Abstract

The Praseodymium, Samarium doped novel Magnesium ferrite (Mg Prx Smy Fe2-x-y O4) was prepared by sol gel route and sintered in a microwave furnace. The nano size, structure and composition of Pr and Sm doped Magnesium ferrite ceramics was analyzed by X-ray diffraction and confirmed by SEM monographs. The elemental conformation was done by EDAX. The hysteresis property of this material was conformed through its hysteresis curves. The permeability of this material was calculated by using the magnetic saturation obtained from the hysteresis curves. The electrical measurements have been performed to determine the dielectric constant ($\varepsilon_r$), dielectric loss ($\varepsilon_\prime\prime$) and loss tangent in the frequency range of 20KHz - 20MHz. It is also found that the permittivity of these nano materials is being reduced with the increase in frequency.

Index Terms

Computer Science

Applied Sciences

Keywords

Pr-Sm doped Mg ferrite Sol gel Electrical and Magnetic studied Studies