

Analysis of Selected Magnetic Characteristics of Europium Substituted LiZnTi Spinel Ferrites

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Abstract. In this work, the effect of a rare earth element, selected for its a bit inconsistent magnetic behavior (Eu), on the spinel ferrite microstructure, morphology and magnetic characteristics was studied. LiZnTi ferrite samples with partly substitution of iron ions by Europium, having the chemical composition $\text{Li}_{0.525}\text{Zn}_{0.30}\text{Ti}_{0.35}\text{Eu}_x\text{Fe}_{1.825-x}\text{O}_4$ ($x = 0 - 0.1$), with a small addition of Bi_2O_3 and MnO_2 were prepared by standard double-sintering ceramic method at 850°C and 1050°C in the form of ring-shaped as well as powdered samples. The analyses of morphology and chemical elements were carried out by means of SEM and EDX. For each composition, fundamental magnetic parameters, such as the coercive field, remanent magnetic flux density, hysteresis loop area, amplitude and initial permeability, etc., were evaluated from the hysteresis loops measured at precisely defined exciting conditions.