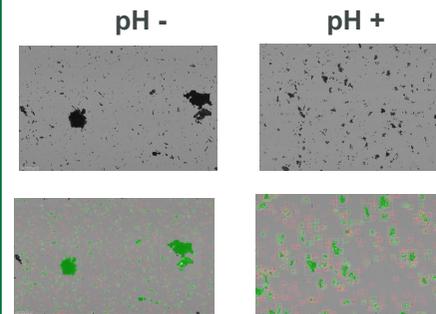
| Ethanol Conc. | Temperature (1) | pH | pH Adj. Time | Temperature (2) |
|---------------|-----------------|-----------|--------------|-----------------|
| Set point | Set point | Set point | Set point | Set point |
| +/- | +/- | +/- | +/- | +/- |

Experiment Process:
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Outcome

- Particle Size Distribution
- Visual observation



Perspectives

- May serve as a reference for future precipitation modeling processes.
- Conduct a more comprehensive investigation by combining multiple influencing parameters systematically.
- Further validation needed at industrial scale.



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- Real-world production processes.
- Work closely with industry experts.
- Grateful for the memorable time shared with warm-hearted supervisors, Helix staff, NN colleagues, and fellows.
- A step closer to my dream of becoming a process engineer in the industry.

