

Accepted Manuscript

Isobaric vapor-liquid equilibria for the extractive distillation of 2-propanol + water mixtures using 1-ethyl-3-methylimidazolium dicyanamide ionic liquid

A. Vicent Orchillés, Pablo J. Miguel, Vicenta González-Alfaro, Francisco J. Llopis, Ernesto Vercher, Antoni Martínez-Andreu

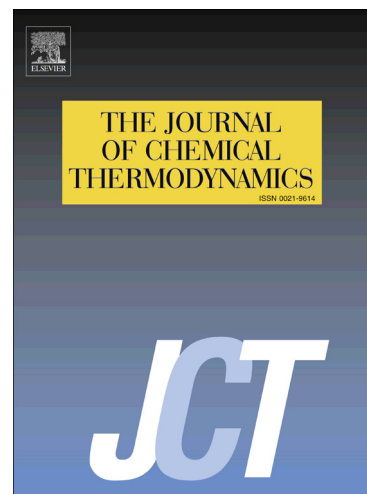
PII: S0021-9614(17)30032-0
DOI: <http://dx.doi.org/10.1016/j.jct.2017.02.005>
Reference: YJCHT 4973

To appear in: *J. Chem. Thermodynamics*

Received Date: 20 July 2016
Revised Date: 3 February 2017
Accepted Date: 8 February 2017

Please cite this article as: A.V. Orchillés, P.J. Miguel, V. González-Alfaro, F.J. Llopis, E. Vercher, A. Martínez-Andreu, Isobaric vapor-liquid equilibria for the extractive distillation of 2-propanol + water mixtures using 1-ethyl-3-methylimidazolium dicyanamide ionic liquid, *J. Chem. Thermodynamics* (2017), doi: <http://dx.doi.org/10.1016/j.jct.2017.02.005>

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.



Isobaric vapor-liquid equilibria for the extractive distillation of 2-propanol + water mixtures using 1-ethyl-3-methylimidazolium dicyanamide ionic liquid

*A. Vicent Orchillés, Pablo J. Miguel, Vicenta González-Alfaro, Francisco J. Llopis, Ernesto Vercher, and Antoni Martínez-Andreu **

Departamento de Ingeniería Química, Escuela Técnica Superior de Ingeniería, Universitat de València, 46100 Burjassot, Valencia, Spain

ABSTRACT

Isobaric vapor-liquid equilibria for the binary systems 2-propanol + water, 2-propanol + 1-ethyl-3-methylimidazolium dicyanamide ([emim][DCA]), and water + [emim][DCA] as well as the vapor-liquid equilibria for the 2-propanol + water + [emim][DCA] ternary system have been obtained at 100 kPa using a recirculating still. The electrolyte nonrandom two-liquid (e-NRTL) model was used for fitting successfully the experimental data. The effect of [emim][DCA] on the 2-propanol + water system has been compared with that produced by other ionic liquids reported in the literature. From the results, [emim][DCA] appears as a good entrainer for the extractive distillation of this solvent mixture, causing the azeotrope to disappear at 100 kPa when the ionic liquid mole fraction is greater than 0.085.

Keywords: Extractive distillation; Isobaric VLE; Ionic liquids; 1-ethyl-3-methylimidazolium dicyanamide; 2-propanol; water.

* Corresponding author. Tel.: +34 963544319; fax: +34 963544898.

E-mail adress: antoni.martinez@uv.es (A. Martínez-Andreu).

Download English Version:

<https://daneshyari.com/en/article/4769532>

Download Persian Version:

<https://daneshyari.com/article/4769532>

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