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Rasel Das  
Editor

# Polymeric Materials for Clean Water

 Springer

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# Preface

The main purpose of this book entitled, *Polymeric Materials for Clean Water*, is to compile different approaches, which are used for water treatment and purification. Most of the polymer researchers have found difficulties to search for information in the ever-expanding polymer literatures published on the topic of uses of polymer for a range of water purification technologies especially coagulation and flocculation, adsorption, catalysis, disinfection, and filtration. Since scientists have experienced to locate a range of polymers used either as polymers themselves or often in the form of composites that is buried in a long journal article, the contributors to this book have compiled most of the important information based on searching the literature that polymer chemists, polymer physicists, polymer engineers, material scientists, nanotechnologist, water specialists, and environmental technologists are likely to need. Chapter 1 introduces basic chemistry of polymers and summarizes the following chapters of this book. For example, Chap. 2 describes the general methods of polymer synthesis, and the advantages, possibilities, and drawbacks of each method are discussed. Most of the modern methods of controlled polymer synthesis leading to well-defined polymers with desired structure, composition, and properties are nicely illustrated. Chapter 3 contains prominent polymer characterization techniques and the physicochemical properties of polymers. Albeit this book emphasizes on water purification methods mediated by polymers, we have added these in Chaps. 2 and 3 as they are important to understand by polymer research community. Chapter 4 brings a range of polymers necessary to improve the operational efficiency of coagulation and flocculation. Chapter 5 has focused on polymer and polymer-based nanocomposite for adsorption of water pollutants. Most of the polymer-based water purification catalysts are discussed in Chap. 6. An extensive look has been taken to discuss most of the antimicrobial polymers used for water disinfection in Chap. 7. Chapter 8 contains useful information of the uses of polymeric materials for membrane development, necessarily applied in water filtration. I am grateful if our contributors and readers send me any new information

they accumulate in the course of their research, and any errors, misprints, omissions, and other flaws which are required for future editions of this book. I would like to thank all of the contributors to this book for their help and continued patience. The staffs at Springer have provided excellent help and support in getting all the work done, and I am grateful to them. I hope that the outstanding efforts of all these people will find due appreciation among the users of this book.

Leipzig, Germany

Rasel Das

# Contents

<b>1 Introduction</b> .....	1
Rasel Das	
<b>2 Mechanisms of Polymer Polymerization</b> .....	7
Dmitry F. Grishin and Ivan D. Grishin	
<b>3 Polymer's Characterization and Properties</b> .....	59
Olumide Bolarinwa Ayodele and Peter Adeniyi Alaba	
<b>4 Polymers for Coagulation and Flocculation in Water Treatment</b> .....	77
Oladoja Nurudeen Abiola	
<b>5 Polymer and Polymer-Based Nanocomposite Adsorbents for Water Treatment</b> .....	93
Bingcai Pan, Xiaolin Zhang, Zhao Jiang, Zhixian Li, Quanxing Zhang and Jinlong Chen	
<b>6 Polymer-Based Catalysts for Water Purification: Fundamentals to Applications</b> .....	121
S. K. Shukla	
<b>7 Polymers as Water Disinfectants</b> .....	149
Chin Wei Lai, Kian Mun Lee, Bey Fen Leo, Christelle Pau Ping Wong and Soon Weng Chong	
<b>8 Polymers for Membrane Filtration in Water Purification</b> .....	167
Adewale Giwa, Menatalla Ahmed and Shadi Wajih Hasan	