

CONTENTS

<u>Chapter</u>	<u>Title</u>	<u>Page</u>
I	INTRODUCTION	
1.1	Introduction	1
1.2	Crystal Structure of Ferrites	2
1.2.1	Normal Spinel Ferrites	4
1.2.2	Inverse Spinel Ferrites	4
1.2.3	Random Spinel Ferrites	4
1.3	Substitutional Ferrites	5
1.4	Magnetic Properties of Ferrites	5
1.4.1	Magnetisation in Ferrites	5
1.4.2	Structural Explanation of Ferrites	6
1.4.3	Neel's Theory of Ferrimagnetism	9
1.4.4	Yafet Kittle Model	13
1.5	D.C. Conductivity	15
1.6	Applications of Ferrites	16
1.7	Orientation of the Present Work	17
	R e f e r e n c e s	18
II	PREPARATION OF FERRITES AND X-RAY DIFFRACTION STUDIES	
	A. Method of Preparation	20
2.1	Introduction	20
2.2	Mechanism of Solid State Reaction	20

CONTENTS
conts.

<u>Chapter</u>	<u>Title</u>	<u>Page</u>
2.3	The General Formula	21
2.4	Raw Materials	21
2.5	Weighing	21
2.6	Pre-sintering	21
2.7	Grinding	21
2.8	Pellet Formation	22
2.9	Final Sintering	22
	B. X-Ray Diffraction Study	22
2.10	Introduction	22
2.11	Details of Diffractometer	22
2.12	Result and Discussion	24
2.13	Apparatus and Determination of Curie Temperature	28
	Notes and References	39
III	RESISTIVITY STUDIES	
3.1	Introduction	41
3.2	Survey of Conductivity Models	41
3.3	D.C. Conductivity Cell	43
3.4	D.C. Resistivity Measurement	44
3.5	Result and Discussion	44
	Notes and References	68

111
CONTENTS
contd.

<u>Chapter</u>	<u>Title</u>	<u>Page</u>
IV	MAGNETISATION STUDIES	
4.1	Introduction	71
4.2	Domains and Wall Formation	72
4.3	Irreversibility and Hysteresis	77
4.4	Losses	79
4.4.1	Hysteresis Losses	80
4.4.2	Eddy Current Loss	80
4.4.3	Spin Resonance Loss	81
4.4.4	Relaxation Loss	81
4.4.5	Wall Resonance Loss	82
4.5	Measurement Procedure	82
4.6	Result and Discussion	83
	Notes and References	94
	Summary and Conclusion	97
	Notes and References	101

△△△△△
△△△
△