Dechema Chemistry Data Series Volume V

The Chemistry of Metal-Organic Frameworks
Tunable Hydrogels
Handbook of Solvents, Volume 1
Redox
Handbook of Preparative Inorganic Chemistry
Dechema Chemistry Data Series
Phase Equilibria
Chemical Thermodynamics for Process Simulation
Introduction to Reticular Chemistry
Chemical Engineering Design
CRC Handbook of Thermodynamic Data of Polymer Solutions, Three Volume Set
Liquid-liquid Equilibrium Data Collection: Ternary systems
Applied Statistical Thermodynamics
Handbook of Laboratory Distillation
Industrial Carbon and Graphite Materials
Computational Pharmaceutical Solid State Chemistry
Biorefineries
Modeling in Membranes and Membrane-Based Processes
Vapor-liquid Equilibrium Data Collection
Introduction to Thermodynamics
Teach Yourself the Basics of Aspen Plus
Handbook of Chemical Engineering Calculations
Modeling and Simulation of Heterogeneous Catalytic Reactions
Ionic Liquids in Synthesis
Physical Chemistry of Electrolyte Solutions
The ChemSep Book
Electrochemical and Optical Techniques for the Study and Monitoring of Metallic Corrosion
Encyclopedia of Chemical Processing and Design
Classical Thermodynamics of Non-Electrolyte Solutions
Vapor-Liquid Equilibria Using Unifac
Handbook of Aqueous Electrolyte Thermodynamics
Biotechnology of Isoprenoids
Distillation
Green Chemistry and Engineering
Using Aspen Plus in Thermodynamics Instruction
Handbook of Surface and Colloid Chemistry
VDI Heat Atlas
Dechema Chemistry Data Series
Vapor-liquid Equilibrium Data Collection: Aqueous-organic systems

PHELPS HOLT

The Chemistry of Metal-Organic Frameworks John Wiley & Sons
Few processes are as important for environmental geochemistry as the interplay between the oxidation and reduction of dissolved and solid species. The knowledge of the redox conditions is most important to predict the geochemical behaviour of a great number of components, the mobilities of which are directly or indirectly controlled by redox processes. The understanding of the chemical mechanisms responsible for the establishment of measurable potentials is the major key for the evaluation and sensitive interpretation of data. This book is suitable for advanced undergraduates as well as for all scientists dealing with the measurement and interpretation of redox conditions in the natural environment.
Tunable Hydrogels Elsevier
"Written by engineers for engineers (with over 150 International Editorial Advisory Board members),this highly lauded resource provides up-to-the-minute information on the chemical processes, methods, practices, products, and standards in the chemical, and related, industries. "
Handbook of Solvents, Volume 1 Springer Science & Business Media
An excellent overview of industrial carbon and graphite materials, especially their manufacture, use and applications in industry. Following a short introduction, the main part of this reference deals with industrial forms, their raw materials, properties and manifold applications. Featuring chapters on carbon and graphite materials in energy application, and as catalysts. It covers all important classes of carbon and graphite, from polygranular materials to fullerenes, and from activated carbon to carbon blacks and nanoforms of carbon. Indispensable for chemists and engineers working in such fields as steel, aluminum, electrochemistry, nanotechnology, catalyst, carbon fibres and lightweight composites.
Redox Simone Malacrida
This new book provides, for the first time, a thorough survey of the techniques and equipment for both high- and low-pressure phase equilibrium measurement and addresses the equally challenging task of accurately modeling or predicting the equilibria. The book is unique because it combines in depth and authoritative coverage of both experimental and theoretical procedures in a single volume. Written as a reference for practicing engineers and scientists in the chemical engineering field, this book will also be useful as an advanced graduate-level text.
Handbook of Preparative Inorganic Chemistry John Wiley & Sons
This new edition of the Handbook of Surface and Colloid Chemistry informs you of significant recent developments in the field. It highlights new applications and provides revised insight on surface and colloid chemistry's growing role in industrial innovations. The contributors to each chapter are internationally recognized experts. Several chapter
Dechema Chemistry Data Series John Wiley & Sons

The book Modeling in Membranes and Membrane-Based Processes is based on the idea of developing a reference which will cover most relevant and “state-of-the-art” approaches in membrane modeling. This book explores almost every major aspect of modeling and the techniques applied in membrane separation studies and applications. This includes first principle-based models, thermodynamics models, computational fluid dynamics simulations, molecular dynamics simulations, and artificial intelligence-based modeling for membrane separation processes. These models have been discussed in light of various applications ranging from desalination to gas separation. In addition, this breakthrough new volume covers the fundamentals of polymer membrane pore formation mechanisms, covering not only a wide range of modeling techniques, but also has various facets of membrane-based applications. Thus, this book can be an excellent source for a holistic perspective on membranes in general, as well as a comprehensive and valuable reference work. Whether a veteran engineer in the field or lab or a student in chemical or process engineering, this latest volume in the “Advances in Membrane Processes” is a must-have, along with the first book in the series, Membrane Processes, also available from Wiley-Scrivener.

Phase Equilibria Elsevier Vapor-Liquid Equilibria Using UNIFAC: A Group-Contribution Method focuses on the UNIFAC group-contribution method used in predicting quantitative information on the phase equilibria during separation by estimating activity coefficients. Drawing on tested vapor-liquid equilibrium data on which UNIFAC is based, it demonstrates through examples how the method may be used in practical engineering design calculations. Divided into nine chapters, this volume begins with a discussion of vapor and liquid phase nonidealities and how they are calculated in terms of fugacity and activity coefficients, respectively. It then introduces the reader to the UNIFAC method and how it works, the procedure used in establishing the parameters needed for the model, prediction of binary and multicomponent vapor-liquid equilibria for a large number of systems, the potential of UNIFAC for predicting liquid-liquid equilibria, and how UNIFAC can be used to solve practical distillation design problems. This book will benefit process design engineers who want to reliably predict phase equilibria for designing distillation columns and other separation processes.

Chemical Thermodynamics for Process Simulation John Wiley & Sons Vapor-liquid Equilibrium Data Collection: Aqueous-organic systemsDechema Chemistry Data SeriesThe Chemistry of Metal-Organic FrameworksJohn Wiley & Sons Introduction to Reticular Chemistry Elsevier Providing valuable insight on physical behavior of polymer solutions, intermolecular interactions, and the molecular nature of mixtures, each volume in this one-of-a-kind handbook brings together reliable, easy-to-use entries, references, tables, examples, and appendices on experimental data from

hundreds of primary journal articles, dissertations, and other published papers. This three-volume set presents hundreds of data sets including VLE/gas solubility isotherms, LLE and HPPE for polymer systems in supercritical fluids, as well as volumetric, enthalpic, and virial coefficient data sets, essential for handling industrial and laboratory processes involving all types of polymer systems. *Chemical Engineering Design* CRC Press The complete step-by-step guide to mastering the basics of Aspen Plus software Used for a wide variety of important scientific tasks, Aspen Plus software is a modeling tool used for conceptual design, optimization, and performance monitoring of chemical processes. After more than twenty years, it remains one of the most popular and powerful chemical engineering programs used both industrially and academically. Teach Yourself the Basics of Aspen Plus, Second Edition continues to deliver important fundamentals on using Aspen Plus software. The new edition focuses on the newest version of Aspen Plus and covers the newest functionalities. Lecture-style chapters set the tone for maximizing the learning experience by presenting material in a manner that emulates an actual workshop classroom environment. Important points are emphasized through encouragement of hands-on learning techniques that direct learners toward achievement in creating effective designs fluidly and with confidence. Teach Yourself the Basics of Aspen Plus, Second Edition includes: Examples embedded within the text to focus the reader on specific aspects of the material being covered Workshops at the end of each chapter that provide opportunities to test the reader's knowledge in that chapter's subject matter Functionalities covered in the newest version of Aspen including the solution of a flowsheet by an equation oriented, EO approach, and the solution of problems which involve electrolyte equilibria Aspen Plus executable format as well as .txt format files containing details of the examples and the workshops as well as their solutions are provided as a download Designed with both students and professionals in mind, Teach Yourself the Basics of Aspen Plus, Second Edition is like having a personal professor 24/7. Its revolutionary format is an exciting way to learn how to operate this highly sophisticated software—and a surefire way for readers to get the results they expect. CRC Handbook of Thermodynamic Data of Polymer Solutions, Three Volume Set Springer Science & Business Media This book reviews the current knowledge on tunable hydrogels, including the range of different materials and applications, as well as the existing challenges and limitations in the field. It covers various aspects of the material design, particularly highlighting biological responsiveness, degradability and responsiveness to external stimuli. In this book, readers will discover original research data and state-of-the-art reviews in the area of hydrogel technology, with a specific focus on biotechnology and medicine. Written by leading experts, the contributions outline strategies for designing

tunable hydrogels and offer a detailed evaluation of the physical and synthetic methods currently employed to achieve specific hydrogel properties and responsiveness. This highly informative book provides important theoretical and practical insights for scholars and researchers working with hydrogels for biomedical and biotechnological applications.
Liquid-liquid Equilibrium Data Collection: Ternary systems McGraw-Hill Professional Publishing
Handbook of Laboratory Distillation
Applied Statistical Thermodynamics John Wiley & Sons
Providing vital knowledge on the design and synthesis of specific metal-organic framework (MOF) classes as well as their properties, this ready reference summarizes the state of the art in chemistry. Divided into four parts, the first begins with a basic introduction to typical cluster units or coordination geometries and provides examples of recent and advanced MOF structures and applications typical for the respective class. Part II covers recent progress in linker chemistries, while special MOF classes and morphology design are described in Part III. The fourth part deals with advanced characterization techniques, such as NMR, in situ studies, and modelling. A final unique feature is the inclusion of data sheets of commercially available MOFs in the appendix, enabling experts and newcomers to the field to select the appropriate MOF for a desired application. A must-have reference for chemists, materials scientists, and engineers in academia and industry working in the field of catalysis, gas and water purification, energy storage, separation, and sensors.
Handbook of Laboratory Distillation Dechema
A concise introduction to the chemistry and design principles behind important metal-organic frameworks and related porous materials Reticular chemistry has been applied to synthesize new classes of porous materials that are successfully used for myraid applications in areas such as gas separation, catalysis, energy, and electronics. Introduction to Reticular Chemistry gives an unique overview of the principles of the chemistry behind metal-organic frameworks (MOFs), covalent organic frameworks (COFs), and zeolitic imidazolate frameworks (ZIFs). Written by one of the pioneers in the field, this book covers all important aspects of reticular chemistry, including design and synthesis, properties and characterization, as well as current and future applications Designed to be an accessible resource, the book is written in an easy-to-understand style. It includes an extensive bibliography, and offers figures and videos of crystal structures that are available as an electronic supplement. Introduction to Reticular Chemistry: - Describes the underlying principles and design elements for the synthesis of important metal-organic frameworks (MOFs) and related materials -Discusses both real-life and future applications in various fields, such as clean energy and water adsorption -Offers all graphic material on a companion website - Provides first-hand knowledge by Omar Yaghi, one of the pioneers in the field, and his team. Aimed at graduate students in chemistry,

structural chemists, inorganic chemists, organic chemists, catalytic chemists, and others, Introduction to Reticular Chemistry is a groundbreaking book that explores the chemistry principles and applications of MOFs, COFs, and ZIFs.
Industrial Carbon and Graphite Materials Vapor-liquid Equilibrium Data Collection: Aqueous-organic systemsDechema Chemistry Data SeriesThe Chemistry of Metal-Organic Frameworks
The Nobel Prize in Chemistry 2007 awarded to Gerhard Ertl for his groundbreaking studies in surface chemistry highlighted the importance of heterogeneous catalysis not only for modern chemical industry but also for environmental protection.
Heterogeneous catalysis is seen as one of the key technologies which could solve the challenges associated with the increasing diversification of raw materials and energy sources. It is the decisive step in most chemical industry processes, a major method of reducing pollutant emissions from mobile sources and is present in fuel cells to produce electricity. The increasing power of computers over the last decades has led to modeling and numerical simulation becoming valuable tools in heterogeneous catalysis. This book covers many aspects, from the state-of-the-art in modeling and simulations of heterogeneous catalytic reactions on a molecular level to heterogeneous catalytic reactions from an engineering perspective. This first book on the topic conveys expert knowledge from surface science to both chemists and engineers interested in heterogeneous catalysis. The well-known and international authors comprehensively present many aspects of the wide bridge between surface science and catalytic technologies, including DFT calculations, reaction dynamics on surfaces, Monte Carlo simulations, heterogeneous reaction rates, reactions in porous media, electro-catalytic reactions, technical reactors, and perspectives of chemical and automobile industry on modeling heterogeneous catalysis. The result is a one-stop reference for theoretical and physical chemists, catalysis researchers, materials scientists, chemical engineers, and chemists in industry who would like to broaden their horizon and get a substantial overview on the different aspects of modeling and simulation of heterogeneous catalytic reactions.
Computational Pharmaceutical Solid State Chemistry John Wiley & Sons
"The second, completely revised and enlarged edition of what has become the standard reference work in this fascinating field brings together the latest developments, supplemented by numerous practical tips, providing those working in both research and industry with an indispensable source of information. New contributions have been added, to reflect the fact that industrial processes are already established, and ionic liquids are now commercially available. A must for everyone working in the field."--Publisher's description.
Biorefineries Springer
The past, present, and future of green chemistry and green engineering From college campuses to corporations, the past decade witnessed a

rapidly growing interest in understanding sustainable chemistry and engineering. Green Chemistry and Engineering: A Practical Design Approach integrates the two disciplines into a single study tool for students and a practical guide for working chemists and engineers. In Green Chemistry and Engineering, the authors—each highly experienced in implementing green chemistry and engineering programs in industrial settings—provide the bottom-line thinking required to not only bring sustainable chemistry and engineering closer together, but to also move business towards more sustainable practices and products. Detailing an integrated, systems-oriented approach that bridges both chemical syntheses and manufacturing processes, this invaluable reference covers: Green chemistry and green engineering in the movement towards sustainability Designing greener, safer chemical synthesis Designing greener, safer chemical manufacturing processes Looking beyond current processes to a lifecycle thinking perspective Trends in chemical processing that may lead to more sustainable practices The authors also provide real-world examples and exercises to promote further thought and discussion. The EPA defines green chemistry as the design of chemical products and processes that reduce or eliminate the use or generation of hazardous substances. Green engineering is described as the design, commercialization, and use of products and processes that are feasible and economical while minimizing both the generation of pollution at the source and the risk to human health and the environment. While there is no shortage of books on either discipline, Green Chemistry and Engineering is the first to truly integrate the two.

Modeling in Membranes and Membrane-Based Processes John Wiley & Sons

A step-by-step guide for students (and faculty) on the use of Aspen in teaching thermodynamics • Easily-accessible modern computational techniques opening up new vistas in teaching thermodynamics A range of applications of Aspen Plus in the prediction and calculation of thermodynamic properties and phase behavior using the state-of-the art methods • Encourages students to develop engineering insight by doing repetitive calculations with changes in parameters and/or models • Calculations and application examples in a step-by-step manner designed for out-of-classroom self-study • Makes it possible to easily integrate Aspen Plus into thermodynamics courses without using in-class time • Stresses the application of thermodynamics to real problems

Vapor-liquid Equilibrium Data Collection Springer Nature

This book is the first to combine computational material science and modeling of molecular solid states for pharmaceutical industry applications. • Provides descriptive and applied state-of-the-art computational approaches and workflows to guide pharmaceutical solid state chemistry experiments and to support/troubleshoot API solid state selection • Includes real industrial

case examples related to application of modeling methods in problem solving • Useful as a supplementary reference/text for undergraduate, graduate and postgraduate students in computational chemistry, pharmaceutical and biotech sciences, and materials science *Introduction to Thermodynamics* Elsevier The following basic physics topics are presented in this book: principles and laws of thermodynamics thermodynamic cycles and multi-stage systems heat transfer kinetic theory of gases