

Milling time and BPR dependance on permeability and losses of Ni_{0.5}Zn_{0.5}Fe₂O₄ synthesized via mechanical alloying process.

ABSTRACT

Ni_{0.5}Zn_{0.5}Fe₂O₄ has been synthesized using mechanical alloying method with two variables (milling time and ball-to-powder weight ratio (BPR)) were varied in order to study its effect on the magnetic properties of the material. The effects of these two variables were studied using XRD, SEM, TEM and later by impedance analyzer with the frequency range from 1 MHz to 1.8 GHz. The results obtained however show that there are no significant trends to relate the milling time and BPR with the permeability and losses of the material studied. After being sintered at 1150 °C, all the effects of alloying process seem to diminish.

Keyword: Mechanical alloying; Sintering temperature; Permeability.