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Magnetic Properties of Zn Substituted Cobalt Ferrite

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Abstract: The magnetic and structural properties of Zn substituted cobalt ferrite prepaered by solid sate reaction were studied. All the compositions in the series $Co_{1-x}ZnxFe_2O_4$(CZF series)where*x*= 0.0, 0.1, 0.2, 0.3, 0.4, and 0.5 were synthesized by conventional solid state method. Structural analysis confirmed the formation of spinel phase with no secondary phases or impurities formed. A linear variation of lattice parameters indicated complete solid solution formation. The saturation magnetization increased from 78 emu/gm to a maximum value of 92 emu/gm for x = 0.2. The observed magnetic properties changes could be explained based on the cationic distribution of Zn ions in spinel lattice.

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