

Dielectric Properties of Ni-Al Nano Ferrites Synthesized by Citrate Gel Method

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Abstract : Ni-Al ferrite with composition of $\text{NiAl}_x\text{Fe}_{2-x}\text{O}_4$ ($x=0.2, 0.4, 0.6, \text{ and } 0.8$,) were prepared by citrate gel method. The dielectric properties for all the samples were investigated at room temperature as a function of frequency. The dielectric constant shows dispersion in the lower frequency region and remains almost constant at higher frequencies. The frequency dependence of dielectric loss tangent ($\tan\delta$) is found to be abnormal, giving a peak at certain frequency for mixed Ni-Al ferrites. A qualitative explanation is given for the composition and frequency dependence of the dielectric loss tangent.

Keywords : ferrites, citrate method, lattice parameter, dielectric constant

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