

PREFACE

During the last ten to twenty years a large number of new developments have been added to the field of magnetic materials. The 'soft ferrites' have been considered to acquire a prime importance among them which has been considered as a very useful and important technological material. The present dissertation reveals the results of some of the experimental investigations that have been carried out by the author on the mixed Cd-Mg ferrite system at the University Department of Physics, Shivaji University, Kolhapur.

This dissertation comprises five chapters. The first chapter is of an introductory nature consisting of the historical background of ferrites together with the theories pertaining to them. Orientation of the present work is also included at the end of the chapter. The second chapter deals with preparation and crystal structure characterization of ferrites. The third chapter deals with d.c. electrical measurements and study of electrical switching characteristics of the present slow cooled $\text{Cd}_x\text{Mg}_{1-x}\text{Fe}_2\text{O}_4$ ferrite system. Chapter four includes magnetic hysteresis and saturation magnetization studies. The fifth and the final chapter gives the summary and the conclusions drawn on the present work.

A theoretical background is given at the beginning of every chapter. Experimental results have been illustrated with appropriate figures wherever necessary. A list of references has been suffixed at the end of each chapter. However, in case of certain references, it was not possible to refer to the original work.