

**\*\*\* P R E F A C E \*\*\***

During the last few years many new magnetic material have been developed. Now a days ferrites have assumed lot of importance in Scientific & technological fields because of their useful magnetic properties. The Ni-Zn ferrite systems are widely used in various applications. Keeping this view in mid the effect of substitution in Ni-Zn ferrite on magnetic properties are presented in this dissertation.

This dissertation is divided into five chapters Chapter-I deals with importance of ferrites, historical development, spinel structure review of work done on initial permeability, theories of  $\mu_i$  along with applications based on  $\mu_i$  the orientation of the problem is given at the end of this chapter.

Chapter - II deals with the method of preparation in which special attention is given to the actual method of preparation of ferrite in laboratory by oxlate method, and X-ray diffraction studies.

Chapter - III deals with magnetic properties in which results on  $n_s$ ,  $4\pi M_s$ ,  $R$ ,  $H_c$ , a.c.susceptibility & permeability are presented.

Chapter - IV deals with the microstructure studies of the samples. Over summary and conclusions of the work is presented in the fifth chapter.

A list of references is given at the end of each chapter.

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