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Fundamentals of Chemical Reaction Engineering An Introduction to Chemical Engineering Kinetics & Reactor Design Unit Operations of Chemical Engineering McGraw-Hill Series in Chemical Engineering Chemical Engineering Thermodynamics Epoxy Adhesive Formulations Process Analysis and Design for Chemical Engineers Chemical Engineering Introduction to Chemical Engineering Thermodynamics Elementary Chemical Engineering Chemical Product Design Optimization of Chemical Processes Process Modeling, Simulation, and Control for Chemical Engineers Classical Thermodynamics of Non-Electrolyte Solutions Perry's Chemical Engineers' Platinum Edition Fluid Mechanics for Chemical Engineers with Engineering Subscription Card Perry's Chemical Engineers' Handbook Chemical Engineering Kinetics Advanced Process Control Handbook of Chemical Engineering Calculations Industrial Chemical Process Design, 2nd Edition Chemical Engineering Design Nuclear Chemical Engineering Fluid Mechanics for Chemical Engineers Natural Gas Engineering Plant Design and Economics for Chemical Engineers Introduction to Chemical Processes Chemical Process Design and Integration Perry's Chemical Engineers' Handbook, 9th Edition Foundations of Materials Science and Engineering Conceptual Design of Chemical Processes Chemical Engineering Fluid Mechanics Chemical Process and Design Handbook Stoichiometry for Chemical Engineers Chemical Engineering Plant Design Chemical Engineers' Handbook Fundamentals of Chemical Engineering Thermodynamics, SI Edition Principles of Chemical Engineering Chemical Engineering Design Project Project Evaluation in the Chemical Process Industries

Reference work for chemical and process engineers. Newest developments, advances, achievements and methods in various fields. Written by a highly regarded author with industrial and academic experience, this new edition of an established bestselling book provides practical guidance for students, researchers, and those in chemical engineering. The book includes a new section on sustainable energy, with sections on carbon capture and sequestration, as a result of increasing environmental awareness; and a companion website that includes problems, worked solutions, and Excel spreadsheets to enable students to carry out complex calculations. Unmodified, epoxy resins cause certain problems for both the adhesive formulator and end-user. They are often rigid and brittle; hence, impact resistance and peel strength are poor. For decades, Chemist have been vigorously working to minimize these major shortcomings. Based on a popular course sponsored by the Society of Plastics Engineers and written by an authority in the field, this comprehensive text presents a variety of methods to accomplish what up to now has been a formidable task. Beginning with epoxy chemistry, moving on to fillers, filler treatments, and surfactants, and ending with current and future development in formulating Epoxy Adhesives, this rigorous text addressed the problem of improving flexibility, durability and strength by adding chemical groups to the epoxy structure either via the base resin or the curing agent or by adding separate flexibilizing resins to the formulation to create an epoxy-hybrid adhesive. Chemical Engineering Design, Second Edition, deals with the application of chemical engineering principles to the design of chemical processes and equipment. Revised throughout, this edition has been specifically developed for the U.S. market. It provides the latest US codes and standards, including API, ASME and ISA design codes and ANSI standards. It contains new discussions of conceptual plant design, flowsheet development, and revamp design; extended coverage of capital cost estimation, process costing, and economics; and new chapters on equipment selection, reactor design, and solids handling processes. A rigorous pedagogy assists learning, with detailed worked examples, end of chapter exercises, plus supporting data, and Excel spreadsheet calculations, plus over 150 Patent References for downloading from the companion website. Extensive instructor resources, including 1170 lecture slides and a fully worked solutions manual are available to adopting instructors. This text is designed for chemical and biochemical engineering students (senior undergraduate year, plus appropriate for capstone design courses where taken, plus graduates) and lecturers/tutors, and professionals in industry (chemical process, biochemical, pharmaceutical, petrochemical sectors). New to this edition:

Revised organization into Part I: Process Design, and Part II: Plant Design. The broad themes of Part I are flowsheet development, economic analysis, safety and environmental impact and optimization. Part II contains chapters on equipment design and selection that can be used as supplements to a lecture course or as essential references for students or practicing engineers working on design projects. New discussion of conceptual plant design, flowsheet development and revamp design Significantly increased coverage of capital cost estimation, process costing and economics New chapters on equipment selection, reactor design and solids handling processes New sections on fermentation, adsorption, membrane separations, ion exchange and chromatography Increased coverage of batch processing, food, pharmaceutical and biological processes All equipment chapters in Part II revised and updated with current information Updated throughout for latest US codes and standards, including API, ASME and ISA design codes and ANSI standards Additional worked examples and homework problems The most complete and up to date coverage of equipment selection 108 realistic commercial design projects from diverse industries A rigorous pedagogy assists learning, with detailed worked examples, end of chapter exercises, plus supporting data and Excel spreadsheet calculations plus over 150 Patent References, for downloading from the companion website Extensive instructor resources: 1170 lecture slides plus fully worked solutions manual available to adopting instructors A compilation of the calculation procedures needed every day on the job by chemical engineers. Tables of Contents: Physical and Chemical Properties; Stoichiometry; Phase Equilibrium; Chemical-Reaction Equilibrium; Reaction Kinetics and Reactor Design; Flow of Fluids and Solids; Heat Transfer; Distillation; Extraction and Leaching; Crystallization; Filtration; Liquid Agitation; Size Reduction; Drying: Evaporation; Environmental Engineering in the Plant. Illustrations. Index. Corporate performance analysis, p. 658. Up-to-Date Coverage of All Chemical Engineering Topics—from the Fundamentals to the State of the Art Now in its 85th Anniversary Edition, this industry-standard resource has equipped generations of engineers and chemists with vital information, data, and insights. Thoroughly revised to reflect the latest technological advances and processes, Perry's Chemical Engineers' Handbook, Ninth Edition, provides unsurpassed coverage of every aspect of chemical engineering. You will get comprehensive details on chemical processes, reactor modeling, biological processes, biochemical and membrane separation, process and chemical plant safety, and much more. This fully updated edition covers: Unit Conversion Factors and Symbols • Physical and Chemical Data including Prediction and Correlation of Physical Properties • Mathematics including Differential and Integral Calculus, Statistics, Optimization • Thermodynamics • Heat and Mass Transfer • Fluid and Particle Dynamics \*Reaction Kinetics • Process Control and Instrumentation • Process Economics • Transport and Storage of Fluids • Heat Transfer Operations and Equipment • Psychrometry, Evaporative Cooling, and Solids Drying • Distillation • Gas Absorption and Gas-Liquid System Design • Liquid-Liquid Extraction Operations and Equipment • Adsorption and Ion Exchange • Gas-Solid Operations and Equipment • Liquid-Solid Operations and Equipment • Solid-Solid Operations and Equipment • Chemical Reactors • Bio-based Reactions and Processing • Waste Management including Air, Wastewater and Solid Waste Management\* Process Safety including Inherently Safer Design • Energy Resources, Conversion and Utilization\* Materials of Construction Foundations. Drainage. Piping installation. Pumps and pumping. The building. Power and power transmission. Flow diagrams. Selection of process equipment. A brand new book, FUNDAMENTALS OF CHEMICAL ENGINEERING THERMODYNAMICS makes the abstract subject of chemical engineering thermodynamics more accessible to undergraduate students. The subject is presented through a problem-solving inductive (from specific to general) learning approach, written in a conversational and approachable manner. Suitable for either a one-semester course or two-semester sequence in the subject, this book covers thermodynamics in a complete and mathematically rigorous manner, with an emphasis on solving practical engineering problems. The approach taken stresses problem-solving, and draws from best practice engineering teaching strategies. FUNDAMENTALS OF CHEMICAL ENGINEERING

THERMODYNAMICS uses examples to frame the importance of the material. Each topic begins with a motivational example that is investigated in context to that topic. This framing of the material is helpful to all readers, particularly to global learners who require big picture insights, and hands-on learners who struggle with abstractions. Each worked example is fully annotated with sketches and comments on the thought process behind the solved problems. Common errors are presented and explained. Extensive margin notes add to the book accessibility as well as presenting opportunities for investigation. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version. Designed to be used as a text for advanced undergraduate and graduate courses in process control, as well as a reference for practising control engineers. It requires a strong background in mathematics and chemical engineering and aims to provide broad coverage of applied modern control theory. Appropriate for a one-semester undergraduate or first-year graduate course, this text introduces the quantitative treatment of chemical reaction engineering. It covers both homogeneous and heterogeneous reacting systems and examines chemical reaction engineering as well as chemical reactor engineering. Each chapter contains numerous worked-out problems and real-world vignettes involving commercial applications, a feature widely praised by reviewers and teachers. 2003 edition. Classical Thermodynamics of Non-Electrolyte Solutions covers the historical development of classical thermodynamics that concerns the properties of vapor and liquid solutions of non-electrolytes. Classical thermodynamics is a network of equations, developed through the formal logic of mathematics from a very few fundamental postulates and leading to a great variety of useful deductions. This book is composed of seven chapters and begins with discussions on the fundamentals of thermodynamics and the thermodynamic properties of fluids. The succeeding chapter presents the equations of state for the calculation of the thermodynamic behavior of constant-composition fluids, both liquid and gaseous. These topics are followed by surveys of the mixing of pure materials to form a solution under conditions of constant temperature and pressure. The discussion then shifts to general equations for calculation of partial molal properties of homogeneous binary systems. The last chapter considers the approach to equilibrium of systems within which composition changes are brought about either by mass transfer between phases or by chemical reaction within a phase, or by both. Provides comprehensive coverage through articles, graphs, tables, and formula of standard subjects and recent innovations relating to chemical engineering Bibliogs. Control chemical processes to get the results you want Invaluable to chemical and environmental engineers as well as process designers, Chemical Process and Design Handbook shows you how to control chemical processes to yield desired effects efficiently and economically. The book examines each of the major chemical processes, such as reactions, separations, mixing, heating, cooling, pressure change, and particle size reduction and enlargement -- in logically arranged alphabetical chapters, providing you with an understanding of the essential qualitative analysis of each. The Handbook, from expert James Speight: Emphasizes chemical conversions -- chemical reactions applied to industrial processing Provides easy-to-understand descriptions to explain reactor type and design Describes the latest process developments and possible future improvements or changes Provides a comprehensive treatment of natural gas engineering, covering most operations of the gas engineering. It is appropriate for courses in natural gas engineering, advanced reservoir engineering and petroleum engineering offered in departments of chemical engineering. This text explains the concepts behind process design. It uses a case study approach, guiding readers through realistic design problems, and referring back to these cases at the end of each chapter. Throughout, the author uses shortcut techniques that allow engineers to obtain the whole focus for a design in a very short period (generally less than two days). This new edition follows the original format, which combines a detailed case study - the production of phthalic anhydride - with practical advice and comprehensive background information. Guiding the reader through all major aspects of a chemical engineering design, the text includes both the initial technical and economic feasibility study as well as the detailed design stages. Each aspect of the design is illustrated with material from an award-winning student design project. The book embodies the "learning by doing" approach to design. The student is directed to appropriate information sources and is encouraged to make decisions at each stage of the design process rather than simply following a design method. Thoroughly revised, updated, and expanded, the accompanying text includes developments in important areas and many new

references. This new edition contains chapters on process synthesis, computer-aided design and design of chemical reactors. The economic analysis has been updated. Numerous real examples include computer or hand solutions, with an increased emphasis on computer use in design, economic evaluation and optimization. "Introduction to Chemical Processes: Principles, Analysis, Synthesis, 2e is intended for use in an introductory, one-semester course for students in chemical engineering and related disciplines"-- The chemical industry is changing, going beyond commodity chemicals to a palette of higher value added products. This groundbreaking book, now revised and expanded, documents this change and shows how to meet the challenges implied. Presenting a four-step design process - needs, ideas, selection, manufacture - the authors supply readers with a simple design template that can be applied to a wide variety of products. Four new chapters on commodities, devices, molecules/drugs and microstructures show how this template can be applied to products including oxygen for emphysema patients, pharmaceuticals like taxol, dietary supplements like lutein, and beverages which are more satisfying. For different groups of products the authors supply both strategies for design and summaries of relevant science. Economic analysis is expanded, emphasizing the importance of speed-to-market, selling ideas to investors and an expectation of limited time in the market. Extra examples, homework problems and a solutions manual are available. A practical, concise guide to chemical engineering principles and applications Chemical Engineering: The Essential Reference is the condensed but authoritative chemical engineering reference, boiled down to principles and hands-on skills needed to solve real-world problems. Emphasizing a pragmatic approach, the book delivers critical content in a convenient format and presents on-the-job topics of importance to the chemical engineer of tomorrow—OM&I (operation, maintenance, and inspection) procedures, nanotechnology, how to purchase equipment, legal considerations, the need for a second language and for oral and written communication skills, and ABET (Accreditation Board for Engineering and Technology) topics for practicing engineers. This is an indispensable resource for anyone working as a chemical engineer or planning to enter the field. Praise for Chemical Engineering: The Essential Reference: "Current and relevant...over a dozen topics not normally addressed...invaluable to my work as a consultant and educator." —Kumar Ganesan, Professor and Department Head, Department of Environmental Engineering, Montana Tech of the University of Montana "A much-needed and unique book, tough not to like...loaded with numerous illustrative examples...a book that looks to the future and, for that reason alone, will be of great interest to practicing engineers." —Anthony Buonicore, Principal, Buonicore Partners Coverage includes: Basic calculations and key tables Process variables Numerical methods and optimization Oral and written communication Second language(s) Chemical engineering processes Stoichiometry Thermodynamics Fluid flow Heat transfer Mass transfer operations Membrane technology Chemical reactors Process control Process design Biochemical technology Medical applications Legal considerations Purchasing equipment Operation, maintenance, and inspection (OM&I) procedures Energy management Water management Nanotechnology Project management Environment management Health, safety, and accident management Probability and statistics Economics and finance Ethics Open-ended problems Written by a hands-on industry consultant and featuring more than 200 illustrations, This book is an update of a successful first edition that has been extremely well received by the experts in the chemical process industries. The authors explain both the theory and the practice of optimization, with the focus on the techniques and software that offer the most potential for success and give reliable results. Applications case studies in optimization are presented with new examples taken from the areas of microelectronics processing and molecular modeling. Ample references are cited for those who wish to explore the theoretical concepts in more detail. Fluid Mechanics for Chemical Engineers, third edition retains the characteristics that made this introductory text a success in prior editions. It is still a book that emphasizes material and energy balances and maintains a practical orientation throughout. No more math is included than is required to understand the concepts presented. To meet the demands of today's market, the author has included many problems suitable for solution by computer. Three brand new chapters are included. Chapter 15 on Two- and Three Dimensional Fluid Mechanics, Chapter 19 on Mixing, and Chapter 20 on Computational Fluid Dynamics (CFD). The purpose of this book is to convey to undergraduate students an understanding of those areas of process control that all chemical engineers need to know. The presentation is concise, readable and restricted to only essential elements. The methods presented have been

successfully applied in industry to solve real problems. Analysis of closedloop dynamics in the time, Laplace, frequency and sample-data domains are covered. Designing simple regulatory control systems for multivariable processes is discussed. The practical aspects of process control are presented sizing control valves, tuning controllers, developing control structures and considering interaction between plant design and control. Practical simple identification methods are covered. This book provides readers with the most current, accurate, and practical fluid mechanics related applications that the practicing BS level engineer needs today in the chemical and related industries, in addition to a fundamental understanding of these applications based upon sound fundamental basic scientific principles. The emphasis remains on problem solving, and the new edition includes many more examples. Smith/Hashemi's Foundations of Materials Science and Engineering, 5/e provides an eminently readable and understandable overview of engineering materials for undergraduate students. This edition offers a fully revised chemistry chapter and a new chapter on biomaterials as well as a new taxonomy for homework problems that will help students and instructors gauge and set goals for student learning. Through concise explanations, numerous worked-out examples, a wealth of illustrations & photos, and a brand new set of online resources, the new edition provides the most student-friendly introduction to the science & engineering of materials. The extensive media package available with the text provides Virtual Labs, tutorials, and animations, as well as image files, case studies, FE Exam review questions, and a solutions manual and lecture PowerPoint files for instructors. Introduction to Chemical Engineering Thermodynamics presents comprehensive coverage of the subject of thermodynamics from a chemical engineering viewpoint. The text provides a thorough exposition of the principles of thermodynamics, and details their application to chemical processes. The content is structured to alternate between the development of thermodynamic principles and the correlation and use of thermodynamic properties as well as between theory and applications. The chapters are written in a clear, logically organized manner, and contain an abundance of realistic problems, examples, and illustrations to help students understand complex concepts. New ideas, terms, and symbols constantly challenge the readers to think and encourage them to apply this fundamental body of knowledge to the solution of practical problems. McGraw-Hill's Connect, is also available as an optional, add on item. Connect is the only integrated learning system that empowers students by continuously adapting to deliver precisely what they need, when they need it, how they need it, so that class time is more effective. Connect allows the professor to assign homework, quizzes, and tests easily and automatically grades and records the scores of the student's work. Problems are randomized to prevent sharing of answers and may also have a "multi-step solution" which helps move the students' learning along if they experience difficulty. Reference work for chemical and process engineers. Newest developments, advances, achievements and methods in various fields.

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