POLYMER SCIENCE AND TECHNOLOGY
Volume 21

Modification of Polymers

POLYMER SCIENCE AND TECHNOLOGY

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POLYMER SCIENCE AND TECHNOLOGY
Volume 21

Modification of Polymers

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PREFACE

The sheer volume of topics which could have been included under our general title prompted us to make some rather arbitrary decisions about content. Modification by irradiation is not included because the activity in this area is being treated elsewhere. We have chosen to emphasize chemical routes to modification and have striven to present as balanced a representation of current activity as time and page count permit. Industrial applications, both real and potential, are included. Where appropriate, we have encouraged the contributors to include review material to help provide the reader with adequate context.

The initial chapter is a review from a historical perspective of polymer modification and contains an extensive bibliography. The remainder of the book is divided into four general areas:

- Reactions and Preparation of Copolymers
- Reactions and Preparation of Block and Graft Copolymers
- Modification Through Condensation Reactions
- Applications

The chemical modification of homopolymers such as polyvinylchloride, polyethylene, poly(chloroalkylene sulfides), polysulfones, poly(chloromethylstyrene), polyisobutylene, polysodium acrylate, polyvinyl alcohol, polyvinyl chloroformate, sulfonated polystyrene; block and graft copolymers such as poly(styrene-block-ethylene-co-butylene-block-styrene), poly(1,4-polybutadiene-block ethylene oxide), star chlorine-telechelic polyisobutylene, poly(isobutylene-co-2,3-dimethyl-1,3-butadiene), poly(styrene-co-N-butylmethacrylate); cellulose, dextran and inulin, is described.

A number of divergent applications are described here: modification of polymer surfaces (coatings, fibers, films and plastics); modifications leading to superior coating materials; isolation, concentration and containment of uranium; natural materials for insulation; synthesis of sugar substitutes; synthesis of anti-arrhythmic drugs; fibers which can be spun from chlorinated solvents yet dry cleaned; and synthesis of calcium ion selective electrode materials.

Polymer modification is a broad, rapidly expanding area of science and the enclosed chapters give glimpses of many of the more important areas. The contributors include a mix of eminent industrially and academically based scientists from any countries which give the book an international flavor.

We thank the authors for their valued contributions and Divisions of Organic Coatings and Plastics and Polymer Chemistry for their support. The cooperation of referees is also gratefully acknowledged.

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CONTENTS

REVIEW

Modification of Polymers	1
J. A. Moore and C. E. Carraher, Jr.	

REACTIONS AND PREPARATIONS OF COPOLYMERS

Polymer Modification via Repeating Unit Isomerization.	13
D. A. Tirrell, M. P. Zussman, J. S. Shih and J. F. Brandt	
Chemical Modification of Poly(styrenesulfone).	25
C. G. Willson, J. M. Fréchet and M. J. Farrall	
The Effect of Additives for Accelerating Radiation Grafting: The Use of the Technique for Modification of Polymers Especially Polyolefins	33
C. H. Ang, J. L. Garnett, R. G. Levot and M. A. Long	
The Halogenation of Poly[isobutylene-co-(2,3-dimethyl-1,3- butadiene)].	53
I. Kuntz and B. E. Hudson, Jr.	
Preparation and Properties of 2-Hydroxypropyl Methacrylate- Alkyl Acrylate Copolymer Net-works	65
G. N. Babu, A. Deshpande, P. K. Dhal and D. D. Deshpande	
Poly(enol-ketone) from the Oxidation of Poly(vinyl alcohol). .	75
S. J. Huang, I.-F. Wang, and E. Quinga	
Synthesis and Reaction of Poly(1,3-octadienyl Iron Tri- carbonyl).	85
T. W. Smith and D. J. Luca	

REACTIONS AND PREPARATION OF BLOCK AND GRAFT COPOLYMERS

Single and Compound Crosslinking of Polymer Systems.	97
L. H. Sperling and D. E. Zurawski	
Grafting on Polyvinylchloride in Suspension Using Phase Transfer Catalysts or Solvents	109
A. Nkansah and G. Levin	
Control of Polymer Surface Structure by Tailored Graft Copolymers	131
Y. Yamashita and Y. Tsukahara	
Preparations of Block Copolymers by Chemical Reactions on Lamellae of Partially Crystalline Flexible Poly- mers	141
A. E. Woodward	
Graft Copolymerization of Maleic Anhydride onto Polyethylene	171
N. G. Gaylord, M. Mehta and V. Kumar	
Masterbatched Polyethylene-Clay Composites Prepared Through <u>In Situ</u> Graft Copolymerization of Maleic Anhydride	183
N. G. Gaylord and A. Takahashi	

MODIFICATION THROUGH CONDENSATION REACTIONS

Reaction Variables in the Aqueous Solution Coordination of the Uranyl Ion with Polyacrylic Acid and Poly- sodium Acrylate.	191
C. E. Carraher, Jr., S. Tsuji, W. A. Feld and J. E. Dinunzio	
Coordination of the Uranyl Ion Through Reaction with Aqueous Solutions Containing Polyacrylic Acid and Polysodium Acrylate-Structural Considerations	207
C. E. Carraher, Jr., S. Tsuji, W. A. Feld and J. E. DiNunzio	
Homogenous Chemical Modification of Cellulose: Further Studies on the DMSO-PF Solvent System.	221
J. F. Kinstle and N. M. Irving	
Chemical Modification of Polysaccharides - Modification of Dextran Through Interfacial Condensation with Organostannane Halides	229
C. E. Carraher, Jr. and T. J. Gehrke	

CONTENTS

ix

Stable Polymer Eerified Sugar.	247
A. M. Usmani and I. O. Salyer	
A New Polyblend: Polyesterimide Phenol-Formaldehyde Resin.	257
S. Maitin and S. Das	
Chemical Modification of Poly(vinyl Chloroformate)	293
G. Meunier, S. Boivin, P. Hémery, J-P. Senet and S. Boileau	
Modified Polysaccharides with Potential Anti-Arrhythmic Activity	305
E. Schacht, L. Ruys, J. Vermeersch and E. Goethals	
Variation on the Properties of Aromatic Polyesters by Changes in Isomer Distribution and Ring Substitution	321
R. W. Stackman and A. G. Williams	
Calcium Ion-Selective Electrodes with Covalently-Bound Organophosphate Sensor Groups.	341
G. C. Corfield, L. Ebdon and A. T. Ellis	
Dyed Sulfonated Polystyrene Films: Relationship of Triboelectric Charging and Molecular Orbital Energy Levels.	353
H. W. Gibson	
Organotin Polyimides: Structure-Property Relationships	373
G. N. Babu, C. P. Pathak and S. Samant	
The Microstructure of Cyclized Polyisoprene.	383
D. B. Patterson, D. H. Beebe and J. Lal	
Contributors	411
Index.	415