

1. Record Nr.	UNINA9910457356903321
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Titolo	Membrane separations technology [[electronic resource]] : single-stage, multistage, and differential permeation // E.J. Hoffman
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Gulf Professional Pub., c2003
ISBN	1-281-01464-8 9786611014643 0-08-049654-7
Descrizione fisica	1 online resource (329 p.)
Disciplina	660/.28424
Soggetti	Membrane separation Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Copyright Page; Contents; Preface; Chapter 1. Introduction; 1.1 Membrane Materials; 1.2 Membrane Cells; 1.3 The Enhancement of Separation; 1.4 Subquality Natural Gas; 1.5 Representations and Calculations; 1.6 Permeation Units; Chapter 2. Membrane Permeation Relationships; 2.1 Permeation Rates; 2.2 Permeability Relationships and Units; Chapter 3. Single-Stage Membrane Separations; 3.1 Terms and Units; 3.2 Mole Fraction Relationships; 3.3 Multicomponent Separation Calculations; 3.4 Two-Component Calculations; 3.5 Effect of Recycle; 3.6 Alternate Representation and Calculation Chapter 4. Multistage Membrane Separations4.1 Multistage Distillation; 4.2 The Analogy; 4.3 Graphical Representation of Binary Membrane Calculations; 4.4 Rectifying Section; 4.5 Stripping Section; 4.6 Stripping Section vs. Rectifying Section; 4.7 Feed Location; 4.8 Separation Requirements; 4.9 Total Reflux; 4.10 Minimum Reflux; 4.11 Simplifications; 4.12 Conclusions; Chapter 5. Differential Permeation with Point Permeate Withdrawal; 5.1 Differential Permeation; 5.2 Overall Material Balances; 5.3 Differential Material Balances; 5.4 Bubble-Point Type Calculation; 5.5 Accumulation 5.6 Differential Rate Balances5.7 Equilibrium; Chapter 6. Differential Permeation with Permeate Flow; 6.1 Material and Rate Balances; 6.2 Component Relationships; 6.3 Recycle; 6.4 Limiting Conditions; 6.5

Equilibrium; Chapter 7. Countercurrent Flow with Recycle; 7.1 Constant Flow Rates; 7.2 Analogy with Wetted-Wall Distillation; 7.3 Integration of the Fundamental Rate Equations; Chapter 8. Membrane Reactors; Symbols; Appendices: Data and Spreadsheet Calculations; 1 Representative Membrane Permeabilities and Selectivities; 2 Membrane Permeation Relationships
3 Single-Stage Membrane Separations
4 Multistage Membrane Separations; 5 Differential Permeation with Point Permeate Withdrawal; 6 Differential Permeation with Permeate Flow; 7 Countercurrent Flow with Recycle; 8 Membrane Reactors; Index

Sommario/riassunto

The petroleum, natural gas, and the chemical & petrochemical process industries, variously require the separation of mixtures -- whether of raw feedstream materials, reactants, intermediates, or products -- as comprising gases, liquids, or solutions. Membrane separations add another weapon to the arsenal of separation methods, including the upgrading of subquality natural gas reserves. This book furnishes the necessary derivations and calculations for numerically predicting the separations that can be obtained, based on the known respective membrane permeabilities of the pure components. A ver

2. Record Nr.	UNINA9910825981003321
Autore	Santos Hector J. de los
Titolo	Understanding nanoelectromechanical quantum circuits and systems (NEMX) for the Internet of Things (IOT) era / / Hector J. De Los Santos
Pubbl/distr/stampa	London, England ; ; New York, New York : , : River Publishers, , [2019] ©2019
ISBN	1-00-333993-X 1-003-33993-X 1-000-79360-5 1-5231-3896-3 87-7022-127-8
Edizione	[1st ed.]
Descrizione fisica	1 online resource (232 pages)
Collana	River Publishers Series in Electronic Materials and Devices Is a Series of Comprehensive Academic and Professional Books Which Focus on the Theory and Applications of Advanced Electronic Materials and Devices. the Series Focuses on Topics Ranging from the
Disciplina	621.395
Soggetti	Nanoelectromechanical systems Internet of things
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Sommario/riassunto	The operational theme permeating most definitions of the IoT concept is the wireless communication of networked objects, smartsensing devices and machines, exchanging data via the Internet. In this book, a detailed look is taken at the fundamental principles of devices and techniques whose exploitation will facilitate the development of compact, power-efficient, autonomous, smart, networked sensing nodes underlying and encompassing the emerging IoT era.