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Part II: Techniques for Retrofitting and Revamping
Chapter 4: Mathematical Modeling, Simulation and Optimization for Process Design; 4.1 Introduction; 4.2 Process Modeling and Model Solution; 4.3 Process Simulators and Aspen Custom Modeler; 4.4 Optimization Methods and Programs; 4.5 Interfacing a Process Simulator with Excel; 4.6 Application to Membrane Separation Process; 4.7 Conclusions; Acronyms; Appendix 4A: Implementation of Membrane Model in ACM; Appendix 4B: Interfacing of Aspen Plus v8.4 with Excel 2013; Appendix 4C: Interfacing of Aspen HYSYS v8.4 with Excel 2013; Exercises
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Chapter 5: Process Intensification in Process Retrofitting and Revamping; 5.1 Introduction; 5.2 Methods of Process Intensification; 5.3 Alternatives to Conventional Separators; 5.4 Alternatives to Stirred Tank Reactor (STR); 5.5 Process Integration; 5.6 Fundamental Issues of PI; 5.7 Future of PI; 5.8 Conclusions; Acknowledgement; Appendix 5A: Monographs, Reviews and Some Recent Papers; References; Chapter 6: Using Process Integration Technology to Retrofit Chemical Plants for Energy Conservation and Wastewater Minimization; 6.1 Introduction
6.2 Graphical Design Tools for Retrofitting Process for Energy Conservation by Designing Heat Exchange Networks
6.3 Graphical Design Tools for Retrofitting Processes for Wastewater Reduction by Designing Water Recycle Networks; 6.4 Conclusions; Appendix 6A: Illustrating the Water Recycle Network Design Guidelines; Exercises; References; Chapter 7: Heat Exchanger Network Retrofitting: Alternative Solutions via Multi-objective Optimization for Industrial Implementation; 7.1 Introduction; 7.2 Heat Exchanger Networks; 7.3 HEN Improvements
7.4 MOO Method, HEN Model and Exchanger Reassignment Strategy
