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Nota di contenuto	INTRODUCTION TO CHEMICAL ENGINEERING COMPUTING; Contents; Preface; How to use This Book in Teaching; What is New?; Acknowledgments; 1 Introduction; Organization; Algebraic Equations; Process Simulation; Differential Equations; Appendices; 2 Equations of State; Equations of State-Mathematical Formulation; Solving Equations of State Using Excel (Single Equation in One Unknown); Solution Using "Goal Seek"; Solution Using "Solver"; Example of a Chemical Engineering Problem Solved Using "Goal Seek"; Solving Equations of State Using MATLAB (Single Equation in One Unknown) Example of a Chemical Engineering Problem Solved Using MATLABAnother Example of a Chemical Engineering Problem Solved Using MATLAB; Equations of State With Aspen Plus; Example Using Aspen Plus; Specific Volume of a Mixture; Chapter Summary; Problems; Numerical Problems; 3 Vapor-Liquid Equilibria; Flash and Phase Separation; Isothermal Flash-Development of Equations; Example Using Excel; Thermodynamic Parameters; Example Using MATLAB; Example Using Aspen Plus; Nonideal Liquids-Test of Thermodynamic Model; Nist Thermo Data Engine in Aspen Plus; Chapter Summary; Problems; Numerical Problems 4 Chemical Reaction EquilibriaChemical Equilibrium Expression; Example of Hydrogen for Fuel Cells; Solution Using Excel; Solution

Using MATLAB; Chemical Reaction Equilibria with Two or More Equations; Multiple Equations, Few Unknowns Using MATLAB; Chemical Reaction Equilibria Using Aspen Plus; Chapter Summary; Problems; Numerical Problems; 5 Mass Balances with Recycle Streams; Mathematical Formulation; Example Without Recycle; Example with Recycle; Comparison of Sequential and Simultaneous Solution Methods; Example of Process Simulation Using Excel for Simple Mass Balances
Example of Process Simulation Using Aspen Plus for Simple Mass Balances
Example of Process Simulation with Excel Including Chemical Reaction Equilibria; Did the Iterations Converge?; Extensions; Chapter Summary; Class Exercises; Class Discussion (After Viewing Problem 5.10 on the Book Website); Problems; 6 Thermodynamics and Simulation of Mass Transfer Equipment; Thermodynamics; Guidelines for Choosing; Properties Environment | Home | Methods Selection Assistant; Thermodynamic Models; Example: Multicomponent Distillation with Shortcut Methods
Multicomponent Distillation with Rigorous Plate-to-Plate Methods
Example: Packed Bed Absorption; Example: Gas Plant Product Separation; Example: Water Gas Shift Equilibrium Reactor with Sensitivity Block and Design Specification Block; Chapter Summary; Class Exercise; Problems (Using Aspen Plus); 7 Process Simulation; Model Library; Example: Ammonia Process; Development of the Model; Solution of the Model; Examination of Results; Testing the Thermodynamic Model; Utility Costs; Greenhouse Gas Emissions; Convergence Hints; Optimization; Integrated Gasification Combined Cycle
Cellulose to Ethanol

Sommario/riassunto

Step-by-step instructions enable chemical engineers to master key software programs and solve complex problems
