

CONTENTS

Page
Nos.

Preface

pr.i

Acknowledgements

ack.i

CHAPTER

1	GEL - A MEDIUM FOR CRYSTAL GROWTH	01
2	GROWTH AND DISSOLUTION OF CRYSTALS	33
3	EXISTING INFORMATION ON RUBIDIUM HYDROGEN TARTRATE CRYSTALS	59
4	EXPERIMENTAL TECHNIQUES	69
5	GROWTH OF RHT SINGLE CRYSTALS IN SILICA HYDROGEL	93
6	NUCLEATION CONTROL AND GROWTH KINETICS	106
7	CRYSTAL HABIT AND MORPHOLOGY	129
8	CHARACTERIZATION OF THE GROWN CRYSTALS	141
9	ELECTRICAL CONDUCTIVITY MEASUREMENTS	165
10	DIELECTRIC PROPERTIES	178
11	MECHANICAL PROPERTIES : HARDNESS AND COMPRESSION TESTING	191

12	DETECTION OF LATTICE DEFECTS BY USING ETCHING TECHNIQUE	213
13	MICROSTRUCTURES AND KINETICS OF ETCHING	226
14	REVIEW OF THE PRESENT WORK AND SCOPE FOR FUTURE WORK	237
	LIST OF PUBLICATIONS	LP.1

CHAPTER 1

GEL - A MEDIUM FOR CRYSTAL GROWTH

	CONTENTS	PAGES
1.1	Introduction	01
1.2	Historical	03
1.3	Gels : Nature, Preparation and Properties	03
1.4	Gelling Mechanism and Structure of Silica Hydrogel	06
1.5	Crystal Growth Methods	09
1.5.1	Reaction Method	10
1.5.2	Complex Decomplex Method	11
1.5.3	Chemical Reduction Method	12
1.5.4	Solubility Reduction Method	13
1.6	Studies on Gel Grown Crystals	13
1.7	Nucleation and Growth Mechanism	15
1.8	Advantages of the Gel Technique	19
	References	23
	Captions of the figures	32