
Contents

Contributors ix

About the Author..... xv

Chapter 1 Specialty Polymers: An Introduction 1

Yash N. Desai, Magdalene A. Asare, Felipe M. de Souza, and Ram K. Gupta

Chapter 2 Materials and Chemistries of Polymers..... 15

Mansi Sharma, Pragati Chauhan, Rekha Sharma, and Dinesh Kumar

Chapter 3 Natural Resources for Polyurethanes Industries 29

Magdalene A. Asare, Felipe M. de Souza, and Ram K. Gupta

Chapter 4 Recent Advances in Edible Polymers..... 47

Jiao Xie and Jingjing Kang

Chapter 5 Chicken Fat: A Promising and Sustainable Raw Material for Polyurethane Industries 63

A.A.P.R. Perera, K.A.U. Madhushani, Felipe M. de Souza, Tim Dawsey, and Ram K. Gupta

Chapter 6 Self-Healing Polymers 81

Giulio Malucelli

Chapter 7 Emerging Applications of Photocurable Polymers 97

Zehra Yildiz and Emine D. Kocak

Chapter 8 Hyperbranched Polymers and Their Emerging Applications 113

Saeed Bastani, Morteza Ganjaee Sari, and Samane Jafarifard

Chapter 9 Advanced Polymers for Defense Applications..... 129

Nektarios K. Nasikas and Dionysios E. Mouzakis

Chapter 10 Polymers for Additive Manufacturing 143

Rossella Arrigo and Giulio Malucelli

Chapter 11	Emerging Applications of Polymers for Automobile Industries	157
	<i>Çiğdem Gül and Emine Dilara Kocak</i>	
Chapter 12	Polymeric Nanocomposites for Toxic Waste Removal	169
	<i>Pragati Chauhan, Mansi Sharma, Rekha Sharma, and Dinesh Kumar</i>	
Chapter 13	Polymeric Adsorbents for Toxic Waste Removal	185
	<i>Md. Sadiqul Islam Sheikh, Md. Mahinur Islam, Md. Saddam Hossain, and Md. Mominul Islam</i>	
Chapter 14	Smart Polymers for Food and Water Quality Control and Safety	203
	<i>Saúl Vallejos, Miriam Trigo-López, Ana Arnaiz, Álvaro Miguel, and José M. García</i>	
Chapter 15	Polymers and Their Nanocomposites for Corrosion Protection.....	217
	<i>Vishwa Suthar, Felipe M. de Souza, Magdalene A. Asare, and Ram K. Gupta</i>	
Chapter 16	Polymers for Smart Coatings	233
	<i>Alireza Fatahi, Abbas Mohammadi, and Mohamad Reza Sarfjoo</i>	
Chapter 17	Polymers for Smart Sensors	247
	<i>Matineh Ghomi, Mahtab Yadolahi, Farnaz Dabbagh Moghaddam, and Ehsan Nazarzadeh Zare</i>	
Chapter 18	Polymers for the Textile Industry	265
	<i>Emine D. Kocak and Zehra Yildiz</i>	
Chapter 19	Polymers for Adhesives and Sealants.....	279
	<i>S.T. Mhaske, Karan W. Chugh, Umesh R. Mahajan, and Jyotidarsan Mohanty</i>	
Chapter 20	Polymers for Foams and Their Emerging Applications	295
	<i>Adrija Ghosh, Jonathan Tersur Orasugh, Dipankar Chattopadhyay, and Suprakash Sinha Ray</i>	
Chapter 21	Polymers for High-Performance Flame-Retardant Materials	311
	<i>Styliani Papatzani, Dionysios E. Mouzakis, and Panagiota Koralli</i>	

Chapter 22 Emerging Applications of Polymers in Biomedical and Pharmaceutical Fields.....327
Melbha Starlin Chellathurai, Syed Mahmood, Zarif Mohamed Sofian, and Najihah Binti Mohd Hashim

Chapter 23 Specialty Polymers for Biomedical Applications.....345
Buwanila T. Punchihewa, A.A.P.R. Perera, Felipe M. de Souza, and Ram K. Gupta

Chapter 24 Advanced Polymers for Biomedical Applications371
Sinem Özlem Enginler, Nazlı Albayrak, and Selcan Karakuş

Chapter 25 Recent Advancements in Polymers for Biomedical Applications383
Mattia Bartoli and Alberto Tagliaferro

Chapter 26 Advanced Polymers for Craniomaxillofacial Reconstruction.....397
Dinesh Rokaya, Ashutosh K. Singh, Sasiwimol Sanohkan, and Suresh Nayar

Chapter 27 Emerging Applications of Polymers for Supercapacitors411
Larissa Bach-Toledo, Bruna M. Hryniewicz, Gabriela De Alvarenga, Tatiana L. Valerio, Rafael J. Silva, Jean Gustavo de A. Ruthes, Andrei Deller, Vanessa Klobukoski, Franciele Wolfart, and Marcio Vidotti

Chapter 28 A Facile Approach to Recycling Used Facemasks for High-Performance Energy-Storage Devices427
Anjali Gupta, Cassia A. Allison, Mahesh Chaudhari, Priyesh Zalavadiya, Felipe M. de Souza, Ram K. Gupta, and Tim Dawsey

Chapter 29 Polymers in Display Devices445
Neena George, Ajalesh B. Nair, Simi Pushpan K., and Rani Joseph

Chapter 30 Smart Polymers in Flexible Devices459
Khairunnisa Amreen and Sanket Goel

Index.....473