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PII: S0167-7322(17)31672-0

DOI: doi: 10.1016/j.molliq.2017.07.078

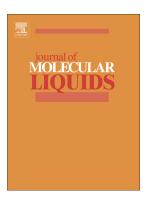
Reference: MOLLIQ 7656

To appear in: Journal of Molecular Liquids

Received date: 19 April 2017 Revised date: 13 June 2017 Accepted date: 19 July 2017

Please cite this article as: M.S. Gruzdev, L.E. Shmukler, N.O. Kudryakova, A.M. Kolker, Yu.A. Sergeeva, L.P. Safonova, Triethanolamine-based protic ionic liquids with various sulfonic acids: Synthesis and properties, *Journal of Molecular Liquids* (2017), doi: 10.1016/j.molliq.2017.07.078

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ACCEPTED MANUSCRIPT

Trietnanoiamine-pased prouc ionic iiquids with various suiionic acids: synthesis and properties

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Abstract

Ten tris(2-hydroxyethyl)ammonium (triethanolammonium)-based protic ionic liquids (ILs) and one molten salt were synthesized by proton transfer reaction from sulfonic acid to triethanolamine (TEOA). The produced PILs were dried under high vacuum at 50 °C for 8 h before use. The PILs were characterized by ¹H NMR, ¹³C NMR, ¹H/¹⁵N NMR and FT-IR spectroscopic methods. The parameters of IR and NMR spectra of the studied PILs were determined by the nature of the substituent on the sulfonic acid benzene ring. The phase behavior of the PILs was studied using differential scanning calorimetry (DSC) and thermogravimetric analyses (TGA). The temperature dependence of the conductivity and the electrochemical window of each PIL was investigated. The substitution effect on the PILs anionic component was discussed for the studied properties.

Keywords:

Triethanolammonium salts, Protatranes, Ionic liquid, Synthesis, Phase behavior

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