1.	Record Nr. Autore Titolo	UNINA9910141281203321 Smith Cecil L Distillation control [[electronic resource]] : an engineering perspective /
	Pubbl/distr/stampa	/ Cecil L. Smith Hoboken, N.J., : John Wiley & Sons, c2012
	ISBN	1-5231-0986-6 1-118-25969-6 1-118-26005-8 1-280-59077-7 9786613620606 1-118-25968-8
	Descrizione fisica	1 online resource (xi, 332 p.) : ill
	Classificazione	TEC009010
	Disciplina	660/.28425
	Soggetti	Distillation
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Formerly CIP.
	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	Machine generated contents note: Chapter 1. Principles 1.1 Separation Processes 1.2 Total Material Balance 1.3 Reflux and Boilup Ratios 1.4 Total Material Balance Around Condenser 1.5 Total Material Balance Around Reboiler 1.6 Component Material Balances 1.7 Energy and the Separation Factor 1.8 Multicomponent Distillation 1.9 Stage-by-Stage Separation Model 1.10 Formulation of the Control Problem 1.11 Tower Internals 1.12 Flooding 1.13 Tray Hydraulics 1.14 Inverse Response in Bottoms Level 1.15 Composition Dynamics Chapter 2. Composition Control 2.1 Product Specifications 2.2 Columns in Series 2.3 Composition Analyzers 2.4 Temperature 2.5 Distillate Composition Control, Constant Boilup 2.6 Distillate Composition Control, Constant Bottoms Flow 2.7 Operating Lines 2.8 Temperature Profiles 2.9 Feed Composition Disturbances 2.10 Bottoms Composition Control 2.11 Propagation of Variance in Level Control Configurations 2.12 Level Control in Direct Material Balance Configurations Chapter 3. Pressure Control and Condensers 3.1 Pressure Control 3.2 Once-Through Heat Transfer Processes 3.3 Water-Cooled Condensers 3.4 Flooded Condensers 3.5 Air-Cooled Condensers 3.6 Partial Condensers 3.7

	Atmospheric Towers 3.8 Vacuum Towers 3.9 Floating Pressure / Pressure Minimization Chapter 4. Reboilers and Feed Preheaters 4.1 Types of Reboilers 4.2 Steam-Heated Reboilers 4.3 Hot Oil 4.4 Fired Heaters 4.5 Feed Preheater 4.6 Economizer Chapter 5. Applying Feedforward 5.1 Feed Flow and Composition 5.2 Internal Reflux Control 5.3 Extreme Feedforward 5.4 Feedforward for Bottoms Level 5.5 Feedforward for Column Pressure 5.6 Product Compositions Chapter 6. Unit Optimization 6.1 Energy and Separation 6.2 Optimization of a Column 6.3 Constraints in Distillation Columns 6.4 Control Configurations for Single Constraint 6.5 Control Configurations for Multiple Constraints Chapter 7. Double-End Composition Control 7.1 Defining the Problem. 7.2 Options for Composition Control 7.3 Relative Gain 7.4 Relative Gains from Open Loop Sensitivities 7.5 Relative Gains for Other Configurations 7.6 Ratios for Manipulated Variables 7.7 Effect of Operating Objectives 7.8 Model Predictive Control Chapter 8. Complex Towers 8.1 Heat Integration 8.2 Side Heater / Side Cooler 8.3 Sidestreams 8.4 Withdrawing a Liquid Sidestream 8.5 Withdrawing a vapor sidestream 8.6 Composition Control in Sidestream Towers.
Sommario/riassunto	"This book approaches the subject from a process engineering perspective, specifically, to use the steady-state simulation of the column as the primary source of the parameters required to develop, to analyze, and to troubleshoot a column control configuration. For an operating column, the first action must be to confirm that the separation currently provided by the column is consistent with design expectations (using control sophistication to solve process problems is a loser). The objective is to choose the control configuration that properly reflects the column design parameters (number of stages; feed stage location, etc), the materials being separated (relative volatility), the operating requirements for the column (reflux ratios, product purities, etc)"