

P R E F A C E

This dissertation comprises four chapters in which an attempt has been made to present the work carried out on the subject consistent with the development of the topic concerned. In chapter one, the Introduction to ferrites, crystal structure, hysteresis behaviour, domain structure, magnetic properties, Neel's theory of ferrimagnetism, Yafet-kittel theory, applications of ferrites, data on Cu, Zn and Li ferrites, orientation of the present problem are discussed.

Chapter two is divided into four parts part A deals with the preparation techniques, advantages of chemical method, oxalate coprecipitation technique employed in the preparation of $Zn_{0.5}Cu_{0.5-t}Li_{2t}Fe_2O_4$. Ferrites part B deals with X-ray diffraction of the samples, part C deals with density and porosity measurement, part D deals with microstructure studies.

Chapter three deals with the magnetic properties, In part A, A.C. Susceptibility studies are reported, part B, Magnetic hysteresis is discussed, in part C Initial permeability studies are undertaken. Variation of μ_1 , μ' and μ'' with temperature and frequencies are studied, Loss factor studies are undertaken.

The chapter four discusses Summary and conclusions of this work.

The theoretical as well as experimental results are illustrated with appropriate figures and tables. A list of references is given at the end of each chapter.

I am immensely indebted to my friends and colleagues Miss. U.B. Deshmukh, Shri. C.J. Kadam, Shri. K.M. Garadkar, Shri. N.D. Choudhari.


I am impelled to express my deepest appreciation and gratitude to my husband, Shiva, and my daughter Srishti and all my other family members for their patience, understanding and forbearance without which I would never have succeeded in this phase of my work. I also thank Pawar Madam and Cole Sir for their cooperation.

I also sincerely thank U.G.C., New Delhi for providing necessary grants and leave for my Research work.

Finally I express my sincere gratitude to Shri. Gujar D.T. for the typing work done in an elegant way.

Place : Solapur.

Date : 29-06-98


(S.M. Kabbur)