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References -- 7.1. Background ; 7.2. Continuous upstream processing ; 7.3. Continuous downstream processing ; 7.4. Process integration and single use technology ; 7.5. Process monitoring and control ; 7.6. Process economics of continuous manufacturing ; 7.7. Conclusions ; 7.8. Acknowledgements ; 7.9. References -- 8.1 Introduction ; 8.2 Continuous wet-granulation using TSG ; 8.3 Components of high shear wet granulation in TSG ; 8.4 Material transport and mixing in a TSG ; 8.5 Granule size evolution during twin-screw granulation ; 8.6 Model-based analysis of twin-screw granulation ; 8.7 Towards generic twin-screw granulation knowledge ; 8.8 Strengths and limitations of TSG studies -- 9.1 Roller compaction ; 9.2 Main components of a roller compactor ; 9.3 Theory of powder densification in roller compaction ; 9.4 Experimental observations of pressure distribution from instrumented roller compactors ; 9.5 Off-line characterization of ribbon quality ; 9.6 In-line monitoring of roller compaction process ; 9.7 Formulative aspects of roller compaction ; 9.8 Roller compaction as a unit operation in continuous manufacturing ; 9.9 Process control of continuous roller compaction ; 9.10 Conclusions ; 9.11 References -- 10.1 Introduction ; 10.2 The Extruder ; 10.3 Feeding ; 10.4 Twin-screw extrusion ; 10.5 Operation Point ; 10.6 Downstream Processing ; 10.7 Continuous manufacturing with hot melt extrusion ; 10.8 Process Analytical Technology for hot melt extrusion ; 10.9 Process Integration into Computerized Systems ; 10.10 Conclusion ; 10.11 References -- 11.1 Industry Drivers for Continuous Processing: Competitive Advantages ; 11.2 Continuous Manufacturing in Bioprocessing ; 11.3 Continuous Manufacturing for Oral Solid Dosage Forms ; 11.4 The Pharmaceutical Supply Chain of the Future ; 11.5 Discussion ; 11.6 Conclusion -- 12.1 Introduction ; 12.2 Rough conceptual design ; 12.3 Material property screening ; 12.4 Characterizing Unit Operation using Actual Process Materials ; 12.5 Develop and Calibrate Unit Operation Models Including Process Materials ; 12.6 Develop an Integrated Model of an Open Loop System ; 12.7 Examine Open Loop Performance of the Process ; 12.8 Develop/fine tune PAT methods for appropriate unit ops ; 12.9 Implement open loop kit with PAT and IPCs enabled ; 12.10 Design of the control architecture ; 12.11 Develop integrated model of closed loop system ; 12.12 Implementation and Verification of the Control Framework ; 12.13 Characterize and verify closed performance ; 12.14 Conclusions -- 13.1 Introduction ; 13.2 Process Description ; 13.3 System Dynamics ; 13.4 Process Monitoring and Control ; 13.5 Outlook: opportunities for novel unit operations and system configurations ; 13.6 Summary and closing thoughts ; 13.7 References -- 14.1 Introduction ; 14.2 Technical-economic evaluation methodology ; 14.3 Conclusion -- 15.1 Introduction ; 15.2 Personalized Medicine ; 15.3 Flexible Dosing with Innovative Products ; 15.4 Future Health Care Scenario ; 15.5 References -- 16.1 Introduction ; 16.2 Inkjet (microdrop generation techniques) ; 16.3 Flexographic printing ; 16.4 Formulation approaches for inkjet and flexography 16.5 Process Control and Process Analytical Technology for continuous printing applications ; 16.6 From the lab-scale printing towards an industrial scale ; 16.7 3D printing/Additive manufacturing 16.8 References -- 17.1 Introduction ; 17.2 Background ; 17.3 Goals for the LDT program ; 17.4 Overview of liquid dispensing technology ; 17.5 LDT machine design details ; 17.6 Scale-Independence of the LDT Technology ; 17.7 Real-Time Release Potential 17.8 Occupational Health, Environmental and Cleaning Considerations ; 17.9 Conclusion 17.10 Acknowledgements.

continuous manufacturing of pharmaceuticals As rising costs outpace new drug development, the pharmaceutical industry has come under intense pressure to improve the efficiency of its manufacturing processes. Continuous process manufacturing provides a proven solution. Among its many benefits are: minimized waste, energy consumption, and raw material use; the accelerated introduction of new drugs; the use of smaller production facilities with lower building and capital costs; the ability to monitor drug quality on a continuous basis; and enhanced process reliability and flexibility. Continuous Manufacturing of Pharmaceuticals prepares professionals to take advantage of that exciting new approach to improving drug manufacturing efficiency. This book covers key aspects of the continuous manufacturing of pharmaceuticals. The first part provides an overview of key chemical engineering principles and the current regulatory environment. The second covers existing technologies for manufacturing both small-molecule-based products and protein/peptide products. The following section is devoted to process analytical tools for continuously operating manufacturing environments. The final two sections treat the integration of several individual parts of processing into fully operating continuous process systems and summarize state-of-art approaches for innovative new manufacturing principles. Brings together the essential know-how for anyone working in drug manufacturing, as well as chemical, food, and pharmaceutical scientists working on continuous processing Covers chemical engineering principles, regulatory aspects, primary and secondary manufacturing, process analytical technology and quality-by-design Contains contributions from researchers in leading pharmaceutical companies, the FDA, and academic institutions Offers an extremely well-informed look at the most promising future approaches to continuous manufacturing of innovative pharmaceutical products Timely, comprehensive, and authoritative, Continuous Manufacturing of Pharmaceuticals is an important professional resource for researchers in industry and academe working in the fields of pharmaceuticals development and manufacturing"--

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