

CONTENTS

CHAPTER No.	TITLE	PAGE No.
	Declaration	
	Certificate	
	Acknowledgement	
	Preface	
CHAPTER - I	AN INTRODUCTION TO FERRITE	1 - 15
1.1	Introduction	
1.2	Historical background	
1.3	Structure of spinel ferrites	
1.4	Magnetic properties of ferrites	
1.5	Theories of ferrimagnetism	
1.5.1	Neel's theory	
1.5.2	Yafet - Kittle theory	
1.5.3	Kaplan's spiral structure	
1.6	Electrical properties of ferrites	
1.7	Orientation of problem	
	REFERENCES	
CHAPTER - II	PREPARATION, CHARACTERISATION BY X - RAYS	16 - 42
2.0	Introduction	
	SECTION - A	
2.1	Preparation of ferrite	
2.1.1	Mixing of starting materials	
	(a) Oxide or ceramic method	
2.1.2	Calcination or Presintering	
2.1.3	Milling after calcination	
2.1.4	Sintering	
2.2	Hot pressing	
2.3	Actual preparation of ferrite samples	
	(1) Preparation of Mg -Zn ferrites	
	(2) Preparation of Mg-Cu ferrites	
	(3) Preparation of Cu-Zn ferrites	
	(4) Preparation of mixed ferrites	
2.3.1	Presintering	
2.3.2	Sintering	
	SECTION - B	
2.4	X-ray diffraction study	
2.4.1	Crystal distortion	
2.4.2	Condition for X-ray diffraction	
2.4.3	Experimental diffraction methods	
	(iii) Powder method	
	(iv) Diffractometer	
2.5	Experimental	
2.5.1	X-ray diffraction	

CHAPTER No.	TITLE	PAGE No.
2.6	Results and discussion	
2.6.1	X-ray diffraction	
2.6.2	Partical size determination	
	REFERENCES	
CHAPTER - III	MAGNETIC PROPERTIES	43-70
3.0	Introduction	
3.1	Magnetisation in ferrites	
3.2	Magnetic interactions in ferrites	
3.3	Hysteresis	
3.4	Susceptibility	
3.5	Curie temperature	
3.6	Magnetostriction	
3.7	Experimental	
3.7.1	Magnetisation Measurements	
3.7.1.1	Calibration and measurement of saturation magnetisation	
3.7.2	A.C. susceptibility	
3.8	Results and discussion	
3.8.1	Magnetisation and magnetic moment	
3.8.2	A.C. susceptibility with temperature	
	REFERENCES	
CHAPTER - IV	ELETRICAL PROPERTIES	71-102
4.0	D.C. electrical restivity and thermo electric power	
	Introduction	
4.1	Conduction mechanism in metal oxides	
4.2	Conduction in ferrites	
4.3	Electron hopping and polarons	
4.4	Thermoelectric power or Seebac coefficient	
4.5	Experimental	
4.5.1	D.C. Electrical resistivity	
4.5.2	Thermo electric power	
4.6	Results and discussion	
4.6.1	D.C. conductivity	
4.6.2	Thermo EMF	
	REFERENCES	
CHAPTER - V	SUMMARY AND CONCLUSIONS	103-107
	REFERENCES	