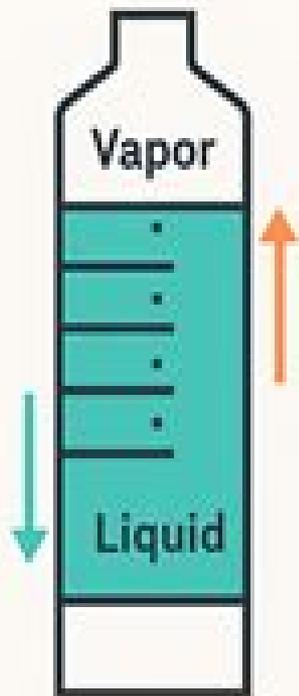
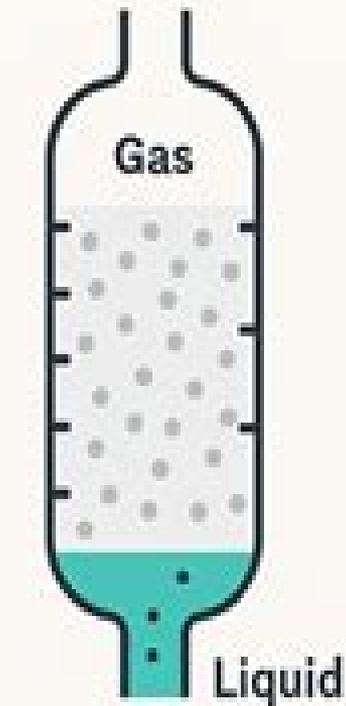


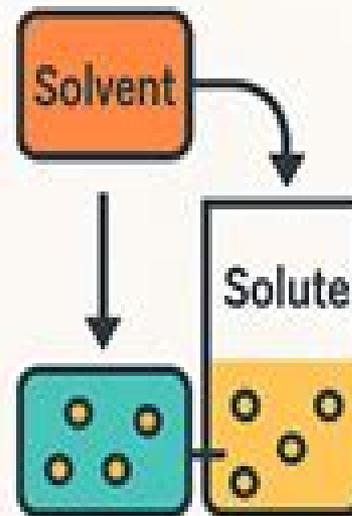
# MASS TRANSFER OPERATIONS



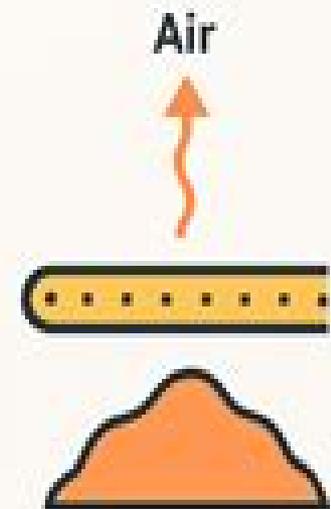
Distillation



Absorption



Extraction



Drying

# Mass Transfer Operations Absorption And Extraction

**Jicheng Xie**



## **Mass Transfer Operations Absorption And Extraction:**

**Mass Transfer Operations for the Practicing Engineer** Louis Theodore, Francesco Ricci, 2011-12-06 An invaluable guide for problem solving in mass transfer operations This book takes a highly pragmatic approach to providing the principles and applications of mass transfer operations by offering a valuable easily accessible guide to solving engineering problems Both traditional and novel mass transfer processes receive treatment As with all of the books in this series emphasis is placed on an example based approach to illustrating key engineering concepts The book is divided into two major parts It starts with the principles underlying engineering problems showing readers how to apply general engineering principles to the topic of mass transfer operations It then goes on to provide step by step guidance for traditional mass transfer operations including distillation absorption and stripping and adsorption plus novel mass transfer processes Essential topics for professional engineering exams are also covered Geared towards chemical environmental civil and mechanical engineers working on real world industrial applications Mass Transfer Operations for the Practicing Engineer features Numerous sample problems and solutions with real world applications Clear precise explanations on how to carry out the basic calculations associated with mass transfer operations Coverage of topics from the ground up for readers without prior knowledge of the subject Overview of topics relevant to the ABET Accreditation Board for Engineering and Technology for those taking the Professional Engineering PE exams Appendix containing relevant mass transfer operation charts and tables

**Mass Transfer Operations** Alapati Suryanarayana, 2002 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 N. Anantharaman, K. M. Meera Sheriffa Begum, 2011-05 Mass transfer operations are of great importance in a process industry as it has a direct impact on the cost of the final product A chemical process engineer therefore should have sound knowledge of the basics of mass transfer and its applications This book is designed to equip the reader with sufficient knowledge of mass transfer operations and face the challenges ahead The objective of this textbook is to teach a budding chemical engineer the principles involved in analyzing a process and apply the desired mass transfer operation to separate the components involved It deals with operations involving diffusion interphase mass transfer humidification drying crystallization absorption distillation extraction leaching and adsorption The principles and equipment

used for different mass transfer operations have been lucidly explained Designed for a two semester course this text is primarily intended for the undergraduate students of chemical pharmaceutical petrochemical engineering as well as biotechnology and industrial biotechnology It will also be useful to plant engineers and design professionals

**KEY FEATURES**

- 1 Explains the theoretical concepts with full derivation of equations
- 2 Illustrates the application of theory through worked out numerical examples
- 3 Provides exercise problems with answers at the end of each chapter for practice

*Chemical Engineering and Chemical Process Technology - Volume III* Ryzhard Pohorecki, John Bridgwater, M. Molzahn. Rafiqul Gani and Crispulo Gallegos, 2010-11-30

Chemical Engineering and Chemical Process Technology is a theme component of Encyclopedia of Chemical Sciences Engineering and Technology Resources in the global Encyclopedia of Life Support Systems EOLSS which is an integrated compendium of twenty Encyclopedias

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It also plays significant role in environmental protection biotechnology nanotechnology energy production and sustainable economical development

The Theme on Chemical Engineering and Chemical Process Technology deals in five volumes and covers several topics such as Fundamentals of Chemical Engineering Unit Operations Fluids Unit Operations Solids Chemical Reaction Engineering Process Development Modeling Optimization and Control Process Management The Future of Chemical Engineering Chemical Engineering Education Main Products which are then expanded into multiple subtopics each as a chapter

These five volumes are aimed at the following five major target audiences

- University and College students
- Educators
- Professional practitioners
- Research personnel and Policy analysts
- managers and decision makers and NGOs

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*Unit Operations-II* Ka Gavhane, 2014-11 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

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Molzahn. Rafiqul Gani and Crispulo Gallegos, 2010-11-30 Chemical Engineering and Chemical Process Technology is a theme component of Encyclopedia of Chemical Sciences Engineering and Technology Resources in the global Encyclopedia of Life Support Systems EOLSS which is an integrated compendium of twenty Encyclopedias Chemical engineering is a branch of engineering dealing with processes in which materials undergo changes in their physical or chemical state These changes may concern size energy content composition and or other application properties Chemical engineering deals with many processes belonging to chemical industry or related industries petrochemical metallurgical food pharmaceutical fine chemicals coatings and colors renewable raw materials biotechnological etc and finds application in manufacturing of such products as acids alkalis salts fuels fertilizers crop protection agents ceramics glass paper colors dyestuffs plastics cosmetics vitamins and many others It also plays significant role in environmental protection biotechnology nanotechnology energy production and sustainable economical development The Theme on Chemical Engineering and Chemical Process Technology deals in five volumes and covers several topics such as Fundamentals of Chemical Engineering Unit Operations Fluids Unit Operations Solids Chemical Reaction Engineering Process Development Modeling Optimization and Control Process Management The Future of Chemical Engineering Chemical Engineering Education Main Products which are then expanded into multiple subtopics each as a chapter These five volumes are aimed at the following five major target audiences University and College students Educators Professional practitioners Research personnel and Policy analysts managers and decision makers and NGOs

**PRINCIPLES OF MASS TRANSFER** KAL RENGANATHAN SHARMA, 2007-01-21 This book addresses the specific needs of undergraduate chemical engineering students for the two courses in Mass Transfer I and Mass Transfer II It is also suitable for a course in Downstream Processing for biotechnology students This self contained textbook is designed to provide single volume coverage of the full spectrum of techniques for chemical separations The operations covered include vapour distillation fluid adsorption gas absorption liquid extraction solid leaching gas humidification solid drying foam separation solution crystallization metal alloying reverse osmosis molecular sieves electrodialysis and ion exchange The text also discusses emerging applications such as drug delivery gel electrophoresis bleaching membrane separations polymer devolatilization solution crystallization and gas chromatography Equipment selection is discussed for different operations A table of industrial applications for each and every mass transfer unit operation is provided The worked examples illustrate problems from chemical process and biotechnology industries Review questions encourage critical thinking and end of chapter problems emphasize grasping of the fundamentals as well as illustrate applications of theory to a wide variety of scenarios

**KEY FEATURES** Includes several case studies ranging from manufacture of vitamin C prilling tower to granulate urea to vanaspati discolouration and wilting of the lettuce Introduces generalized Fick's law of diffusion Discusses hollow fibre mass exchangers Introduces new concepts such as cosolvent factor Z step procedure for multistage cross current extraction

**Fundamentals and Applications of Chemical Engineering**

Dr. Kirubanandan Shanmugam,2025-09-25 It s with great happiness that I would like to acknowledge a great deal of people that get helped me extremely through the entire difficult challenging but a rewarding and interesting path towards some sort of Edited Book without having their help and support none of this work could have been possible **Principles and Modern Applications of Mass Transfer Operations** Jaime Benitez,2002-05-28 A complete contemporary account of mass transfer operations at the undergraduate level While Mass Transfer Operations is a required course in every undergraduate chemical engineering program in the world there does not exist a comprehensive text on the subject that is specifically tailored to the undergraduate reader Principles and Modern Applications of Mass Transfer Operations responds to this need providing a thorough accessible text that presents the latest advances in the science as well as sets of targeted questions that challenge students knowledge The focus throughout Jaime Benitez s peerless study is on making the student consider computation from the start of a mass transfer dilemma Twenty five to thirty problems at the end of each chapter ensure that readers will remain actively engaged with the material Principles incorporates examples of computational software such as Mathcad 2001 Matlab r Mathematica and Aspen Graphics and also includes an ftp site that offers problems for each of these software applications as well as a Solutions Manual Chapters encompass Fundamentals of mass transfer Convective mass transfer Interphase mass transfer Equipment for gas liquid mass transfer operations Absorption and stripping Distillation Liquid liquid extraction Ideal for a first course in mass transfer operations this text will also prove valuable to chemical and environmental engineers researchers and university faculty Chemical Engineering Exam Review Cybellium Ltd,2024-10-26 Designed for professionals students and enthusiasts alike our comprehensive books empower you to stay ahead in a rapidly evolving digital world Expert Insights Our books provide deep actionable insights that bridge the gap between theory and practical application Up to Date Content Stay current with the latest advancements trends and best practices in IT AI Cybersecurity Business Economics and Science Each guide is regularly updated to reflect the newest developments and challenges Comprehensive Coverage Whether you re a beginner or an advanced learner Cybellium books cover a wide range of topics from foundational principles to specialized knowledge tailored to your level of expertise Become part of a global network of learners and professionals who trust Cybellium to guide their educational journey [www.cybellium.com](http://www.cybellium.com) **Unit operations** John Metcalfe Coulson,John Francis Richardson,1955 *Chemical Engineering: Unit operations* John Metcalfe Coulson,John Francis Richardson,1954 **Journal of the Institution of Engineers (India)**. ,1979 *Fundamentals and Modeling of Separation Processes: Absorption, Distillation, Evaporation, and Extraction* Charles Donald Holland,1974 Equipment for Distillation, Gas Absorption, Phase Dispersion, and Phase Separation Don W. Green,Robert H. Perry,2007-10-26 Get Cutting Edge Coverage of All Chemical Engineering Topics from Fundamentals to the Latest Computer Applications First published in 1934 Perry s Chemical Engineers Handbook has equipped generations of engineers and chemists with an expert source of chemical engineering information and data Now updated to reflect the latest

technology and processes of the new millennium the Eighth Edition of this classic guide provides unsurpassed coverage of every aspect of chemical engineering from fundamental principles to chemical processes and equipment to new computer applications Filled with over 700 detailed illustrations the Eighth Edition of Perry s Chemcial Engineering Handbook features Comprehensive tables and charts for unit conversion A greatly expanded section on physical and chemical data New to this edition the latest advances in distillation liquid liquid extraction reactor modeling biological processes biochemical and membrane separation processes and chemical plant safety practices with accident case histories Inside This Updated Chemical Engineering Guide Conversion Factors and Mathematical Symbols Physical and Chemical Data Mathematics Thermodynamics Heat and Mass Transfer Fluid and Particle Dynamics Reaction Kinetics Process Control Process Economics Transport and Storage of Fluids Heat Transfer 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 Size Reduction and Size Enlargement Handling of Bulk Solids and Packaging of Solids and Liquids Alternative Separation Processes And Many Other Topics Distillation Literature ,1946

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