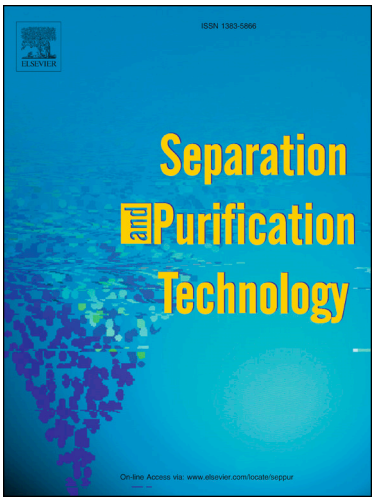

Micro-scale processes occurring in ionic liquid–water phases during extraction

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PII: S1383-5866(17)31552-6
DOI: http://dx.doi.org/10.1016/j.seppur.2017.06.056
Reference: SEPPUR 13834

To appear in: *Separation and Purification Technology*

Received Date: 15 May 2017
Revised Date: 20 June 2017
Accepted Date: 20 June 2017

Please cite this article as: M.M. Seitkalieva, A.S. Kashin, K.S. Egorova, V.P. Ananikov, Micro-scale processes occurring in ionic liquid–water phases during extraction, *Separation and Purification Technology* (2017), doi: http://dx.doi.org/10.1016/j.seppur.2017.06.056

Micro-scale processes occurring in ionic liquid–water phases during extraction

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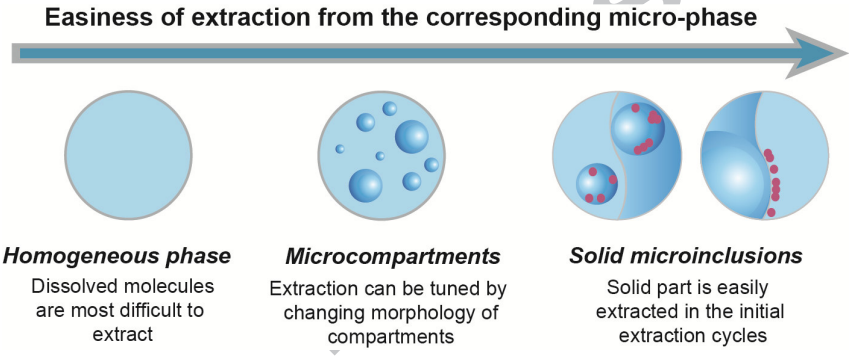
TOC graphics:



Abstract:

For the first time, extraction process in ionic liquids was visualized by direct electron microscopy observation. Microscopy images revealed the micro-heterogeneous nature of the studied extraction systems. Depending on the nature of ionic liquids and studied compounds, four main micro-scale areas were observed: a) uniform homogeneous phase; b) microcompartments in the liquid phase; c) solid microinclusions on the phase boundary; and d) solid microinclusions inside the separated microphases. The microscopic monitoring showed stepwise sequence of the extraction process, and the retention ability of the ionic liquid–water system decreased in the following order: homogeneous phase > microcompartments > solid microinclusions.

Keywords: ionic liquids, extraction, electron microscopy, morphology, mechanism.