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Ferroelectricity in Fused Potassium Nitrate-Polymer Composite Films

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Abstract : The ferroelectric properties of fused potassium nitrate (KNO3)- polyvinyl alcohol (PVA) composite films have been investigated. The composite films of KNO3-PVA have been prepared by solvant cast technique and then fused over the brass substrate. The ferroelectric hysteresis loops (P-E) have been obtained at room temperature using modified Sawyer-Tower circuit. Percentage of back switching and differential dielectric constant has been derived from P-V loops. The x-ray diffraction (XRD) studies confirm the formation of ferroelectric phase (phase III) in these composite films. The AFM and FE-SEM studies have been used to study the surface morphology of these composite films. The values of remanemt polarization, coercive field, back switching, crystallite size, lattice parameters, and surface roughness have been estimated and correlated.

Keywords : ferroelectric polymer composite, remanemt polarization, back switching, crystallite size, lattice parameters and surface roughness
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