Dielectric behavior of Ni0.1Zn0.9Fe2O4-Polypropylene composites at low microwave frequencies.

Abstract

In the last decade, studies and research toward polymer-clay composites draw significant attention for a suitable filler that can improve mechanical, thermal, electrical, optical and pharmaceutical properties as compared with pure polymer. Ni0.1Zn0.9Fe2O4 (NZF) was prepared using conventional solid-state method. A twophase composite was fabricated with blend filled Ni0.1Zn0.9Fe2O4 added to isotactic polypropylene matrix. The samples were characterized by XRD and dielectric measurements were done using Agilent 4291B Impedance/Material Analyzer. It was observed that the composition of 30 wt% NZF gave the highest dielectric constant in the frequency range of 1 MHz to 1.8 GHz at room temperature.

Keyword: Nickel-zinc ferrite; Solid-state; Polypropylene; Dielectric properties.