

1.	Record Nr.	UNINA990000117340403321
	Titolo	Le GENIE rural : recueil spécial de machinerie agricole, construction rurales, irrigations et drainage / sous la direction de J. A. Granvoinnet
	Pubbl/distr/stampa	Paris : Librairie scientifique, industrielle et agricole, 1857-
	Descrizione fisica	v. ; 25 cm
	Disciplina	630
	Locazione	FINBC
	Collocazione	13 AR 28 C 14
	Lingua di pubblicazione	Italiano
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Première année, sept. livraison. 172 p., 50 tav. : ill.
2.	Record Nr.	UNINA9910146268603321
	Autore	Dimian Alexandre C.
	Titolo	Chemical process design : computer-aided case studies / / Alexandre C. Dimian and Costin Sorin Bildea
	Pubbl/distr/stampa	Weinheim, [Germany] : , : Wiley-VCH Verlag GmbH & Co. KGaA, , 2008 ©2008
	ISBN	1-282-78434-X 9786612784347 3-527-62158-X 3-527-62159-8
	Descrizione fisica	1 online resource (530 p.)
	Disciplina	660.28120285 660.2815
	Soggetti	Chemical processes - Design - Data processing Computer-aided design
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Includes index.

Chemical Process Design; Contents; Preface; 1 Integrated Process Design; 1.1 Motivation and Objectives; 1.1.1 Innovation Through a Systematic Approach; 1.1.2 Learning by Case Studies; 1.1.3 Design Project; 1.2 Sustainable Process Design; 1.2.1 Sustainable Development; 1.2.2 Concepts of Environmental Protection; 1.2.2.1 Production-Integrated Environmental Protection; 1.2.2.2 End-of-pipe Antipollution Measures; 1.2.3 Efficiency of Raw Materials; 1.2.4 Metrics for Sustainability; 1.3 Integrated Process Design; 1.3.1 Economic Incentives; 1.3.2 Process Synthesis and Process Integration 1.3.3 Systematic Methods 1.3.3.1 Hierarchical Approach; 1.3.3.2 Pinch-Point Analysis; 1.3.3.3 Residue Curve Maps; 1.3.3.4 Superstructure Optimization; 1.3.3.5 Controllability Analysis; 1.3.4 Life Cycle of a Design Project; 1.4 Summary; References; 2 Process Synthesis by Hierarchical Approach; 2.1 Hierarchical Approach of Process Design; 2.2 Basis of Design; 2.2.1 Economic Data; 2.2.2 Plant and Site Data; 2.2.3 Safety and Health Considerations; 2.2.4 Patents; 2.3 Chemistry and Thermodynamics; 2.3.1 Chemical-Reaction Network; 2.3.2 Chemical Equilibrium; 2.3.3 Reaction Engineering Data 2.3.4 Thermodynamic Analysis 2.4 Input/Output Analysis; 2.4.1 Input/Output Structure; 2.4.1.1 Number of Outlet Streams; 2.4.1.2 Design Variables; 2.4.2 Overall Material Balance; 2.4.3 Economic Potential; 2.5 Reactor/Separation/Recycle Structure; 2.5.1 Material-Balance Envelope; 2.5.1.1 Excess of Reactant; 2.5.2 Nonlinear Behavior of Recycle Systems; 2.5.2.1 Inventory of Reactants and Make-up Strategies; 2.5.2.2 Snowball Effects; 2.5.2.3 Multiple Steady States; 2.5.2.4 Minimum Reactor Volume; 2.5.2.5 Control of Selectivity; 2.5.3 Reactor Selection; 2.5.3.1 Reactors for Homogeneous Systems 2.5.3.2 Reactors for Heterogeneous Systems 2.5.4 Reactor-Design Issues; 2.5.4.1 Heat Effects; 2.5.4.2 Equilibrium Limitations; 2.5.4.3 Heat-Integrated Reactors; 2.5.4.4 Economic Aspects; 2.6 Separation System Design; 2.6.1 First Separation Step; 2.6.1.1 Gas/Liquid Systems; 2.6.1.2 Gas/Liquid/Solid Systems; 2.6.2 Superstructure of the Separation System; 2.7 Optimization of Material Balance; 2.8 Process Integration; 2.8.1 Pinch-Point Analysis; 2.8.1.1 The Overall Approach; 2.8.2 Optimal Use of Resources; 2.9 Integration of Design and Control; 2.10 Summary; References

3 Synthesis of Separation System 3.1 Methodology; 3.2 Vapor Recovery and Gas-Separation System; 3.2.1 Separation Methods; 3.2.2 Split Sequencing; 3.3 Liquid-Separation System; 3.3.1 Separation Methods; 3.3.2 Split Sequencing; 3.4 Separation of Zeotropic Mixtures by Distillation; 3.4.1 Alternative Separation Sequences; 3.4.2 Heuristics for Sequencing; 3.4.3 Complex Columns; 3.4.4 Sequence Optimization; 3.5 Enhanced Distillation; 3.5.1 Extractive Distillation; 3.5.2 Chemically Enhanced Distillation; 3.5.3 Pressure-Swing Distillation; 3.6 Hybrid Separations; 3.7 Azeotropic Distillation 3.7.1 Residue Curve Maps

This practical how-to-do book deals with the design of sustainable chemical processes by means of systematic methods aided by computer simulation. Ample case studies illustrate generic creative issues, as well as the efficient use of simulation techniques, with each one standing for an important issue taken from practice. The didactic approach guides readers from basic knowledge to mastering complex flow-sheets, starting with chemistry and thermodynamics, via process synthesis, efficient use of energy and waste minimization, right up to plant-wide control and process dynamics. The simul