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

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## 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

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