

## ***Rotary Dryer Engineering Design Handbook***

***This 2nd Edition of Coulson & Richardson's classic Chemical Engineering text provides a complete update and revision of Volume 6: An Introduction to Design. It provides a revised and updated introduction to the methodology and procedures for process design and process equipment selection and design for the chemical process and allied industries. It includes material on flow sheeting, piping and instrumentation, mechanical design of equipment, costing and project evaluation, safety and loss prevention. The material on safety and loss prevention and environmental protection has been revised to cover current procedures and legislation. Process integration and the use of heat pumps has been included in the chapter on energy utilisation. Additional material has been added on heat transfer equipment; agitated vessels are now covered and the discussion of fired heaters and plate heat exchangers extended. The appendices have been extended to include a computer program for energy balances, illustrations of equipment specification sheets and heat exchanger tube layout diagrams. This 2nd Edition will continue to provide undergraduate students of chemical engineering, chemical engineers in industry and chemists and mechanical engineers, who have to tackle problems arising in the process industries, with a valuable text on how a complete process is designed and how it must be fitted into the environment.***

***This text covers the design of food processing equipment based on key unit operations, such as heating, cooling, and drying. In addition, mechanical processing operations such as separations, transport, storage, and packaging of food materials, as well as an introduction to food processes and food processing plants are discussed. Handbook of Food Processing Equipment is an essential reference for food engineers and food technologists working in the food process industries, as well as for designers of process plants. The book also serves as a basic reference for food process engineering students. The chapters cover engineering and economic issues for all important steps in food processing. This research is based on the physical properties of food, the analytical expressions of transport phenomena, and the description of typical equipment used in food processing. Illustrations that explain the structure and operation of industrial food processing equipment are presented. style="font-size: 13.3333330154419px;">The materials of construction and fabrication of food processing equipment are covered here, as well as the selection of the appropriate equipment for various food processing operations. Mechanical processing equipment such as size reduction, size enlargement, homogenization, and mixing are discussed. Mechanical separations equipment such as filters, centrifuges, presses, and solids/air systems, plus equipment for industrial food processing such as heat transfer, evaporation, dehydration, refrigeration, freezing, thermal processing, and dehydration, are presented. Equipment for novel food processes such as high pressure processing, are discussed. The appendices include conversion of units, selected thermophysical properties, plant utilities, and an extensive list of manufacturers and suppliers of food equipment.***

***A guide to the major food drying techniques and equipment. It features technologies for meats, fruits, vegetables, and seafood. It covers microbial issues and safety. It includes designs for drying systems and manufacturing lines, and information on microbial safety, preservation, and packaging.***

***The CRC Handbook of Thermal Engineering, Second Edition, is a fully updated version of this respected reference work, with chapters written by leading experts. Its first part covers basic concepts, equations and principles of thermodynamics, heat transfer, and fluid dynamics.***

***Following that is detailed coverage of major application areas, such as bioengineering, energy-efficient building systems, traditional and renewable energy sources, food processing, and aerospace heat transfer topics. The latest numerical and computational tools, microscale and nanoscale engineering, and new complex-structured materials are also presented. Designed for easy reference, this new edition is a must-have volume for engineers and researchers around the globe.***

***Albright's Chemical Engineering Handbook***

***Handbook of Farm, Dairy and Food Machinery Engineering***

***PERRY'S CHEMICAL ENGINEER'S HANDBOOK 8/E SECTION 12***

***PSYCHROMETRY, EVAPO... (POD)***

***Handbook of Biomass Valorization for Industrial Applications***

***Environmental Engineers' Handbook, Second Edition***

**The Definitive Reference for Food Scientists & Engineers**  
**The Second Edition of the Encyclopedia of Agricultural, Food, and Biological Engineering focuses on the processes used to produce raw agricultural materials and convert the raw materials into consumer products for distribution. It provides an improved understanding of the processes used in**

**Still the Most Complete, Up-To-Date, and Reliable Reference in the Field**  
**Drying is a highly energy-intensive operation and is encountered in nearly all industrial sectors. With rising energy costs and consumer demands for higher quality dried products, it is increasingly important to be aware of the latest developments in industrial drying technolog**

**Drying Atlas: Drying Kinetics and Quality of Agricultural Products provides, in a condensed and systematic way, specific insights on the drying-relevant properties and coefficients of over 40 agricultural products. It also presents information about the production methods that influence the drying process, the quality of the dried product, the official quality standards of the products, and the design principles and operating characteristics of drying systems that are widely used in the postharvest processing and food industry. Available books on drying technology mainly focus on drying theory and simulation of drying processes. This book offers systematic information on the impact of other important parameters, such as relative humidity, air flow rate, mechanical, thermal and chemical pre-treatment, and drying mode for specific products. It is a unique and valuable reference for scientists and engineers who want to focus on industrial drying applications and dryers, as well as graduate and post-graduate students in postharvest technology and drying. Explores the production methods that influence the drying process and quality of the dried**

**product** Outlines the official quality standards of the products, the design principles, and the operating characteristics of drying systems that are used in postharvest processing Features 41 chapters that are (each for an agricultural product) presented in a condensed and systematic way

Provides a bibliography of more than three thousand handbooks in various aspects of science and technology, from abrasives and band structures to yield strength and zero defects

**Environmental Engineers' Handbook on CD-ROM**

**Engineering Economics and Economic Design for Process Engineers**

**Farm Chemicals Handbook**

**Standard Handbook of Powerplant Engineering**

**Cereals, Fruits, Vegetables, Tea, and Spices**

**Drying Principles and Practice** presents the fundamental principles that underlie drying arts as a basis for explaining the behavior of a drying plant. This book begins with an introductory chapter, followed by an account of the phenomena that causes the influence of moisture on its host material and manner in which moisture may be expelled by heat into the humid surroundings. The quantitative description of the way a moist material dries and how it dries under commercial conditions are also provided. The remainder of this text is devoted to surveying less-common methods of drying, moisture-measurement techniques, dryer-control systems, and aspects of the choice and design of industrial dryers. This publication is valuable to engineers, but is also a good source for senior undergraduate and postgraduate students engaged in studies of heat with mass transfer.

A complete reference for fermentation engineers engaged in commercial chemical and pharmaceutical production, **Fermentation and Biochemical Engineering Handbook** emphasizes the operation, development and design of manufacturing processes that use fermentation, separation and purification techniques. Contributing authors from companies such as Merck, Eli Lilly, Amgen and Bristol-Myers Squibb highlight the practical aspects of the processes—data collection, scale-up parameters, equipment selection, troubleshooting, and more. They also provide relevant perspectives for the different industry sectors utilizing fermentation techniques, including chemical, pharmaceutical, food, and biofuels. New material in the third edition covers topics relevant to modern recombinant cell fermentation, mammalian cell culture, and biorefinery, ensuring that the book will

remain applicable around the globe. It uniquely demonstrates the relationships between the synthetic processes for small molecules such as active ingredients, drugs and chemicals, and the biotechnology of protein, vaccine, hormone, and antibiotic production. This major revision also includes new material on membrane pervaporation technologies for biofuels and nanofiltration, and recent developments in instrumentation such as optical-based dissolved oxygen probes, capacitance-based culture viability probes, and in situ real-time fermentation monitoring with wireless technology. It addresses topical environmental considerations, including the use of new (bio)technologies to treat and utilize waste streams and produce renewable energy from wastewaters. Options for bioremediation are also explained. Fully updated to cover the latest advances in recombinant cell fermentation, mammalian cell culture and biorefinery, along with developments in instrumentation. Industrial contributors from leading global companies, including Merck, Eli Lilly, Amgen, and Bristol-Myers Squibb. Covers synthetic processes for both small and large molecules.

Now in its eighth edition, Perry's Chemical Engineers' Handbook offers unrivaled, up-to-date coverage of all aspects of chemical engineering. For the first time, individual sections are available for purchase. Now you can receive only the content you need for a fraction of the price of the entire volume. Streamline your research, pinpoint specialized information, and save money by ordering single sections of this definitive chemical engineering reference today. 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 Chemical Engineers' 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

Design, manufacturing, maintenance, and operating professionals often do not have the opportunity for meaningful dialogue. Even when a complete failure analysis is performed, insights gained about how to improve a process or material specification is often not relayed back to the designers. Many failures could be prevented if those responsible for making critical decisions had more information, especially regarding previous problems. This May 2000 conference brought together product designers and materials engineers to share knowledge gained over the last 20 years in fractography, stress analysis, and interdisciplinary approaches to engineering in general and failure analysis in particular. Contents: The Roots of Failure Interdisciplinary Failure Analysis Keeping 'an open mind' During Root Cause Analysis Legal Definitions of Failure for Designers and Manufacturers Codes, Standards and Test Methods Comprehensive Failure Analysis on a Complex System Critical Factors in the Design Process New Tools for Design Failure Modes and Effects Credibility Analysis Scientific Materials Selection Processes Materials Specification and Failure Case Histories Characteristics of Castings and Forgings Working with Heat Treaters Using the Right Material to 'Make It Like the Drawing' Machining Issues Finishing Processes Unanticipated Service Conditions Reliability Service Conditions.

Handbooks and Tables in Science and Technology

International Conference on Energy and Power Engineering (EPE2014)

Prepared by a Staff of Specialist

Handbook of Industrial Drying

Microbiology, Chemistry, Applications

*Taking greater advantage of powerful computing capabilities over the last several years, the development of fundamental information and new models has led to major advances in nearly every aspect of chemical engineering. Albright's Chemical Engineering Handbook represents a reliable source of updated methods, applications, and fundamental concepts that will continue to play a significant role in driving new research and improving plant design and operations. Well-rounded, concise, and practical by design, this handbook collects valuable insight from an exceptional diversity of leaders in their respective specialties. Each chapter provides a*

*clear review of basic information, case examples, and references to additional, more in-depth information. They explain essential principles, calculations, and issues relating to topics including reaction engineering, process control and design, waste disposal, and electrochemical and biochemical engineering. The final chapters cover aspects of patents and intellectual property, practical communication, and ethical considerations that are most relevant to engineers. From fundamentals to plant operations, Albright's Chemical Engineering Handbook offers a thorough, yet succinct guide to day-to-day methods and calculations used in chemical engineering applications. This handbook will serve the needs of practicing professionals as well as students preparing to enter the field.*

**HANDBOOK OF BIOMASS VALORIZATION for INDUSTRIAL APPLICATIONS** *The handbook provides a comprehensive view of cutting-edge research on biomass valorization, from advanced fabrication methodologies through useful derived materials, to current and potential application sectors. Industrial sectors, such as food, textiles, petrochemicals and pharmaceuticals, generate massive amounts of waste each year, the disposal of which has become a major issue worldwide. As a result, implementing a circular economy that employs sustainable practices in waste management is critical for any industry. Moreover, fossil fuels, which are the primary sources of fuel in the transportation sector, are also being rapidly depleted at an alarming rate. Therefore, to combat these global issues without increasing our carbon footprint, we must look for renewable resources to produce chemicals and biomaterials. In that context, agricultural waste materials are gaining popularity as cost-effective and abundantly available alternatives to fossil resources for the production of a variety of value-added products, including renewable fuels, fuel components, and fuel additives. Handbook of Biomass Valorization for Industrial Applications investigates current and emerging feedstocks, as well as provides in-depth technical information on advanced catalytic processes and technologies that enable the development of all possible alternative energy sources. The 22 chapters of this book comprehensively cover the valorization of agricultural wastes and their various uses in value-added applications like energy, biofuels, fertilizers, and wastewater treatment. Audience The book is intended for a very broad audience working in the fields of materials sciences, chemical engineering, nanotechnology, energy, environment, chemistry, etc. This book will be an invaluable reference source for the libraries in universities and industrial institutions, government and independent institutes, individual research groups, and scientists working in the field of valorization of biomass. The processing of food is no longer simple or straightforward, but is now a highly inter-disciplinary science. A number of new techniques have developed to extend shelf-life, minimize risk, protect the environment, and improve functional, sensory, and nutritional properties. Since 1999 when the first edition of this book was published, it has facilitated readers' understanding of the methods, technology, and science involved in the*

*manipulation of conventional and newer sophisticated food preservation methods. The Third Edition of the Handbook of Food Preservation provides a basic background in postharvest technology for foods of plant and animal origin, presenting preservation technology of minimally processed foods and hurdle technology or combined methods of preservation. Each chapter compiles the mode of food preservation, basic terminologies, and sequential steps of treatments, including types of equipment required. In addition, chapters present how preservation method affects the products, reaction kinetics and selected prediction models related to food stability, what conditions need be applied for best quality and safety, and applications of these preservation methods in different food products. This book emphasizes practical, cost-effective, and safe strategies for implementing preservation techniques for wide varieties of food products. Features: Includes extensive overview on the postharvest handling and treatments for foods of plants and animal origin Describes comprehensive preservation methods using chemicals and microbes, such as fermentation, antimicrobials, antioxidants, pH-lowering, and nitrite Explains comprehensive preservation by controlling of water, structure and atmosphere, such as water activity, glass transition, state diagram, drying, smoking, edible coating, encapsulation and controlled release Describes preservation methods using conventional heat and other forms of energy, such as microwave, ultrasound, ohmic heating, light, irradiation, pulsed electric field, high pressure, and magnetic field Revised, updated, and expanded with 18 new chapters, the Handbook of Food Preservation, Third Edition, remains the definitive resource on food preservation and is useful for practicing industrial and academic food scientists, technologists, and engineers.*

*The primary mission of the third edition of Handbook of Food Engineering is to provide the information needed for efficient design and development of processes used in the manufacturing of food products, along with supplying the traditional background on these processes. The new edition focuses on the thermophysical properties of food and the rate constants of change in food components during processing. It highlights the use of these properties and constants in process design. In addition to chapters on the properties of food and food ingredients, the book has a new chapter on nano-scale science in food processing. An additional chapter focuses on basic concepts of mass transfer in foods.*

*Food Properties Handbook, Second Edition*

*Handbook of Drying for Dairy Products*

*Chemical Engineer's Handbook*

*ASCE Manuals and Reports on Engineering Practice*

*Second Edition, Revised and Expanded*

*Handbook of Food Processing Equipment* Springer

Consists of alternately issued volumes with subtitles: Fundamentals; Applications;

Equipment; and Systems. Beginning 1990, subtitles change to: Refrigeration; Application;

Systems & Equipment; and Fundamentals. Beginning 2005-, Fundamentals vols. issued in

two eds.: inch-pound ed., and: SI ed.

Fundamental aspects, drying in various industrial sectors: drying of solids, experimental techniques, basic process calculations, transport properties in the drying solids, rotary drying, horizontal vacuum rotary dryers, fluidized bed drying drum dryers, industrial spray drying, freeze drying, microwave and dielectric drying, solar drying, spouted bed drying, impingement drying, flash drying, conveyor dryers, impinging stream dryers, infrared drying, drying of foodstuffs, agricultural products, fruits and vegetables, evaporation and spray drying in the dairy industry.

First Published in 1995, this book offers a full guide into industrial drying for various materials. Carefully compiled and filled with a vast repertoire of notes, diagrams, and references this book serves as a useful reference for students of medicine and other practitioners in their respective fields.

Drying

Fermentation and Biochemical Engineering Handbook

Handbook of Food Processing Equipment

Chemical Engineering Design

ASHRAE Handbook & Product Directory

**By far the most commonly encountered and energy-intensive unit operation in almost all industrial sectors, industrial drying continues to attract the interest of scientists, researchers, and engineers. The Handbook of Industrial Drying, Fourth Edition not only delivers a comprehensive treatment of the current state of the art, but also serves as a consultative reference for streamlining industrial drying operations. New to the Fourth Edition: Computational fluid dynamic simulation Solar, impingement, and pulse combustion drying Drying of fruits, vegetables, sugar, biomass, and coal Physicochemical aspects of sludge drying Life-cycle assessment of drying systems Covering commonly encountered dryers as well as innovative dryers with future potential, the Handbook of Industrial Drying, Fourth Edition not only details the latest developments in the field, but also explains how improvements in dryer design and operation can increase energy efficiency and cost-effectiveness.**

**Engineers often find themselves tasked with the difficult challenge of developing a design that is both technically and economically feasible. A sharply focused, how-to book, Engineering Economics and Economic Design for Process Engineers provides the tools and methods to resolve design and economic issues. It helps you integrate technical and economic decision making, creating more profit and growth for your organization. The book puts methods that are simple, fast, and inexpensive within easy reach. Author Thane Brown sets the stage by explaining the engineer's role in the creation of economically feasible projects. He discusses the basic economics of projects – how they are funded, what kinds of investments they require, how revenues, expenses, profits, and risks are interrelated, and how cash flows into and out of a company. In the engineering**

economics section of the book, Brown covers topics such as present and future values, annuities, interest rates, inflation, and inflation indices. He details how to create order-of-magnitude and study grade estimates for the investments in a project and how to make study grade production cost estimates. Against this backdrop, Brown explores a unique scheme for producing an Economic Design. He demonstrates how using the Economic Design Model brings increased economic thinking and rigor into the early parts of design, the time in a project's life when its cost structure is being set and when the engineer's impact on profit is greatest. The model emphasizes three powerful new tools that help you create a comprehensive design option list. When the model is used early in a project, it can drastically lower both capital and production costs. The book's uniquely industrial focus presents topics as they would happen in a real work situation. It shows you how to combine technical and economic decision making to create economically optimum designs and increase your impact on profit and growth, and, therefore, your importance to your organization. Using these time-tested techniques, you can design processes that cost less to build and operate, and improve your company's profit.

**Handbook of Agricultural and Farm Machinery, Third Edition**, is the essential reference for understanding the food industry, from farm machinery, to dairy processing, food storage facilities and the machinery that processes and packages foods. Effective and efficient food delivery systems are built around processes that maximize efforts while minimizing cost and time. This comprehensive reference is for engineers who design and build machinery and processing equipment, shipping containers, and packaging and storage equipment. It includes coverage of microwave vacuum applications in grain processing, cacao processing, fruit and vegetable processing, ohmic heating of meat, facility design, closures for glass containers, double seaming, and more. The book's chapters include an excellent overview of food engineering, but also regulation and safety information, machinery design for the various stages of food production, from tillage, to processing and packaging. Each chapter includes the state-of-the art in technology for each subject and numerous illustrations, tables and references to guide the reader through key concepts. Describes the latest breakthroughs in food production machinery Features new chapters on engineering properties of food materials, UAS applications, and microwave processing of foods Provides efficient access to fundamental information and presents real-world applications Includes design of machinery and facilities as well as theoretical bases for determining and predicting behavior of

foods as they are handled and processed

Dramatically restructured, more than double in size, the second edition of the Food Properties Handbook has been expanded from seven to 24 chapters. In the more than ten years since the publication of the internationally acclaimed and bestselling first edition, many changes have taken place in the approaches used to solve problems in food preservation, processing, storage, marketing, consumption, and even after consumption. Incorporating changes too numerous to list, this updated edition provides new measurement techniques, basic data compiled for diversified food groups, worked-out examples, and detailed graphs and illustrations. Explores Empirical and Theoretical Prediction Models The book clearly defines the terminology and elucidates the theory behind the measurement techniques, including applications and limitations of each method. It includes data on sources of error in measurement techniques and experimental data from the literature in graphical or tabular form. The volume also elucidates empirical and theoretical prediction models for different foods with processing conditions, descriptions of the applications of the properties, and coverage of where and how to use the data and models in food processing. User-Friendly Format Puts the Latest Information within Easy Reach Still under the aegis of Shafir Rahman, the new edition is now an edited volume, benefitting from the input and expertise of numerous contributors spanning both the globe and the many disciplines that influence the field. Presented in a user-friendly format, the second edition remains the definitive, and arguably the only, source for data on physical, thermal, thermodynamic, structural, and acoustic properties of foods.

**Encyclopedia of Agricultural, Food, and Biological Engineering  
Food Drying Science and Technology**

**Handbook of Food Engineering, Third Edition**

**Advanced Drying Technologies for Foods**

**Handbook of Food Preservation**

*Protecting the global environment is a single-minded goal for all of us. Environmental engineers take this goal to task, meeting the needs of society with technical innovations. Revised, expanded, and fully updated to meet the needs of today's engineer working in industry or the public sector, the Environmental Engineers' Handbook, Second Edition is a single source of current information. It covers in depth the interrelated factors and principles that affect our environment and how we have dealt with them in the past, are dealing with them today, and how we will deal with them in the future. This stellar reference addresses the ongoing global transition in cleaning up the remains of abandoned technology, the prevention of pollution created by existing technology, and the design of future zero emission technology. Béla G. Lipták speaks on Post-Oil Energy Technology on the AT&T Tech Channel.*

*Chemical Engineering Design: Principles, Practice and Economics of Plant and Process*

*Design is one of the best-known and most widely adopted texts available for students of chemical engineering. The text deals with the application of chemical engineering principles to the design of chemical processes and equipment. The third edition retains its hallmark features of scope, clarity and practical emphasis, while providing the latest US codes and standards, including API, ASME and ISA design codes and ANSI standards, as well as coverage of the latest aspects of process design, operations, safety, loss prevention, equipment selection, and more. The text is designed for chemical and biochemical engineering students (senior undergraduate year, plus appropriate for capstone design courses where taken), and professionals in industry (chemical process, biochemical, pharmaceutical, petrochemical sectors). Provides students with a text of unmatched relevance for chemical process and plant design courses and for the final year capstone design course Written by practicing design engineers with extensive undergraduate teaching experience Contains more than 100 typical industrial design projects drawn from a diverse range of process industries NEW TO THIS EDITION Includes new content covering food, pharmaceutical and biological processes and commonly used unit operations Provides updates on plant and equipment costs, regulations and technical standards Includes limited online access for students to Cost Engineering's Cleopatra Enterprise cost estimating software*

*Handbook of Drying for Dairy Products is a complete guide to the field's principles and applications, with an emphasis on best practices for the creation and preservation of dairy-based food ingredients. Details the techniques and results of drum drying, spray drying, freeze drying, spray-freeze drying, and hybrid drying Contains the most up-to-date research for optimizing the drying of dairy, as well as computer modelling options Addresses the effect of different drying techniques on the nutritional profile of dairy products Provides essential information for dairy science academics as well as technologists active in the dairy industry*

*The 2014 International Conference on Energy and Power Engineering (EPE2014), will be held on April 26-27, 2014, in Hong Kong, China. The aim of this international convention is to bring together experts and scholars from around the world and offer them a chance to share the latest research results in the field of Energy and Power Engineering. We all know that over the past few decades, a great change has happened in the field of the environment technology, and the science technology is growing faster and faster. In order to keep up with the daily changing situation, we have sent invitations to experts, scholars and other people who have devoted himself in related fields, and it is a great honor to us that most of them have accepted our invitation and supported the EPE2014 with their latest studies. Up till now, we have received over three hundred papers from various countries; this shows that there has been a growing interest in the field of energy and power engineering. Among those papers received, we have eventually chosen about a hundred to be presented and included in this proceeding. These papers generally represented the current research status in this field and the future trend. We sincerely believe that these papers could be valuable to the future work of yours. Finally, on behalf of the committee, I would like to deeply express our gratitude to those who have supported the EPE2014, especially the international experts who helped reviewing papers, the DEStech Publications help publish the conference proceedings, and last but not least, the authors of these inspiring papers. Without the help from these people, EPE2014 would not be as half successful as it is now. Here, welcome to EPE2014 and let's hope that it will be a great success. Tim Chou*

*Handbook, Control of Air Emissions from Superfund Sites*

*Chemical Engineers' Handbook*

*Handbook of Food Engineering Practice*

### *CIGR Handbook of Agricultural Engineering: Agro-processing engineering Drying Atlas*

This CRCnetBASE version of the best-selling Environmental Engineers' Handbook contains all of the revised, expanded, and updated information of the second edition and more. The fully searchable CD-ROM offers virtually instant access to all of the interrelated factors and principles affecting our environment as well as how the government and the industry must deal with it. It addresses the ongoing global transition in cleaning up the remains of abandoned technology, the prevention of pollution created by existing technology. The Environmental Engineers' Handbook on CD-ROM provides daily problem solving tools and information on state-of-the-art technologies for the future. The technology and specific equipment used in environmental control and clean-up is included for those professionals in need of detailed technical information. Because analytical results are an essential part of any environmental study, analytical methods used in environmental analysis are presented as well. Data is clearly presented in tables and schematic diagrams that illustrate the technology and techniques used in different areas. Béla G. Lipták speaks on Post-Oil Energy Technology on the AT&T Tech Channel.

The Handbook of Postharvest Technology presents methods in the manufacture and supply of grains, fruits, vegetables, and spices. It details the physiology, structure, composition, and characteristics of grains and crops. The text covers postharvest technology through processing, handling, drying and milling to storage, packaging, and distribution. Additionally, it examines cooling and preservation techniques used to maintain the quality and the decrease spoilage and withering of agricultural products.

This book outlines the normal process design procedure for definition of Dryers parameters along with guidelines and specific criteria for development of Dryers sizing by the Process Engineer. It covers the main features of the design of Dryers systems. Similarly, effort has been taken to include salient points and information for knowledge augmentation and usage in engineering by the process engineers. This guidebook is same as Vol I Chapter 17 from Overall Handbook i.e. "Mihir's Handbook of Chemical Process Engineering". Full version can be purchased at [www.chemicalprocessengineering.com](http://www.chemicalprocessengineering.com)

The goal of all drying research and development is to develop cost-effective innovative processes that yield high-quality dried products with less energy consumption and reduced environmental impact. With the literature on drying widely scattered, Advanced Drying Technologies for Foods compiles under one cover concise, authoritative, up-to-date assessments of modern drying technologies applied to foods. This book assembles a number of internationally recognized experts to provide critical reviews of advanced drying technologies, their merits and limitations, application areas and research opportunities for further development. Features: Provides critical reviews of advanced drying technologies Discusses the merits and limitations of a variety of food drying

technologies Explains drying kinetics, energy consumption and quality of food products Reviews the principles and recent applications of superheated steam drying The first four chapters deal with recent developments in field-assisted drying technologies. These include drying techniques with the utilization of electromagnetic fields to deliver energy required for drying, for example, microwave drying, radio frequency drying, electrohydrodynamic drying, and infrared radiation drying. The remainder of this book covers a wide assortment of recently developed technologies, which include pulse drying, swell drying, impinging stream drying, and selected advances in spray drying. The final chapter includes some innovative technologies which are gaining ground and are covered in depth in a number of review articles and handbooks, and hence covered briefly in the interest completeness. This book is a valuable reference work for researchers in academia as well as industry and will encourage further research and development and innovations in food drying technologies.

Drying Kinetics and Quality of Agricultural Products

Failure Prevention Through Education

Principles, Practice and Economics of Plant and Process Design

Getting to the Root Cause : Proceedings of the First ASM International Conference on Failure Prevention, Organized by the ASM Failure Analysis Committee, 23-25 May 2000, Cleveland, Ohio

DRYERS: Mihir's Process Engineering Guidebook

Food engineering has become increasingly important in the food industry over the years, as food engineers play a key role in developing new food products and improved manufacturing processes. While other textbooks have covered some aspects of this emerging field, this is the first applications-oriented handbook to cover food engineering processes and manufacturing techniques. A major portion of Handbook of Food Engineering Practice is devoted to defining and explaining essential food operations such as pumping systems, food preservation, and sterilization, as well as freezing and drying. Membranes and evaporator systems and packaging materials and their properties are examined as well. The handbook provides information on how to design accelerated storage studies and determine the temperature tolerance of foods, both of which are important in predicting shelf life. The book also examines the importance of physical and rheological properties of foods, with a special look at the rheology of dough and the design of processing systems for the manufacture of dough. The final third of the book provides useful supporting material that applies to all of the previously discussed unit operations, including cost/profit analysis methods, simulation procedures, sanitary guidelines, and process controller design. The book also includes a survey of food chemistry, a critical area of science for food engineers.

Handbook of Industrial Drying, Second Edition, Revised and Expanded

Principles and Practice

Handbook of Postharvest Technology

ASHRAE Handbook