## Contents

1. **Hydrophilic Matrix Dosage Forms: Definitions, General Attributes, and the Evolution of Clinical Utilization**
   Peter Timmins, Samuel R. Pygall, and Colin D. Melia
   1

   James L. Ford
   17

3. **An Industrial Perspective on Hydrophilic Matrix Tablets Based on Hydroxypropyl Methylcellulose (Hypromellose)**
   Marina Levina and Ali R. Rajabi-Siahboomi
   53

4. **Natural Polysaccharides in Hydrophilic Matrices**
   Colin D. Melia and Peter Timmins
   87

5. **Applications of Polyethylene Oxide (POLYOX) in Hydrophilic Matrices**
   Lawrence M. Martin and Ali R. Rajabi-Siahboomi
   123

6. **A Formulation Development Perspective on Critical Interactions Affecting the Performance of Hydrophilic Matrix Tablets**
   Samuel R. Pygall, Simon R. Banks, Laura M. Mason, and Gurjit S. Bajwa
   143

7. **In Vitro Physical and Imaging Techniques to Evaluate Drug Release Mechanisms from Hydrophilic Matrix Tablets**
   Jonathan Brown, Sarah L. Hanley, Samuel R. Pygall, Paolo Avalle, Hywel D. Williams, and Colin D. Melia
   165

8. **Physiologically Based Pharmacokinetic Modeling in the Development and Evaluation of Hydrophilic Matrix Tablets**
   John R. Crison
   191
9 Approaches to Rapid In Vivo Optimization of Hydrophilic Matrix Tablets ............................................................... 205
John McDermott, Peter Scholes, Wu Lin, and Alyson Connor

10 Extrusion: An Enabling Technology for Controlled-Release Hydrophilic Matrix Systems ................................................. 233
Divya Tewari and Thomas Dürig

11 Microenvironmental pH Control and Mixed Polymer Approaches to Optimise Drug Delivery with Hydrophilic Matrix Tablets .......................................................................................................................... 257
Peter Timmins and Samuel R. Pygall

12 Evolving Biopharmaceutics Perspectives for Hydrophilic Matrix Tablets: Dosage Form–Food Interactions and Dosage Form Gastrointestinal Tract Interactions .......................... 281
Fiona MacDougall, Lee Ann Hodges, and Howard N.E. Stevens

Index ........................................................................................................................................................................ 323
Hydrophilic Matrix Tablets for Oral Controlled Release
Timmins, P.; Pygall, S.R.; Melia, C.D. (Eds.)
2014, IX, 326 p. 102 illus., 37 illus. in color., Hardcover
ISBN: 978-1-4939-1518-7