

P R E F A C E

During the last few years many new magnetic materials have been developed to meet the increasing demand with specific properties and applications. The mixed ferrites Mg-Mn and Mn-Zn, Ni-Zn are widely used in various devices. Out of these ferrite, Mg ferrite has higher resistivity than the other ferrites. Keeping this view in mind the effect of Mg substitution in Mn ferrite on electric and magnetic properties are presented in this dissertation.

The subject of this dissertation is divided into Five Chapters. Chapter-I deals with introduction and general aspects of ferrites, the historical development, theory of ferri-magnetism along with applications of ferrites the orientation of the problem is given at the end of this chapter.

Chapter-II deals with the methods of preparation in which special attention is given to the actual preparation of ferrite in laboratory by ceramic method. The crystal structure of ferrites is confirmed by XRD studies. In addition to this details of studies on infrared absorption is included in this chapter.

Magnetic properties are included in Chapter-III in which results on Magnetization, a.c. susceptibility, permeability, and Curie Temperature are presented with necessary theoretical background.

The results on d.c. electrical resistivity measurement, a.c. parameter e.g. dielectric constant (ϵ'), loss tangent ($\tan \delta$) and thermoelectric power are included in Chapter-IV. Overall summary and conclusions of the work is presented in the Fifth Chapter.

A list of references is given at the end of each Chapter. In case of few references, it was not possible to refer to the original papers.

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