

## Accepted Manuscript

Title: Process for *n*-Butyl Acrylate Production using Reactive Distillation: Design, Control and Economic Evaluation

Authors: Mihai Daniel Moraru, Costin Sorin Bildea

PII: S0263-8762(17)30367-2  
DOI: <http://dx.doi.org/doi:10.1016/j.cherd.2017.06.038>  
Reference: CHERD 2741

To appear in:

Received date: 20-1-2017  
Revised date: 11-6-2017  
Accepted date: 29-6-2017

Please cite this article as: Moraru, Mihai Daniel, Bildea, Costin Sorin, Process for *n*-Butyl Acrylate Production using Reactive Distillation: Design, Control and Economic Evaluation. *Chemical Engineering Research and Design* <http://dx.doi.org/10.1016/j.cherd.2017.06.038>

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.



# Process for *n*-Butyl Acrylate Production using Reactive Distillation: Design, Control and Economic Evaluation

Mihai Daniel Moraru<sup>a,b</sup>, Costin Sorin Bildea<sup>b,\*</sup>

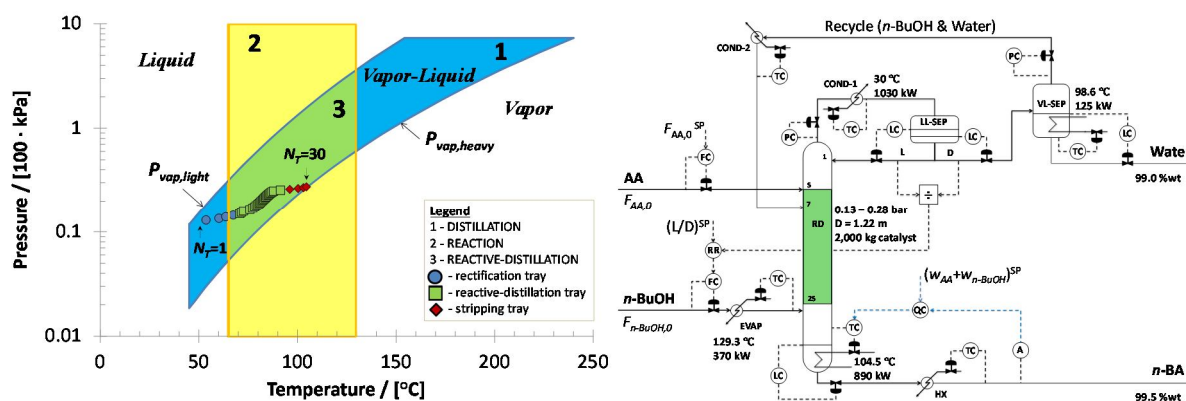
<sup>a</sup> Hexion, Department of Process Technology and Development, Seattleweg 17, 3195 ND, Pernis, The Netherlands

<sup>b</sup> University Politehnica of Bucharest, Department of Chemical and Biochemical Engineering, Str. Gh. Polizu 1-7, 011061, Bucharest, Romania

\* Corresponding author

E-mail addresses: mihai.moraru@hexion.com (M.D. Moraru); s\_bildea@upb.ro (C.S. Bildea)

## Graphical abstract



## Highlights

- Application of reactive-distillation to *n*-butyl acrylate production is investigated.
- The design is based on rigorous analysis and validation of thermodynamic models.
- The process uses a decanter-flash system for alcohol recovery and recycle.
- The control system achieves capacity changes and keeps the products purities.
- The economic indicators are similar to those of other reported processes.

## Abstract

*n*-Butyl acrylate is produced at industrial scale from acrylic acid and *n*-butanol using strong acidic homogeneous catalysts. The associated well-known problems (corrosion, product purification, and disposal of spent catalyst) lead to high operating costs and a continuously increasing difficulty to comply with environmental regulations. Employing solid catalysts and

Download English Version:

<https://daneshyari.com/en/article/4987059>

Download Persian Version:

<https://daneshyari.com/article/4987059>

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