

Abstract

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Pyroelectric Properties of Nanocomposite of Polyvinylidene Fluoride and BaTiO₃

In recent years, polymer-ceramic nanocomposite materials have been given great attention due to the possibility of their use in piezoelectric and pyroelectric transducers. Nanocomposite of polyvinylidene fluoride (PVDF) and barium titanate (BaTiO₃) is prepared using cast technique. When infrared spectra were used, it is concluded that pure PVDF and their composite with BaTiO₃ exist in the unpoled state ($\hat{I}\pm$ -phase). It is found that incorporation of BaTiO₃ into PVDF has destroyed the spherulite structure and has dispersed in the PVDF matrix with nanosize particles. It is observed that nanocomposite of 30 wt. % of PVDF has the highest pyroelectric coefficient of 1.00 nC/cm²/oC.