



Chemical Reactor Design, Optimization, and Scaleup

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Wiley-AIChE, 2008. Book Condition: New. Brand New, Unread Copy in Perfect Condition. A+ Customer Service! Summary: Preface to the Second Edition. Symbols. 1 Elementary Reactions in Ideal Reactors. 1.1 Material Balances. 1.2 Elementary Reactions. 1.3 Reaction Order and Mechanism. 1.4 Ideal, Isothermal Reactors. 1.5 Mixing Times and Scaleup. 1.6 Dimensionless Variables and Numbers. 1.7 Batch Versus Flow and Tank Versus Tube. 2 Multiple Reactions in Batch Reactors. 2.1 Multiple and Nonelementary Reactions. 2.2 Component Reaction Rates for Multiple Reactions. 2.3 Multiple Reactions in Batch Reactors. 2.4 Numerical Solutions to Sets of First-Order ODEs. 2.5 Analytically Tractable Examples. 2.6 Variable-Volume Batch Reactors. 2.7 Scaleup of Batch Reactions. 2.8 Stoichiometry and Reaction Coordinates. 3 Isothermal Piston Flow Reactors. 3.1 Piston Flow with Constant Mass Flow. 3.2 Scaleup Relationships for Tubular Reactors. 3.3 Scaleup Strategies for Tubular Reactors. 3.4 Scaling Down. 3.5 Transpired-Wall Reactors. 4 Stirred Tanks and Reactor Combinations. 4.1 Continuous Flow Stirred Tank Reactors. 4.2 Method of False Transients. 4.3 CSTRs with Variable Density. 4.4 Scaling Factors for Liquid Phase Stirred Tanks. 4.5 Combinations of Reactors. 4.6 Imperfect Mixing. 5 Thermal Effects and Energy Balances. 5.1 Temperature Dependence of Reaction Rates. 5.2 Energy Balance. 5.3 Scaleup of Nonisothermal Reactors. 6 Design and Optimization Studies. 6.1 Consecutive Reaction Sequence. 6.2 Competitive Reaction Sequence. 7 Fitting Rate Data and Using Thermodynamics. 7.1 Fitting Data to Models. 7.2 Thermodynamics of Chemical Reactions. 8 Real Tubular Reactors in Laminar Flow. 8.1 Flow in

Reviews

A top quality publication along with the font used was intriguing to read. I really could comprehend everything using this written e book. Its been designed in an remarkably straightforward way and it is only after i finished reading through this publication by which basically altered me, modify the way i believe.

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Very useful to all of group of people. I actually have read through and so i am certain that i will planning to study yet again once again down the road. I am just very easily can get a satisfaction of looking at a created book.

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