

Electrical and di-electrical properties of PVA:PEG:CH₃COONH₄

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In this present communication the electrical properties of the new set of solid blend polymer electrolyte membranes have been investigated where the variation of conductivity with salt concentration from 10 wt% to 30 wt% has also been verified. To attain these notable electrical properties a very new combination of polymeric materials viz. polyvinyl alcohol (PVA) and polyethylene glycol (PEG) materials were considered which further been doped with ammonium acetate (CH₃COONH₄) in order to enhance the conductivity and other parameters. The dielectric permittivity, dielectric loss and ac conductivity of PVA:PEG has been observed to increase along with the addition of ammonium acetate at the frequency range of 42 Hz–100 kHz and the temperature range of 308–353 K. The ac conductivity σ_{ac} was found to obey the power law $A\omega^s$. The frequency exponential factor s was calculated and it was found to be in the range between 0.432 and 0.69 which was dependent on the ammonium acetate.

Keywords: Polymer blend, ac conductivity, dc conductivity, dielectric constant, dielectric loss.