(Research Article 8)

Dielectric relaxation analysis and Ac conductivity of polyvinyl alcohol/polyacrylonitrile film

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A film of 0.98 polyvinyl alcohol (PVA)/0.02 Polyacrylonitrile (PAN) has been prepared using casting method. The dielectric properties were measured as function of temperature and frequency. The dielectric permittivity of PVA is considerably enhanced by doping with PAN. Different relaxation processes have been recognized within the studied ranges of temperature and frequency. The frequency temperature superposition (FTS) is well verified. Frequency and temperature dependence of Ac conductivity, σ_{ac}, were studied. The conduction mechanism of pure PVA and PVA doped with PAN are discussed. The activation energy either for relaxation or conduction was calculated. Comparison with similar polymeric materials is discussed.