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Micromixers; 3.4.4 Hydrodynamic Dispersion; 3.5 Chemical Kinetics
3.5.1 Numerical Methods for Reacting Flows3.5.2 Reacting Channel Flows; 3.5.3 Heat-exchanger Reactors; 3.6 Conclusions and Outlook; 4 Modeling and Simulation of Unsteady-state-operated Trickle-flow Reactors; 4.1 Introduction; 4.2 Modeling; 4.3 Reactor Model; 4.4 Simulation; 4.5 Conclusion; 5 Packed-bed Membrane Reactors; 5.1 Introduction; 5.1.1 The PBMR Principle; 5.1.2 Case Study; 5.1.3 Porous Membranes; 5.1.4 Outline; 5.2 One-dimensional Modeling of Packed-bed Membrane Reactors; 5.2.1 One-dimensional Pseudohomogeneous Model
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6 The Focused Action of Surface Tension versus the Brute Force of Turbulence - Scaleable Microchannel-based Process Intensification using Monoliths

Sommario/riassunto

Combining the knowledge involved in process engineering and process modeling, this is the first book to cover all modeling methods applicable to process intensification. Both the editors and authors are renowned experts from industry and academia in the various fields of process modeling and integrated chemical processes. Following an introduction to the topic, the book goes on to look at equipment and operational methods, monolithic catalysis, HEX, micro- and reverse flow reactors, catalytic and reactive distillation, the simulated-moving bed and vibration bubble column as well as ultraso