
Mass Transfer By Traybal

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*Mass Transfer
By Traybal* 2020-08-31

MYLA BAKER

Unit Operations-II

Lulu.com

A thorough introduction to the fundamentals and

applications of microscopic and macroscopic mass transfer.

Fundamental Mass Transfer Concepts in Engineering Applications
Prentice Hall

Use of Adsorbents for the Removal of Pollutants from Wastewater describes the most commonly occurring industrial effluents, and presents direct means and methodologies for

treating them. In addition to its excellent introduction to pollutants, this book contains all of the basics you need for understanding the characteristics and applications of adsorbent materials. With this book, you can choose from a wide variety of traditional and novel adsorbents, including alternative, relatively inexpensive adsorbents.

Principles of Chemical Engineering CRC Press Book presents mass transfer fundamentals in easily understandable

form using worked examples to illustrate basic concepts and calculations

Principles and Modern Applications of Mass Transfer Operations

Nirali Prakashan

This textbook is intended for courses in heat transfer for undergraduates, not only in chemical engineering and related disciplines of biochemical engineering and chemical technology, but also in mechanical engineering and production engineering. The author provides the

reader with a very thorough account of the fundamental principles and their applications to engineering practice, including a survey of the recent developments in heat transfer equipment. The three basic modes of heat transfer - conduction, convection and radiation - have been comprehensively analyzed and elucidated by solving a wide range of practical and design-oriented problems. A whole chapter has been devoted to explain the

concept of the heat transfer coefficient to give a feel of its importance in tackling problems of convective heat transfer. The use of the important heat transfer correlations has been illustrated with carefully selected examples.

Principles and Applications of Mass Transfer John Wiley & Sons

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
Gas Transfer at Water Surfaces Echo Point Books & Media
 In recent years, the subject of mass transfer has been treated as a minor player in the larger field of transport phenomena and taken a

back seat to its more mature "brother," heat transfer. Yet mass transfer is sufficiently mature as a discipline and sufficiently distinct from other transport processes to merit a separate treatment, particularly one that does not overwhelm readers with an abundance of high-level mathematics. Mass Transfer: Principles and Applications takes an integrated approach that uses a wealth of real-world examples, organizes the material according to mode of

operation, and highlights the importance of modeling. The author begins by introducing diffusion rates, Fick's Law, film theory, and mass transfer coefficients, then develops these concepts in complementary stages. The treatment of phase equilibria covers topics generally not addressed in thermodynamics courses, and these concepts are then used to analyze compartmental models and staged processes as well as continuous contact operations. The final

chapter offers a concise survey of simultaneous mass and heat transfer. Throughout the book, discussions transition smoothly between theory and practice and clearly reflect the author's many years of engineering experience and the breadth of mass transfer applications. Mass Transfer: Principles and Applications is a unique and accessible treatment of this relatively complicated topic that will fill a significant gap as both a textbook and professional reference.

Mass-Transfer Operation
McGraw-Hill Companies
In A Simple And Systematic Manner, This Book Presents An Exhaustive Account Of Various Mass Transfer Operations Involved In Chemical Engineering. Emphasising The Basic Concepts And Techniques, The Book Discusses In Detail Material And Energy Balances, Distillation, Absorption And Stripping And Extraction. The Book Also Explains The Relevant Aspects Of Equipment Design. Recent

Developments Like Permeation, Ion Exchange And Froth Floatation Have Also Been Discussed. A Large Number Of Digital Computer Programs Are Included To Illustrate Computer-Aided Techniques. Several Solved Examples And Practice Problems Are Presented In Each Chapter To Illustrate The Theory. With All These Features, This Is An Ideal Text For Undergraduate Chemical Engineering Students. Practising Engineers And Students Of Pharmacy And

Metallurgy Would Also Find The Book A Useful Reference Source. **Mass Transfer** Franklin Classics Trade Press A staple in any chemical engineering curriculum New edition has a stronger emphasis on membrane separations, chromatography and other adsorptive processes, ion exchange Discusses many developing topics in more depth in mass transfer operations, especially in the biological engineering area Covers in more detail phase equilibrium since

distillation calculations are completely dependent on this principle Integrates computational software and problems using Mathcad Features 25-30 problems per chapter Mass-transfer Operations PHI Learning Pvt. Ltd. Fundamental Mass Transfer Concepts in Engineering Applications provides the basic principles of mass transfer to upper undergraduate and graduate students from different disciplines. This book outlines foundational material and

equips students with sufficient mathematical skills to tackle various engineering problems with confidence. It covers mass transfer in both binary and multicomponent systems and integrates the use of Mathcad® for solving problems. This textbook is an ideal resource for a one-semester course. Key Features The concepts are explained with the utmost clarity in simple and elegant language Presents theory followed by a variety of practical, fully-worked example

problems Includes a summary of the mathematics necessary for mass transfer calculations in an appendix Provides ancillary Mathcad® subroutines Includes end-of-chapter problems and a solutions manual for adopting instructors **Sustainable Energy Conversion for Electricity and Coproducts** John Wiley & Sons A unique and interdisciplinary field, food processing must meet basic process engineering

considerations such as material and energy balances, as well as the more specialized requirements of food acceptance, human nutrition, and food safety. Food engineering, therefore, is a field of major concern to university departments of food science, and chemical and biological engineering as well as engineers and scientists working in various food processing industries. Part of the notable CRC Press Contemporary Food Engineering series, Food

Process Engineering Operations focuses on the application of chemical engineering unit operations to the handling, processing, packaging, and distribution of food products. Chapters 1 through 5 open the text with a review of the fundamentals of process engineering and food processing technology, with typical examples of food process applications. The body of the book then covers food process engineering operations in detail, including theory,

process equipment, engineering operations, and application examples and problems. Based on the authors' long teaching and research experience both in the US and Greece, this highly accessible textbook employs simple diagrams to illustrate the mechanism of each operation and the main components of the process equipment. It uses simplified calculations requiring only elementary calculus and offers realistic values of food engineering

properties taken from the published literature and the authors' experience. The appendix contains useful engineering data for process calculations, such as steam tables, engineering properties, engineering diagrams, and suppliers of process equipment. Designed as a one or two semester textbook for food science students, Food Process Engineering Operations examines the applications of process engineering fundamentals to food processing technology making it an important

reference for students of chemical and biological engineering interested in food engineering, and for scientists, engineers, and technologists working in food processing industries.

Mass-transfer

Operations PHI Learning Pvt. Ltd.

A staple in any chemical engineering curriculum New edition has a stronger emphasis on membrane separations, chromatography and other adsorptive processes, ion exchange Discusses many

developing topics in more depth in mass transfer operations, especially in the biological engineering area Covers in more detail phase equilibrium since distillation calculations are completely dependent on this principle

Integrates computational software and problems using Mathcad Features 25-30 problems per chapter

Momentum, Heat, and Mass Transfer

Fundamentals CRC Press

Aim/Objective: To verify Rayleigh equation by conducting simple

distillation on methanol - water system. To compare experimental (F/W) with that calculated from Rayleigh's equation and with modified Rayleigh's equation.

Apparatus: Simple distillation experimental set-up, 250 ml beakers 2 numbers, 50 ml beaker, specific gravity bottle (25 ml), thermometer.

Equations: Rayleigh equation: (Check in R.E.Treybal) Modified Rayleigh equation: (Check in R.E.Treybal).

Mass Transfer John Wiley & Sons

Author's purpose is "to provide a vehicle for teaching, either through a formal course or through self-study, the techniques of, and principles of equipment design for, the mass-transfer operations of chemical engineering." As before, these operations are largely the responsibility of the chemical engineer, but increasingly practitioners of other engineering disciplines are finding them necessary for their work. This is especially true for those engaged in pollution control and

environment protection, where separation processes predominate, and in, for example, extractive metallurgy, where more sophisticated and diverse methods of separation are increasingly relied upon. **HEAT TRANSFER** John Wiley & Sons "Presents the fundamentals of momentum, heat, and mass transfer from both a microscopic and a macroscopic perspective. Features a large number of idealized and real-world examples that we worked

out in detail."

Use of Adsorbents for the Removal of Pollutants from

Wastewater PHI

Learning Pvt. Ltd.

Introduction - Conduction - Convection - Radiation - Heat Exchange Equipments - Evaporation - Diffusion - Distillation - Gas Absorption - Liquid Liquid Extraction - Crystallisation - Drying - Appendix I Try yourself - Appendix II Thermal conductivity data - Appendix III Steam tables **Mass Transfer-II** CRC Press

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and made generally available to the public. To ensure a quality reading experience, this work has been proofread and republished using a format that seamlessly blends the original graphical elements with text in an easy-to-read typeface. We appreciate your support of the preservation process, and thank you for being an important part of keeping this knowledge alive and relevant.

Perry's Chemical Engineers' Handbook, 9th Edition New Age

International
Provides an introduction to energy systems going on to describe various forms of energy sources
Provides a comprehensive and a fundamental approach to the study of sustainable fuel conversion for the generation of electricity and for coproducing synthetic fuels and chemicals
Covers the underlying principles of physics and their application to engineering including thermodynamics of combustion and power cycles, fluid flow, heat

transfer, and mass transfer Details the coproduction of fuels and chemicals including key equipment used in synthesis and specific examples of coproduction in integrated gasification combined cycles are presented Presents an introduction to renewables and nuclear energy, including a section on electrical grid stability and is included due to the synergy of these energy plants with fossil-fueled plants
Solutions Manual to Accompany Mass-transfer

Operations Springer Science & Business Media This book introduces the fundamental principles of the mass transfer phenomenon and its diverse applications in process industry. It covers the full spectrum of techniques for chemical separations and extraction. Beginning with molecular diffusion in gases, liquids and solids within a single phase, the mechanism of inter-phase mass transfer is explained with the help of several theories. The separation operations are explained

comprehensively in two distinct ways—stage-wise contact and continuous differential contact. The primary design requirements of gas-liquid equipment are discussed. The book provides a detailed discussion on all individual gas-liquid, liquid-liquid, solid-gas, and solid-liquid separation processes. The students are also exposed to the underlying principles of the membrane-based separation processes. The book is replete with real applications of separation

processes and equipment. Problems are worked out in each chapter. Besides, problems with answers, short questions, multiple choice questions with answers are given at the end of each chapter. The text is intended for a course on mass transfer, transport and separation processes prescribed for the undergraduate and postgraduate students of chemical engineering.

Principles and Modern Applications of Mass Transfer Operations
McGraw-Hill Science, Engineering &

Mathematics
This textbook is targetted to undergraduate students in chemical engineering, chemical technology, and biochemical engineering for courses in mass transfer, separation processes, transport processes, and unit operations. The principles of mass transfer, both diffusional and convective have been comprehensively discussed. The application of these principles to separation processes is explained. The more

common separation processes used in the chemical industries are individually described in separate chapters. The book also provides a good understanding of the construction, the operating principles, and the selection criteria of separation equipment. Recent developments in equipment have been included as far as possible. The procedure of equipment design and sizing has been illustrated by simple examples. An overview of different applications and aspects

of membrane separation has also been provided. 'Humidification and water cooling', necessary in every process industry, is also described. Finally, elementary principles of 'unsteady state diffusion' and mass transfer accompanied by a chemical reaction are covered. SALIENT FEATURES :

- A balanced coverage of theoretical principles and applications.
- Important recent developments in mass transfer equipment and practice are included.
- A large number of

solved problems of varying levels of complexities showing the applications of the theory are included.

- Many end-chapter exercises.
- Chapter-wise multiple choice questions.
- An Instructors manual for the teachers.

Mass Transfer Operations
John Wiley & Sons

This broad-based book covers the three major areas of Chemical Engineering. Most of the books in the market involve one of the individual areas, namely, Fluid Mechanics, Heat

Transfer or Mass Transfer, rather than all the three. This book presents this material in a single source. This avoids the user having to refer to a number of books to obtain information. Most published books covering all the three areas in a single source emphasize theory rather than practical issues. This book is written with emphasis on practice with brief theoretical concepts in the form of questions and answers, not adopting stereo-typed question-answer approach

practiced in certain books in the market, bridging the two areas of theory and practice with respect to the core areas of chemical engineering. Most parts of the book are easily understandable by those who are not experts in the field. Fluid Mechanics chapters include basics on non-Newtonian systems which, for instance find importance in polymer and food processing, flow through piping, flow measurement, pumps, mixing technology and fluidization and two phase

flow. For example it covers types of pumps and valves, membranes and areas of their use, different equipment commonly used in chemical industry and their merits and drawbacks. Heat Transfer chapters cover the basics involved in conduction, convection and radiation, with emphasis on insulation, heat exchangers, evaporators, condensers, reboilers and fired heaters. Design methods, performance, operational issues and maintenance problems

are highlighted. Topics such as heat pipes, heat pumps, heat tracing, steam traps, refrigeration, cooling of electronic devices, NO_x control find place in the book. Mass transfer chapters cover basics such as diffusion, theories, analogies, mass transfer coefficients and mass transfer with chemical reaction, equipment such as tray and packed columns, column internals including structural packings, design, operational and installation issues, drums and separators are

discussed in good detail. Absorption, distillation, extraction and leaching with applications and

design methods, including emerging practices involving Divided Wall and Petluk column arrangements,

multicomponent separations, supercritical solvent extraction find place in the book.