Accepted Manuscript

Measurement and correlation of the physical properties of aqueous solutions of ammonium based ionic liquids

Nur Ani Kartikawati, Rizwan Safdar, Bhajan Lal, Muhammad Ibrahim Bin Abdul Muthalib, Azmi Mohd Shariff

PII: S0167-7322(17)34600-7

DOI: https://doi.org/10.1016/j.molliq.2018.01.040

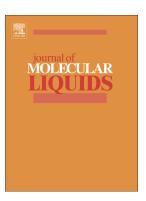
Reference: MOLLIQ 8494

To appear in: Journal of Molecular Liquids

Received date: 30 September 2017 Revised date: 6 January 2018 Accepted date: 7 January 2018

Please cite this article as: Nur Ani Kartikawati, Rizwan Safdar, Bhajan Lal, Muhammad Ibrahim Bin Abdul Muthalib, Azmi Mohd Shariff, Measurement and correlation of the physical properties of aqueous solutions of ammonium based ionic liquids. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Molliq(2017), https://doi.org/10.1016/j.molliq.2018.01.040

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.



ACCEPTED MANUSCRIPT

Measurement and correlation of the physical properties of aqueous solutions of ammonium based Ionic Liquids

Nur Ani Kartikawati^a, Rizwan Safdar^a Bhajan Lal^a*, Muhammad Ibrahim Bin Abdul Muthalib^a and Azmi Mohd Shariff^a

^aChemical Engineering Department, Universiti Teknologi PETRONAS, Bandar Seri Iskandar, 32610 Perak Darul Ridzuan, Malaysia.

CO₂ Research Center (CO₂RES), Universiti Teknologi PETRONAS, Bandar Seri Iskandar, 32610, Tronoh, Perak, Malaysia. *Corresponding author: Email: bhajan.lal@utp.com.my; Phone: (O) +6053687619; (HP) +60103858473.

ABSTRACT

In this study, thermo physical properties such as density, viscosity, refractive index and surface tension of aqueous solutions of tetramethylammonium hydroxide (TMAOH), tetraethylammonium hydroxide (TEAOH), tetrapropylammonium hydroxide (TPAOH) and tetrabutylammonium hydroxide (TBAOH) was investigated as a function of temperature. These properties were measured in temperatures ranging from 298.15 to 333.15 K and the temperature was increased by an interval of 5 K from 298.15 K and after 303.15 K, it was increased by an interval of 10 K, while the concentrations of all the aqueous solutions were changed from 2.5 to 30 mass percent. The results revealed that the measured properties of all aqueous ILs are inversely related to temperature, while the increase in concentration had different effects on these properties. In the case of density, an increase in the concentration of ILs TMAOH and TEAOH increased their density, while the increase in the concentration of TPAOH and TBAOH decreased their density. On the other hand, the viscosities and refractive indices of all aqueous ILs increased with an increase in concentration, but the surface tensions decreased with the increase in concentration. The derived properties

Download English Version:

https://daneshyari.com/en/article/7843145

Download Persian Version:

https://daneshyari.com/article/7843145

<u>Daneshyari.com</u>