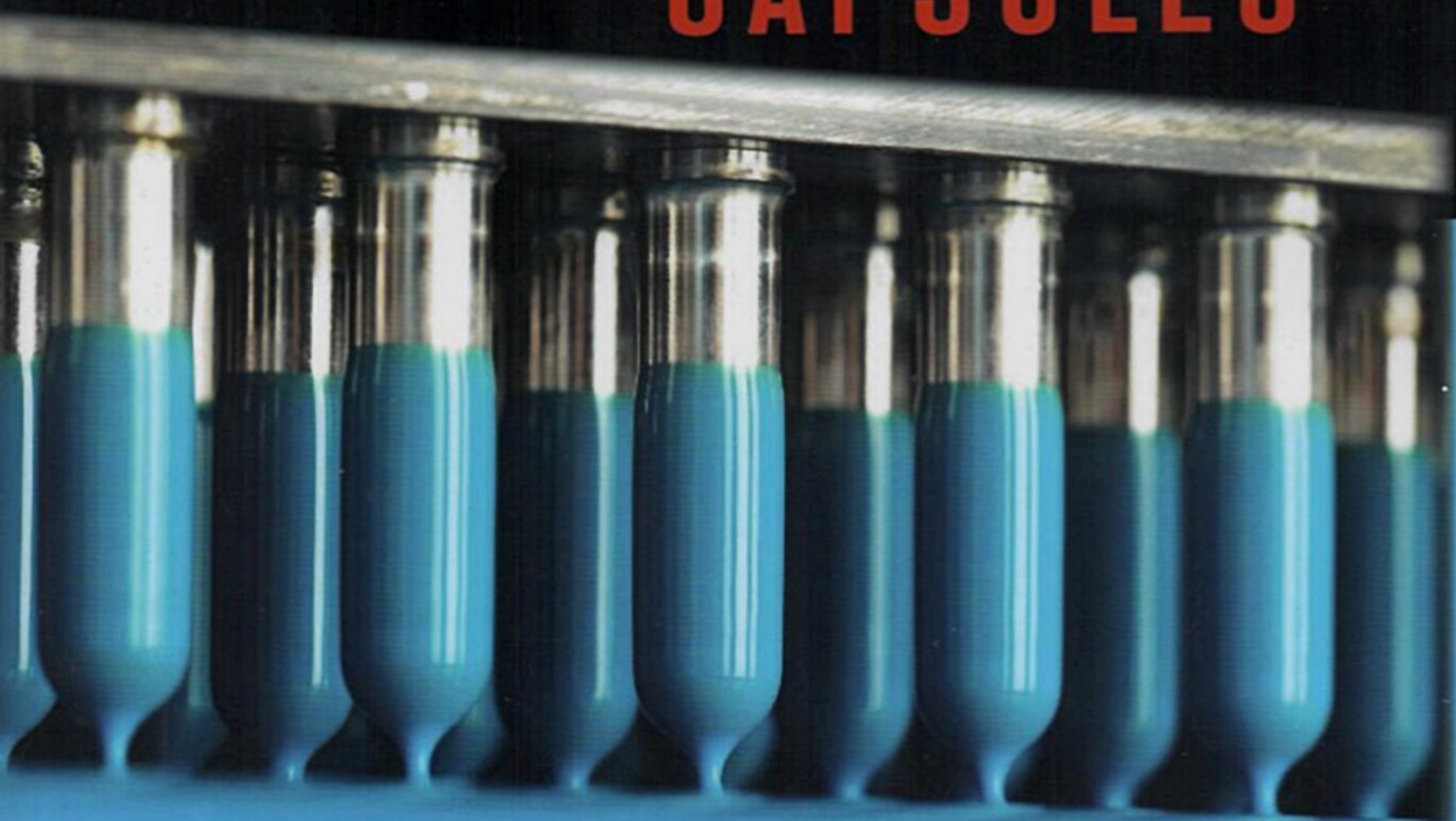


PHARMACEUTICAL DOSAGE FORMS CAPSULES



EDITED BY

LARRY L. AUGSBURGER
AND STEPHEN W. HOAG

 CRC Press
Taylor & Francis Group

Contents

| | |
|--|------|
| Preface..... | ix |
| Editors..... | xi |
| Contributors | xiii |
| Chapter 1 Advances in Capsule Formulation Development and Technology..... | 1 |
| <i>Larry L. Augsburger and Stephen W. Hoag</i> | |
| Chapter 2 An Introduction to Two-Piece Hard Capsules and Their Marketing Benefits | 15 |
| <i>Dennis Murachanian</i> | |
| Chapter 3 Hard Shell Capsules in Clinical Trials..... | 31 |
| <i>Moji Christianah Adeyeye and Amusa Adebayo</i> | |
| Chapter 4 Capsule Shell Manufacture | 75 |
| <i>Brian E. Jones, Fridrun Podczeck, and Paul Lukas</i> | |
| Chapter 5 Non-Gelatin-Based Capsules | 111 |
| <i>Sven Stegemann</i> | |
| Chapter 6 Hard Shell Capsule Filling Machines | 131 |
| <i>Donald K. Lightfoot</i> | |
| Chapter 7 Instrumented Automatic Capsule Filling Machines and Filling Machine Simulation | 191 |
| <i>Larry L. Augsburger and Vikas Moolchandani</i> | |
| Chapter 8 Dry-Fill Formulation and Filling Technology | 211 |
| <i>Pavan Heda, Vikas Agarwal, and Shailesh K. Singh</i> | |
| Chapter 9 Plug Formation..... | 237 |
| <i>Fridrun Podczeck</i> | |
| Chapter 10 Modeling Powder Filling during Encapsulation | 283 |
| <i>Ammar Khawam</i> | |
| Chapter 11 Scale-Up and Transfer of Hard Shell Formulations across Machine Types | 307 |
| <i>Larry L. Augsburger and Michael Levin</i> | |

| | | |
|--------------------|---|-----|
| Chapter 12 | Modified-Release Delivery Systems: Extended-Release Capsule Platform..... | 317 |
| | <i>Reza Fassihi</i> | |
| Chapter 13 | Analytical Testing and Evaluation of Capsules..... | 345 |
| | <i>Stuart L. Cantor and Asish K. Dutta</i> | |
| Chapter 14 | Rheological Aspects of Capsule Shell Excipients and the Manufacture of Encapsulated Formulations..... | 373 |
| | <i>Lawrence H. Block</i> | |
| Chapter 15 | Quality-by-Design (QbD) for Capsule Formulation and Process Development: Regulatory Science Relevance, Scientific Case Studies, and Future Challenges..... | 393 |
| | <i>Huiquan Wu, Lin Xie, Stephen W. Hoag, Larry L. Augsburger, and Mansoor Khan</i> | |
| Index | | 415 |