

Accepted Manuscript

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PII: S0165-9936(18)30073-6

DOI: [10.1016/j.trac.2018.03.020](https://doi.org/10.1016/j.trac.2018.03.020)

Reference: TRAC 15156

To appear in: *Trends in Analytical Chemistry*

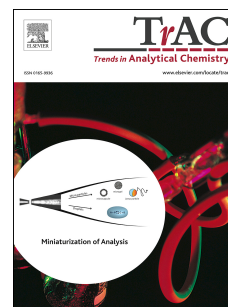
Received Date: 25 February 2018

Revised Date: 27 March 2018

Accepted Date: 29 March 2018

Please cite this article as: H. Nan, J.L. Anderson, Ionic liquid stationary phases for multidimensional gas chromatography, *Trends in Analytical Chemistry* (2018), doi: 10.1016/j.trac.2018.03.020.

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Ionic liquid stationary phases for multidimensional gas chromatography

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*Department of Chemistry, Iowa State University, Ames, Iowa 50011, United States***Abstract**

Ionic liquids (ILs) are a class of organic salts that meet many of the requirements of GC stationary phases including high thermal stability, high viscosity, and tunable selectivity through the modification of the chemical structure. IL-based columns, when incorporated either in the first or second dimension, can offer unique selectivity compared to polydimethyl(siloxane) and poly(ethyleneglycol) derived GC stationary phases for the separation of complex samples by multidimensional gas chromatography. In addition, IL-based columns are emerging as superior choices for applications requiring high polarity as well as high thermal stability. The present contribution provides an overview on IL-based stationary phases for multidimensional gas chromatography with an emphasis on developments in the period from 2012 to early 2018. The analysis of various analytes (e.g., fatty acids, polycyclic aromatic sulfur heterocycles, and biodiesels) in complex matrices as well as the developments of new IL-based stationary phases for multidimensional gas chromatography are described.

Keywords: Comprehensive two-dimensional gas chromatography; Ionic liquids; Multidimensional gas chromatography

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