

Title: E- Proton-conducting composite membrane based on PVP-doped triammoniumphosphate and their structural studies

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A class of proton-conducting non-fluorinated hybrid composite membranes was produced based on poly(vinylpyrrolidone)-doped tetraethoxysilicate (TEOS) and triammoniumphosphate ($(NH_4)_3PO_4.3H_2O$) with and without phosphoricacid. High proton-conducting hybrid composite membranes were successfully fabricated and their structural and proton conductivity properties were studied. Analysis by XRD, ^1H NMR, and TGA confirmed that the composites were homogenously formed by the sol–gel method. However, the phosphosilicate-doped polymer membranes showed the formation of an amorphous phase. The XRD patterns of both the hybrid composite membranes indicated that the amorphous phase of the polymer increased as the SiO_2 concentration was raised. From the TGA examinations, it was found that the presence of SiO_2 network was responsible for the greater thermal stability of these hybrid membranes.

Biography

Dr. Uma Thanganathan has completed her PhD at the age of 27 years from Alagappa University and postdoctoral studies from Technique Universitat Munchen, Germany and Nagoya Institute of Technology, Japan. She has published more than 75 papers in reputed journals and has been serving as an editorial board member of repute.

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