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Nota di contenuto	Front Cover; Introduction to Chemical Engineering Analysis Using Mathematica®; Copyright Page; Contents; Preface for an Instructor; Preface for the Student; Acknowledgment; Chapter 1 . A Primer of Mathematica; 1.1 Getting Started in Mathematica; 1.2 Basics of the Language; 1.3 Simple Commands; 1.4 Table, Plot, Map, and Plot3D; 1.5 Lists and ListPlot, Fit, and Show; 1.6 Solve and NSolve; 1.7 Differentiate and Integrate; 1.8 DSolve; 1.9 NDSolve; 1.10 Units Interconversion; 1.11 Summary; Chapter 2. Elementary-Single-Component Systems 2.1 The Conservation of Mass Principle and the Concept of a Control Volume2.2 Geometry and the Left-Hand Side of the Mass Balance Equation; 2.3 Summary; Chapter 3. The Draining Tank and Related Systems; 3.1 The Right-Hand Side of the Mass Balance Equation; 3.2 Mechanism of Water Flow from Tank-Torricelli's Law, A Constitutive Relationship; 3.3 Experiment and the Constitutive Equation; 3.4 Solving for Level as a Function of Time; 3.5 Mass Input, Output, and Control; 3.6 Control; 3.7 Summary; Chapter 4. Multiple-Component Systems; 4.1 The Concept of the Component Balance 4.2 Concentration versus Density4.3 The Well-Mixed System; 4.4 Multicomponent Systems; 4.5 Liquid and Soluble Solid; 4.6 Washing a

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0. Worked Problems; 10.1 The Level-Controlled Tank  
10.2 Batch Competitive Adsorption

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#### Sommario/riassunto

This book provides an introduction to chemical engineering analysis-which reviews the processes and designs used to manufacture, use, and dispose of chemical products-and to Mathematica, one of the most powerful mathematical software tools available for symbolic, numerical, and graphical computing. Analysis and computation are explained simultaneously. The book covers the core concepts of chemical engineering, ranging from the conservation of mass to chemical kinetics. At the same time the text shows how to use the latest version of Mathematica, from the basics of writing a few lines of code

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