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MAGNETIC AND MORPHOLOGY CHARACTERIZATION OF NiZn FERRITE PREPARED FROM NANO SIZE STARTING POWDER VIA COPRECIPITATION TECHNIQUE

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ABSTRACT

Nanocrystalline nickel zinc ferrite of composition Ni0.8Zn0.2Fe2O4 has been synthesized by co precipitation technique. The as-dried powder was pressed into the toroid and pellet forms, then sintering them at sintering temperatures of 1100, 1200 and 1300°C.Then the samples were characterized by X-ray diffraction (XRD), initial permeability and relative loss factor. The physical properties such as bulk density and porosity were also studied. The density increased with sintering temperature. The highest density obtained was 4.48g/cm3. The initial permeability values were in the range of 10 -17 due to the small particle size. The relative loss factor was in the order of 10-3-10-5 in the frequency range of 1MHz to 1GHz. The results obtained gave better values than those obtained for ferrites prepared by conventional methods. The low loss makes these ferrites useful as inductor and transformater materials for high frequency applications.

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