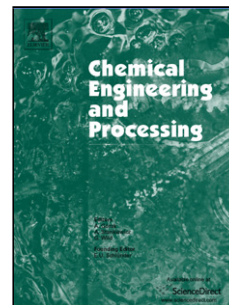


Accepted Manuscript

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PII: S0255-2701(17)30403-8
DOI: <http://dx.doi.org/doi:10.1016/j.cep.2017.08.002>
Reference: CEP 7048

To appear in: *Chemical Engineering and Processing*

Received date: 21-4-2017
Revised date: 13-7-2017
Accepted date: 2-8-2017

Please cite this article as: Nirvik Sen, V.Koli, K.K.Singh, S.Mukhopadhyay, K.T.Shenoy, High throughput, continuous, solvent-free synthesis of ionic liquid [BMIM]Br in a microbore tube, Chemical Engineering and Processing <http://dx.doi.org/10.1016/j.cep.2017.08.002>

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High throughput, continuous, solvent-free synthesis of ionic liquid [BMIM]Br in a microbore tube

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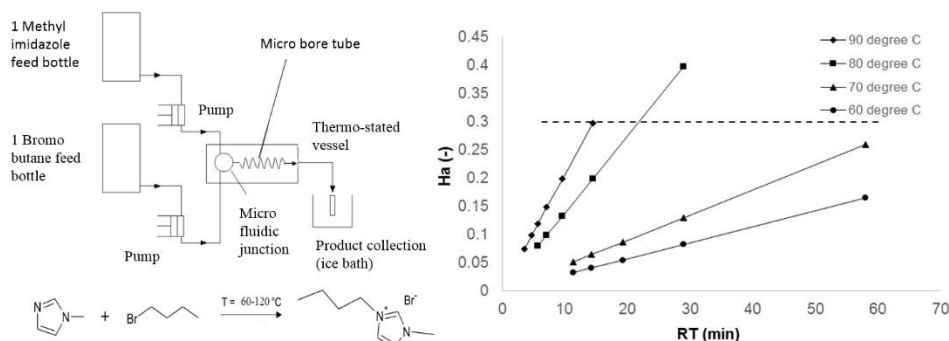
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Graphical abstract



Highlights

- Continuous, solvent-free synthesis of [BMIM]Br ionic liquid in microbore tube
- Reaction in kinetically controlled regime
- Effect of flow velocity, extent of coiling, temperature on yield and production rate
- Comparison of opposed T and cross T-junctions
- Production rate of the order of 1 kg/day achieved

Abstract

A microbore tube is used to synthesize an imidazolium-based ionic liquid 1-butyl-3-methylimidazolium bromide ([BMIM]Br) in continuous and solvent-free mode to achieve high space-time-yield and production rate while ensuring operation in kinetically controlled regime. Within the range of the experiments, product yield is found to increase with an increase in reaction temperature and residence time. Maximum values of space-time-yield and production rate achieved are 216 gm/min-lit and 1172 gm/day, respectively. The effects of different parameters (design of the microfluidic junction, flow velocity, and the extent of coiling of the microbore tube) on the product yield and production rate are

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