

**CATIONIC POLYMERIZATION
IN AQUEOUS MEDIA
WITH WATER-TOLERANT LEWIS ACIDS**

KOTARO SATOH

2000

CONTENTS

GENERAL INTRODUCTION	1
----------------------------	---

PART I. CATIONIC POLYMERIZATION IN HETEROGENEOUS AQUEOUS MEDIA: LANTHANIDE TRIFLATES CATALYSTS

CHAPTER 1 Living Polymerization in Organic Media with $\text{Yb}(\text{OSO}_2\text{CF}_3)_3$ as a Recoverable Lewis Acid	17
CHAPTER 2 Suspension Cationic Polymerization in Water Mediated by $\text{Yb}(\text{OTf})_3$	31
CHAPTER 3 Suspension Cationic Polymerization in Water with Sulfonic Acids as Water-Soluble Initiators	51
CHAPTER 4 Emulsion Cationic Polymerization in Water with R-Cl/Lanthanide Triflates Systems	63
CHAPTER 5 Metal Triflates and Tetrafluoroborates as Water-Tolerant Lewis Acids	83

PART II. CATIONIC POLYMERIZATION IN HOMOGENEOUS AQUEOUS MEDIA: ACTIVATION OF STABLE C-O BONDS INTO CARBOCATIONS

CHAPTER 6 Direct Living Cationic Polymerization of <i>p</i> -Hydroxystyrene in Aqueous Media	99
CHAPTER 7 Synthesis of Amphiphilic Copolymers without Functional Group Protection	117

CONTENTS

CHAPTER 8 Controlled Polymerization of Styrene
in the Presence of Excess Water 133

CHAPTER 9 Aromatic Acetals as New Initiators
for Vinyl Ether Polymerization 153

LIST OF PUBLICATIONS 173

ACKNOWLEDGMENT 175