

Studies on proton conducting polymer electrolytes based on poly(ethylene oxide)/poly(vinyl pyrrolidone) with NH_4SCN

R. Sasikumar^{a*}, K. Selvakumar^b, M. Ramesh Prabhu^b and V. Sethuraman^c

^aDepartment of Physical Chemistry, University of Madras, Chennai-600 025, India

E-mail: skumaratr@gmail.com

^bSchool of Physics, Alagappa University, Karaikudi-630 004, Tamilnadu, India

^cDepartment of Chemistry, Vel Tech Multi Tech, Chennai-600 062, India

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Attempted a work based on poly(ethylene oxide) (PEO) and poly(vinyl pyrrolidone) (PVP) with constant salt ratio of NH_4SCN were prepared by the solution casting technique. The ionic conductivity of the PEO/PVP host polymer was discussed. The dissociation of the ammonium salt and the interaction between the polymer salt complexes was confirmed by X-ray diffraction analysis. Atomic force microscope is an excellent tool to measure the roughness factor, pore size and also two and three dimensional topographic images of the sample. Topography studies have been image of the sample PS4 having maximum ionic conductivity in 3D image. The maximum room temperature ionic conductivity was found to be $8.31 \times 10^{-4} \text{ S cm}^{-1}$ for the film containing NH_4SCN as the complexing salt.

Keywords: Poly(ethylene oxide) (PEO), poly(vinyl pyrrolidone), ionic conductivity, polymer, interaction.