

CONTENTS

Chapter 1

INTRODUCTION

1.1 Super ion conducting materials	6
1.2 The Glassy state	9
1.3 Chemical composition for ion conducting glasses	14
1.4 General theory of ion transport	15
1.5 Structural aspect of AgI	18
1.6 Models for Ion transport	19
1.7 Silver ion conducting glass	27
1.8 Application for Solid electrolyte	30
1.9 Present Investigation	32
References	35

Chapter 2

EXPERIMENTAL TECHNIQUE

2.1 Sample Preparation	42
2.2 Characterization studies	43
2.3 Transport number measurements	47
2.4 Thermoelectric power	48
2.5 Impedance measurements	49
2.6 Solid State Battery: Fabrication	51

Chapter 3

CHARACTERIZATION STUDIES ON CdI₂ DOPED Ag₂O-V₂O₅-B₂O₃ SYSTEM

3.1 X-ray Diffraction	52
3.2 Differential Scanning Calorimetry	58
3.3 Fourier Transform Infra - red Spectroscopy	68
3.4 Density measurements	81
3.5 Thermo electric Power	83
3.6 Ionic transport number	90

3.7	Pearson's theory of HSAB	95
3.8	Summary	96
	References	99

Chapter 4

IONIC CONDUCTIVITY AND RELAXATION STUDIES OF CdI₂ DOPED Ag₂O-V₂O₅- B₂O₃ SYSTEM

4.1	Introduction	101
4.2	Complex Impedance Analysis	105
4.3	Frequency dependent	124
4.4	Dielectric Analysis	143
4.5	Modulus Analysis	163
4.6	Summary	184
	References	186

Chapter 5

SOLID STATE BATTERIES

5.1	Introduction	191
5.2	Different types of Solid State Batteries	193
5.3	Fundamental material properties	197
5.4	Preparation of cell materials	198
5.5	Open circuit voltage	200
5.6	Polarization characteristics	203
5.7	Discharge characteristics	207
5.8	Summary	213
	References	214

Chapter 6

CONCLUSIONS	216
-------------	-----

LIST OF PUBLICATIONS	221
----------------------	-----