

P R E F A C E

Ferrites are iron oxide based ceramic magnetic materials that behave as a ferrimagnets. They have high resistivity of the order of 10^{11} ohm-cm and low eddy current losses. The ferrite materials are being increasingly harnessed for diverse applications in communication and industrial technologies. The ferrites now a days find applications even in areas like medicine and agriculture.

The subject matter of the present work is divided into five chapters.

Chapter I is introduction to ferrites. It deals with the historical developments, crystal structure, types of ferrites, electrical and magnetic properties. The applications of ferrites and orientation of the problem is given at the end of this chapter.

Chapter II is divided into three parts, synthesis of ferrites, characterization by X-ray diffraction and IR studies of ferrites.

Chapter III covers the studies on d.c. electrical resistivity. The necessary theoretical background and experimental details along with the explanation of conductivity in the present ferrites is given in this chapter.

Chapter IV is also divided into two parts, which deal with the studies on hysteresis behaviour and initial permeability respectively. The explanation of the result is given at the end.

Summary and Conclusions are enclosed in the fifth chapter. List of references is given at the end of each chapter.

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