

Accepted Manuscript

Title: A continuous multi-stage mixed-suspension mixed-product-removal crystallization system with fines dissolution

Authors: David Acevedo, Daniel J. Jarmer, Christopher L. Burcham, Christopher S. Polster, Zoltan K. Nagy



PII: S0263-8762(18)30268-5
DOI: <https://doi.org/10.1016/j.cherd.2018.05.029>
Reference: ChERD 3193

To appear in:

Received date: 13-2-2018
Revised date: 1-5-2018
Accepted date: 21-5-2018

Please cite this article as: Acevedo, David, Jarmer, Daniel J., Burcham, Christopher L., Polster, Christopher S., Nagy, Zoltan K., A continuous multi-stage mixed-suspension mixed-product-removal crystallization system with fines dissolution. *Chemical Engineering Research and Design* <https://doi.org/10.1016/j.cherd.2018.05.029>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

A Continuous Multi-Stage Mixed-Suspension Mixed-Product-Removal Crystallization System with Fines Dissolution

David Acevedo^a, Daniel J. Jarmer^b, Christopher L. Burcham^b, Christopher S. Polster^b, Zoltan K. Nagy^{a,*}

^a School of Chemical Engineering, Purdue University, West Lafayette, 47907, IN, USA

^b Eli Lilly and Company, Indianapolis, 46285, IN, USA

Corresponding author: Zoltan K. Nagy

Address: Forney Hall of Chemical Engineering, 1060
480 Stadium Mall Drive
West Lafayette, IN 47907-2100

Phone: (765) 494-0734

Email: zknagy@purdue.edu

Web address: <https://engineering.purdue.edu/ChE/People/ptProfile?id=79574>

Highlights:

- Larger crystals and a narrower distribution were obtained due to the removal of fine crystals through the continuous process
- Small decrease in the achievable yield was observed when dissolution stage is included
- Design of multi-stage crystallization system with dissolution stage can improve crystal properties

Abstract

This work demonstrates how crystal particle size is affected by the addition of fines dissolution in a mixed suspension mixed product removal (MSMPR) cascade system. The cooling crystallization of paracetamol in water was used as a case study. Two MSMPR cascade configurations were evaluated: (i) nucleation-growth (NG), and (ii) nucleation-dissolution-growth (NDG). Simulation

Download English Version:

<https://daneshyari.com/en/article/7005715>

Download Persian Version:

<https://daneshyari.com/article/7005715>

[Daneshyari.com](https://daneshyari.com)