

Separation Process Engineering

Includes Mass Transfer Analysis

FOURTH EDITION



Separation Process Engineering Wankat Solutions Manual

Mike Jess

Separation Process Engineering Wankat Solutions Manual:

Separation Process Engineering Phillip C. Wankat, 2022-10-24 The Definitive Learner Friendly Guide to Chemical Engineering Separations Extensively Updated Including a New Chapter on Melt Crystallization Efficient separation processes are crucial to addressing many societal problems from developing new medicines to improving energy efficiency and reducing emissions Separation Process Engineering Fifth Edition is the most comprehensive accessible guide to modern separation processes and the fundamentals of mass transfer In this completely updated edition Phillip C Wankat teaches each key concept through detailed realistic examples using actual data with up to date simulation practice spreadsheet based exercises and references Wankat thoroughly covers each separation process including flash column and batch distillation exact calculations and shortcut methods for multicomponent distillation staged and packed column design absorption stripping and more His extensive discussions of mass transfer and diffusion enable faculty to teach separations and mass transfer in a single course And detailed material on liquid liquid extraction adsorption chromatography and ion exchange prepares students for advanced work New and updated content includes melt crystallization steam distillation residue curve analysis batch washing the Shanks system for percolation leaching eutectic systems forward osmosis microfiltration and hybrid separations A full chapter discusses economics and energy conservation including updated equipment costs Over 300 new and updated homework problems are presented all extensively tested in undergraduate courses at Purdue University New chapter on melt crystallization solid liquid phase equilibrium suspension static and falling film layer approaches and 34 questions and problems New binary VLE equations and updated content on simultaneous solutions New coverage of safety and fire hazards New material on steam distillation simple multi component batch distillation and residue curve analysis Expanded discussion of tray efficiencies packed column design and energy reduction in distillation New coverage of two hybrid extraction with distillation and the Kremser equation in fractional extraction Added sections on deicing with eutectic systems eutectic freeze concentration and scale up New sections on forward osmosis and microfiltration Expanded advanced content on adsorption and ion exchange including updated instructions for eight detailed Aspen Chromatography labs Discussion of membrane separations including gas permeation reverse osmosis ultrafiltration pervaporation and applications Thirteen up to date Aspen Plus process simulation labs adaptable to any simulator This guide reflects an up to date understanding of how modern students learn designed organized and written to be exceptionally clear and easy to use It presents detailed examples in a clear standard format using real data to solve actual engineering problems preparing Desalination ,1991 Thermodynamics with Chemical Engineering Applications Elias students for their future careers I. Franses, 2014-08-25 Master the principles of thermodynamics and understand their practical real world applications with this deep and intuitive undergraduate textbook
Comprehensive Membrane Science and Engineering Enrico Drioli, Lidietta Giorno, Enrica Fontananova, 2017-07-20 Comprehensive Membrane Science and Engineering Second Edition

Four Volume Set is an interdisciplinary and innovative reference work on membrane science and technology Written by leading researchers and industry professionals from a range of backgrounds chapters elaborate on recent and future developments in the field of membrane science and explore how the field has advanced since the previous edition published in 2010 Chapters are written by academics and practitioners across a variety of fields including chemistry chemical engineering material science physics biology and food science Each volume covers a wide spectrum of applications and advanced technologies such as new membrane materials e g thermally rearranged polymers polymers of intrinsic microporosity and new hydrophobic fluoropolymer and processes e g reverse electrodialysis membrane contractors membrane crystallization membrane condenser membrane dryers and membrane emulsifiers that have only recently proved their full potential for industrial application This work covers the latest advances in membrane science linking fundamental research with real life practical applications using specially selected case studies of medium and large scale membrane operations to demonstrate successes and failures with a look to future developments in the field Contains comprehensive cutting edge coverage helping readers understand the latest theory Offers readers a variety of perspectives on how membrane science and engineering research can be best applied in practice across a range of industries Provides the theory behind the limits advantages future developments and failure expectations of local membrane operations in emerging Chemical Engineering Education, 1995 Handbook of Separation Process Technology Ronald W. countries Rousseau, 1987-05-13 Surveys the selection design and operation of most of the industrially important separation processes Discusses the underlying principles on which the processes are based and provides illustrative examples of the use of the processes in a modern context Features thorough treatment of newer separation processes based on membranes adsorption chromatography ion exchange and chemical complexation Includes a review of historically important separation processes such as distillation absorption extraction leaching and crystallization and considers these techniques in light of recent developments affecting them PRINCIPLES OF MASS TRANSFER AND SEPERATION PROCESSES DUTTA, BINAY K.,2007-01-21 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 indus try 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 Solutions manual to accompany separation processes Cary Judson King,1974 Journal of Engineering Education ,2005 Solutions Manual to Accompany Separation Processes Cary Judson King,1980

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