

Hygiene In Food Processing Principles And Practice Woodhead Publishing Series In Food Science Technology And Nutrition

This is an updated version of the popular First Edition and includes additional chapters on food and waste management, raw materials, and refrigerated foods. Useful to university faculty and students as well as to food industry professionals, the book provides a comprehensive introduction to contemporary technologies and methods of sanitary food processing. Moving from principles to applications for problem-solving in the food plant, it presents the most recent data and concepts relative to cleaning and sanitizing food plants and process equipment. This volume traces the development of food processing knowledge, examines implications to human health, provides an understanding of the processing environment, and investigates measures to control health hazards, including the control of microbes. A special feature is its emphasis on food quality programs, with current information on HACCP and other quality programs such as ISO 9000. Food sanitarians and technologists, microbiologists, students and academicians in food science and nutrition, and public health will find this text invaluable in their understanding of sanitary food processing methods, food sanitation programs, and food-borne diseases. Traces the development of food processing knowledge Examines implications to human health Provides an understanding of the food processing environment Investigates measures to control health hazards

Innovation and Future Trends in Food Manufacturing and Supply Chain Technologies focuses on emerging and future trends in food manufacturing and supply chain technologies, examining the drivers of change and innovation in the food industry and the current and future ways of addressing issues such as energy reduction and rising costs in food manufacture. Part One looks at innovation in the food supply chain, while Part Two covers emerging technologies in food processing and packaging. Subsequent sections explore innovative food preservation technologies in themed chapters and sustainability and future research needs in food manufacturing. Addresses issues such as energy reduction and rising costs in food manufacture Assesses current supply chain technologies and the emerging advancements in the field, including key chapters on food processing technologies Covers the complete food manufacturing scale, compiling significant research from academics and important industrial figures

Novel food processing technologies have significant potential to improve product quality and process efficiency. Commercialisation of new products and processes brings exciting opportunities and interesting challenges. Case studies in novel food processing technologies provides insightful, first-hand experiences of many pioneering experts involved in the development and commercialisation of foods produced by novel processing technologies. Part one presents case studies of commercial products preserved with the leading nonthermal technologies of high pressure processing and pulsed electric field processing. Part two broadens the case histories to include alternative novel techniques, such as dense phase carbon dioxide, ozone, ultrasonics, cool plasma, and infrared technologies, which are applied in food preservation sectors ranging from fresh produce, to juices, to disinfestation. Part three covers novel food preservation techniques using natural antimicrobials, novel food packaging technologies, and oxygen depleted storage techniques. Part four contains case studies of innovations in retort technology, microwave heating, and predictive modelling that compare thermal versus non-thermal processes, and evaluate an accelerated 3-year challenge test. With its team of distinguished editors and international contributors, Case studies in novel food processing technologies is an essential reference for professionals in industry, academia, and government involved in all aspects of research, development and commercialisation of novel food processing technologies. Provides insightful, first-hand experiences of many pioneering experts involved in the development and commercialisation of foods produced by novel processing technologies Presents case studies of commercial products preserved with the leading nonthermal technologies of high pressure processing and pulsed electric field processing Features alternative novel techniques, such as dense phase carbon dioxide, ozone, ultrasonics, cool plasma, and infrared technologies utilised in food preservation sectors

Authored by world experts, the Handbook of Food Processing, Two-Volume Set discusses the basic principles and applications of major commercial food processing technologies. The handbook discusses food preservation processes, including blanching, pasteurization, chilling, freezing, aseptic packaging, and non-thermal food processing. It describes com

How safe is our food supply? Each year the media report what appears to be growing concern related to illness caused by the food consumed by Americans. These food borne illnesses are caused by pathogenic microorganisms, pesticide residues, and food additives. Recent actions taken at the federal, state, and local levels in response to the increase in reported incidences of food borne illnesses point to the need to evaluate the food safety system in the United States. This book assesses the effectiveness of the current food safety system and provides recommendations on changes needed to ensure an effective science-based food safety system. Ensuring Safe Food discusses such important issues as: What are the primary hazards associated with the food supply? What gaps exist in the current system for ensuring a safe food supply? What effects do trends in food consumption have on food safety? What is the impact of food preparation and handling practices in the home, in food services, or in production operations on the risk of food borne illnesses? What organizational changes in responsibility or oversight could be made to increase the effectiveness of the food safety system in the United States? Current concerns associated with microbiological, chemical, and physical hazards in the food supply are discussed. The book also considers how changes in technology and food processing might introduce new risks. Recommendations are made on steps for developing a coordinated, unified system for food safety. The book also highlights areas that need additional study. Ensuring Safe Food will be important for policymakers, food trade professionals, food producers, food processors, food researchers, public health professionals, and consumers.

Handbook of Hygiene Control in the Food Industry, Second Edition, continues to be an authoritative reference for anyone who needs hands-on practical information to improve best practices in food safety and quality. The book is written by leaders in the field who understand the complex issues of control surrounding food industry design, operations, and processes, contamination management methods, route analysis processing, allergenic residues, pest management, and more. Professionals and students will find a comprehensive account of risk analysis and management solutions they can use to minimize risks and hazards plus tactics and best practices for creating a safe food supply, farm to fork. Presents the latest research and development in the field of hygiene, offering a broad range of the microbiological risks associated with food processing Provides practical hygiene related solutions in food facilities to minimize foodborne pathogens and decrease the occurrence of foodborne disease Includes the latest information on biofilm formation and detection for prevention and control of pathogens as well as pathogen resistance

Now in its 6th Edition, this highly acclaimed textbook provides sanitation information needed to ensure hygienic practices and safe

food for food industry personnel as well as students. It addresses the principles related to contamination, cleaning compounds, sanitizers, cleaning equipment. It also presents specific directions for applying these concepts to attain hygienic conditions in food processing or food preparation operations. New in this edition: Updated chapters on the fundamentals of food sanitation, contamination sources and hygiene, Hazard Analysis Critical Control Points, cleaning and sanitizing equipment, waste handling disposal, biosecurity, allergens, quality assurance, pest control, cleaning compound and sanitizer properties and selection criteria, hygienic construction, sanitation guidelines for food and foodservice establishments, and sanitation management principles. Sanitation in Food Processing is a guide to food process sanitation, which illustrates the principles with timely examples. It discusses the importance of training in food-plant sanitation programs, as well as regulatory programs relating to all aspects of food plant sanitation, including Hazard Analysis Critical Control Point (HACCP), the construction and design of food plants, and prevention of food-borne diseases. Comprised of 19 chapters, this volume begins with an overview of sanitation in food processing, good sanitation practices, and the ways to establish a successful food sanitation program. It then discusses factors to consider in the design and construction of food plants; sanitary design and operation of food processing and service equipment; microbial growth in foods; the importance of personal hygiene; and significant insects in the food industry. The reader is also introduced to ways of controlling insects, rodents, and birds in the food environment, while other chapters address sanitation in food packaging, storage, and transport. The book concludes with a summary of food laws and regulations. This book is a valuable resource for undergraduate and postgraduate students, food sanitarians, and others in the food-processing industry who want to learn more about the ways and means of ensuring the quality and safety of the food we eat.

Large volume food processing and preparation operations have increased the need for improved sanitary practices from processing to consumption. This trend presents a challenge to every employee in the food processing and food preparation industry. Sanitation is an applied science for the attainment of hygienic conditions. Because of increased emphasis on food safety, sanitation is receiving increased attention from those in the food industry. Traditionally, inexperienced employees with few skills who have received little or no training have been delegated sanitation duties. Yet sanitation employees require intensive training. In the past, these employees, including sanitation program managers, have had only limited access to material on this subject. Technical information has been confined primarily to a limited number of training manuals provided by regulatory agencies, industry and association manuals, and recommendations from equipment and cleaning compound firms. Most of this material lacks specific information related to the selection of appropriate cleaning methods, equipment, compounds, and sanitizers for maintaining hygienic conditions in food processing and preparation facilities. The purpose of this text is to provide sanitation information needed to ensure hygienic practices. Sanitation is a broad subject; thus, principles related to contamination, cleaning compounds, sanitizers, and cleaning equipment, and specific directions for applying these principles to attain hygienic conditions in food processing and food preparation are discussed. The discussion starts with the importance of sanitation and also includes regulatory requirements and voluntary sanitation programs including additional and updated information on Hazard Analysis Critical Control Points (HACCP).

Comprehensive and accessible, this book presents fundamental principles and applications that are essential for food production and food service safety. It provides basic, practical information on the daily operations in a food processing plant and reviews some of the industry's most recent developments. Formerly titled Food Plant Sanitation, this second edition discusses nine additional food processing industries and contains 14 new chapters. Among others, new topics include sanitation in food transportation and sanitation of fresh produce in retail establishments.

Finally, an up-to-date guide to cleaning and disinfection for the food preparation and processing industries. It discusses a host of examples from various food industries as well as topics universal to many industries, including biofilm formation, general sanitizing, and clean-in-place systems. Equally, the principles related to contamination, cleaning compounds, sanitizers and cleaning equipment are addressed. As a result, concepts of applied detergency are developed in order to understand and solve problems related to the cleaning and disinfection of laboratories, plants and other industrial environments where foods and beverages are prepared. Essential reading for food industry personnel.

Food Safety and Human Health provides a framework to manage food safety risks and insure safe food system. This reference takes a reader-friendly approach in presenting the entire range of toxic compounds found naturally in foods or introduced by industrial contamination or food processing methods. It provides the basic principles of food toxicology and its processing and safety for human health to help professionals and students better understand the real problems of toxic materials. This essential resource will help readers address problems regarding food contamination and safety. It will be particularly useful for graduate students, researchers and professionals in the agri-food industry. Encompasses the first pedagogic treatment of the entire range of toxic compounds found naturally in foods or introduced by industrial contamination or food processing methods Features areas of vital concern to consumers, such as the toxicological implications of food, implications of food processing and its safety to human health Focuses on the safety aspects of genetically modified foods currently available

In this era of emphasis on food safety and security, high-volume food processing and preparation operations have increased the need for improved sanitary practices from processing to consumption. This trend presents a challenge for the food processing and food preparation industry. Now in its 5th Edition, the highly acclaimed Principles of Food Sanitation provides sanitation information needed to ensure hygienic practices and safe food for food industry personnel as well as students. The highly acclaimed textbook and reference addresses the principles related to contamination, cleaning compounds, sanitizers, cleaning equipment. It also presents specific directions for applying these concepts to attain hygienic conditions in food processing or food preparation operations. New features in this edition include: A new chapter on the concerns about biosecurity and food sanitation Updated chapters on the fundamentals of food sanitation, contamination sources and hygiene, Hazard Analysis Critical Control Points, cleaning and sanitizing equipment, and waste handling disposal Comprehensive and concise discussion about sanitation of low-, intermediate-, and high-

moisture foods

As with the beginning of the twentieth century, when food safety standards and the therapeutic benefits of certain foods and supplements first caught the public's attention, the dawn of the twenty-first century finds a great social priority placed on the science of food safety. Ronald Schmidt and Gary Rodrick's *Food Safety Handbook* provides a single, comprehensive reference on all major food safety issues. This expansive volume covers current United States and international regulatory information, food safety in biotechnology, myriad food hazards, food safety surveillance, and risk prevention. Approaching food safety from retail, commercial, and institutional angles, this authoritative resource analyzes every step of the food production process, from processing and packaging to handling and distribution. The Handbook categorizes and defines real and perceived safety issues surrounding food, providing scientifically non-biased perspectives on issues for professional and general readers. Each part is divided into chapters, which are then organized into the following structure: Introduction and Definition of Issues; Background and Historical Significance; Scientific Basis and Implications; Regulatory, Industrial, and International Implications; and Current and Future Implications. Topics covered include: Risk assessment and epidemiology Biological, chemical, and physical hazards Control systems and intervention strategies for reducing risk or preventing food hazards, such as Hazard Analysis Critical Control Point (HACCP) Diet, health, and safety issues, with emphasis on food fortification, dietary supplements, and functional foods Worldwide food safety issues, including European Union perspectives on genetic modification Food and beverage processors, manufacturers, transporters, and government regulators will find the *Food Safety Handbook* to be the premier reference in its field.

Food safety awareness is at an all time high, new and emerging threats to the food supply are being recognized, and consumers are eating more and more meals prepared outside of the home. Accordingly, retail and food service establishments, as well as food producers at all levels of the food production chain, have a growing responsibility to ensure that proper food safety and sanitation practices are followed, thereby, safeguarding the health of their guests and customers. Achieving food safety success in this changing environment requires going beyond traditional training, testing, and inspection approaches to managing risks. It requires a better understanding of organizational culture and the human dimensions of food safety. To improve the food safety performance of a retail or food service establishment, an organization with thousands of employees, or a local community, you must change the way people do things. You must change their behavior. In fact, simply put, food safety equals behavior. When viewed from these lenses, one of the most common contributing causes of food borne disease is unsafe behavior (such as improper hand washing, cross-contamination, or undercooking food). Thus, to improve food safety, we need to better integrate food science with behavioral science and use a systems-based approach to managing food safety risk. The importance of organizational culture, human behavior, and systems thinking is well documented in the occupational safety and health fields. However, significant contributions to the scientific literature on these topics are noticeably absent in the field of food safety. Packed with case studies and problem calculations, *Handbook of Food Processing: Food Safety, Quality, and Manufacturing Processes* presents the information necessary to design food processing operations and describes the equipment needed to carry them out in detail. It covers the most common and new food manufacturing processes while addressing rele

Food Plant Safety: UV Applications for Food and Non-Food Surfaces discusses the fundamental principles of ultraviolet (UV) light technology, and gives practical recommendations on UV processes and systems design for specific processing operations, as well as how microbial efficacy of UV light can improve the quality of existing product lines. Innovative research of ultraviolet light for food applications has been growing worldwide. With increased consumer demand for fresher, minimally processed but safe foods, comes the need for novel technologies to meet that demand. Ultraviolet technology has been taking its niche in food production as a non-chemical treatment to control and enhance safety of processing plants and storage facilities. This concise resource covers the fundamentals of this promising technology and its applications; it will benefit a broad audience of professionals in food engineering, processing, and product development, as well as graduate level students. Focuses on plant processing operations in the food industry Presents the benefits of UV light technology applications for air quality, and safety of non-food and food contact surfaces Covers the cost benefits and energy and environmental advantages of using UV technologies

Developments such as the demand for minimally-processed foods have placed a renewed emphasis on good hygienic practices in the food industry. As a result there has been a wealth of new research in this area. Complementing Woodhead's best-selling *Hygiene in the food industry*, which reviews current best practice in hygienic design and operation, *Handbook of hygiene control in the food industry* provides a comprehensive summary of the key trends and issues in food hygiene research. Developments go fast: results of the R&D meanwhile have been applied or are being implemented as this book goes to print. Part one reviews research on the range of contamination risks faced by food processors. Building on this foundation, Part two discusses current trends in the design both of buildings and types of food processing equipment, from heating and packaging equipment to valves, pipes and sensors. Key issues in effective hygiene management are then covered in part three, from risk analysis, good manufacturing practice and standard operating procedures (SOPs) to improving cleaning and decontamination techniques. The final part of the book reviews developments in ways of monitoring the effectiveness of hygiene operations, from testing surface cleanability to sampling techniques and hygiene auditing. Like *Hygiene in the food industry*, this book is a standard reference for the food industry in ensuring the highest standards of hygiene in food production. Standard reference on high hygiene standards for the food industry Provides a comprehensive summary of the key trends in food hygiene research Effective hygiene management strategies are explored

Comprehensive and accessible, *Food Plant Sanitation* presents fundamental principles and applications that are

essential for food production safety. It provides basic, practical information on the daily operations in a food processing plant and reviews some of the industry's most recent developments. The book is unique from others on the topic in that this book is focused on the expansive and highly demanding subject of Food Industry "Technical & Quality Management". As the world's most vital industry "Food Production" is complex, multifaceted and continuously scrutinised. Food scares and product recalls, on national and international scales, demonstrate the persistent challenge to identify, monitor and control all hazards, and also address the increasing criminal threats of Food Fraud, Adulteration & Intentional Contamination. With the benefit of unique perspectives gained by working across Quality, Technical and Operations Management roles at all levels within the food industry, Swainson's Handbook of Technical and Quality Management considers the very diverse remit and particular challenges of those working to assure product Quality, Safety and Legality in the sector. This book provides insights and guidance on the "Applied Practice" of Industrial Quality and Technical Management, written from the perspective of the industry practitioner. "Knowing what to do is half of the challenge, but being able to then make it happen is crucial" – a fact which is often less well considered in food sector information resources. Split into two sections, the book first reviews generic aspects of Food Quality and Technical Management activities with particular regard to: Food Sector Challenges and the Role of Technical and Quality Management; Defining Technical and Quality Standards; The Food Safety and Quality Management System; Raw Materials and Packaging Supplier Control; Site Standards; Product Control and HACCP Considerations; Operations and Process Control; Personnel Control; Audits; Non-Conformance, Recall & Crisis Management; Managing the Technical Department. In the second part of the book Guest Authors share their expertise on a range of specialist topics, providing significant breadth and depth to the content which includes: Review of Third party audit schemes; Insights into supplying supermarkets with regard to good technical and quality management practices; Enforcement authority perspectives on the food manufacturing sector. Also covered are the specific sector challenges of food quality and safety assurance in Fruit and vegetables; Herbs and spices, Cereals, Baked products, Canning and "Cook – Chill" Ready Meals, Soups and Sauces. Compiled expertise of food sector specialists with extensive industrial experience. Edited by an industry and academic expert with over 25 years experience of technical and quality management in the food sector. Contains Technical and Quality Management information that is relevant to a wide range of sectors in the food industry. Also examines Technical and Quality Management practice in specific food applications and reviews relevant compliance standards.

This publication contains guidance on the development and application of international food hygiene standards, which covers practices from primary production through to final consumption, highlighting key hygiene controls at each stage. It also contains guidance on the use and application of the Hazard Analysis and Critical Control Point (HACCP) system to promote food safety, as well as principles for the establishment and application of microbiological criteria for foods and the conduct of microbiological assessment.

Life cycle assessment (LCA) of production and processing in the food industry is an important tool for improving sustainability. Environmental assessment and management in the food industry reviews the advantages, challenges and different applications of LCA and related methods for environmental assessment, as well as key aspects of environmental management in this industry sector. Part one discusses the environmental impact of food production and processing, addressing issues such as nutrient management and water efficiency in agriculture. Chapters in Part two cover LCA methodology and challenges, with chapters focusing on different food industry sectors such as crop production, livestock and aquaculture. Part three addresses the applications of LCA and related approaches in the food industry, with chapters covering combining LCA with economic tools, ecodesign of food products and footprinting methods of assessment, among other topics. The final part of the book concentrates on environmental management in the food industry, including contributions on training, eco-labelling and establishing management systems. With its international team of editors and contributors, Environmental assessment and management in the food industry is an essential reference for anyone involved in environmental management in the food industry, and for those with an academic interest in sustainable food production. Reviews the advantages, challenges and different applications of LCA and related methods for environmental assessment Discusses the environmental impact of food production and processing, addressing issues such as nutrient management and water efficiency in agriculture Examines environmental management in the food industry, including contributions on training, eco-labelling and establishing management systems

The hygienic processing of food concerns both potential hazards in food products and the regulation, design, and management of food processing facilities. This second edition of Hygiene in Food Processing gives a revised overview of the practices for safe processing and incorporates additional chapters concerning pest control, microbiological environmental sampling, and the economics of food plants. Part one addresses microbial risks in foods and the corresponding regulation in the European Union. Part two discusses the hygienic design of food factory infrastructure, encompassing the design and materials for the factory itself, as well as food processing equipment. This edition includes a new chapter on the control of compressed gases used to pneumatically operate equipment. Part three focuses on cleaning and disinfection practices in food processing. The chapter on cleaning in place also considers more cost-effective systems, and complements the additional chapter on maintenance of equipment. These chapters also explore issues such as the hygiene of workers, potential infection by foreign bodies, and pest control. Further, the chapter on microbiological sampling explains how to calculate the risk of contamination depending on the product's environment. This essential second edition is useful to professionals responsible for hygiene in the food industry. It provides a comprehensive, yet concise and practical reference source for food plant managers, suppliers of food processing equipment, building contractors, and food inspectors looking for an authoritative introduction to hygiene regulation,

hygienic design, and sanitation. Provides a revised overview of the practices for safe processing Incorporates additional chapters concerning pest control, microbiological environmental sampling, and the economics of food plants This essential second edition is useful for professionals responsible for hygiene in the food industry

Widely regarded as a standard work in its field, this book introduces the range of processing techniques that are used in food manufacturing. It explains the principles of each process, the processing equipment used, operating conditions and the effects of processing on micro-organisms that contaminate foods, the biochemical properties of foods and their sensory and nutritional qualities. The book begins with an overview of important basic concepts. It describes unit operations that take place at ambient temperature or involve minimum heating of foods. Subsequent chapters examine operations that heat foods to preserve them or alter their eating quality, and explore operations that remove heat from foods to extend their shelf life with minimal changes in nutritional quality or sensory characteristics. Finally, the book reviews post-processing operations, including packaging and distribution logistics. The third edition has been substantially rewritten, updated and extended to include the many developments in food technology that have taken place since the second edition was published in 2000. Nearly all unit operations have undergone significant developments, and these are reflected in the large amount of additional material in each chapter. In particular, advances in microprocessor control of equipment, 'minimal' processing technologies, genetic modification of foods, functional foods, developments in 'active' or 'intelligent' packaging, and storage and distribution logistics are described. Developments in technologies that relate to cost savings, environmental improvement or enhanced product quality are highlighted. Additionally, sections in each chapter on the impact of processing on food-borne micro-organisms are included for the first time.

Food Safety Management: A Practical Guide for the Food Industry with an Honorable Mention for Single Volume Reference/Science in the 2015 PROSE Awards from the Association of American Publishers is the first book to present an integrated, practical approach to the management of food safety throughout the production chain. While many books address specific aspects of food safety, no other book guides you through the various risks associated with each sector of the production process or alerts you to the measures needed to mitigate those risks. Using practical examples of incidents and their root causes, this book highlights pitfalls in food safety management and provides key insight into the means of avoiding them. Each section addresses its subject in terms of relevance and application to food safety and, where applicable, spoilage. It covers all types of risks (e.g., microbial, chemical, physical) associated with each step of the food chain. The book is a reference for food safety managers in different sectors, from primary producers to processing, transport, retail and distribution, as well as the food services sector. Honorable Mention for Single Volume Reference/Science in the 2015 PROSE Awards from the Association of American Publishers Addresses risks and controls (specific technologies) at various stages of the food supply chain based on food type, including an example of a generic HACCP study Provides practical guidance on the implementation of elements of the food safety assurance system Explains the role of different stakeholders of the food supply

Food-borne diseases are major causes of morbidity and mortality in the world. It is estimated that about 2.2 million people die yearly due to food and water contamination. Food safety and consequently food security are therefore of immense importance to public health, international trade and world economy. This book, which has 10 chapters, provides information on the incidence, health implications and effective prevention and control strategies of food-related diseases. The book will be useful to undergraduate and postgraduate students, educators and researchers in the fields of life sciences, medicine, agriculture, food science and technology, trade and economics. Policy makers and food regulatory officers will also find it useful in the course of their duties.

This book explains the role of food-oriented (or 'food-centric') quality system standards in the modern food and beverage industry. It discusses food safety schemes based on the international norm ISO 9001 and the "Hazard Analysis and Critical Control Points" approach, and also introduces the new Global Standard for Food Safety (GSFS) and the International Featured Standard (IFS, 7th ed.), outlining standardization for international equivalence (while maintaining the necessary flexibility and independence – which is not always an easy task). Providing selected specific examples, it examines the problems of chemical additives and possible cross-contaminations between different production lines, as well as adequate reactions to and handling of intentional adulterations. In addition, it includes a chapter focusing on quality audits and technical data sheets in the food industry, and a final chapter describing the certification of food-grade lubricants in the food industry, especially with regard to allergenic substances.

Principles and Practices for the Safe Processing of Foods presents information on the design, construction, and sanitary maintenance of food processing plants. This book also provides guidelines for establishing and implementing the Hazard Analysis Critical Control Points (HACCP) System and for training personnel in hygienic practices. This text is divided into 13 chapters and begins with the assessment of corporate policies concerning the controlled production of clean, wholesome foods in a sanitary manner. The next chapters deal with some of the requirements for safe food processing, including the establishment and implementation of HACCP rules, building status, sanitation, and personnel. A chapter briefly covers the structure of some microorganisms that affect safe food, such as viruses, bacteria, and fungi. This topic is followed by discussions of the biological factors underlying food safety, preservation, and stability; the principles and application of microbiological control methods; pathogenicity and pathogen profiles; and enzymes and their importance in food spoilage. The last chapters examine the aspects of microbiological safety in food preservation technologies and the criteria for ingredients and finished products. This book will prove useful to food manufacturers, policy makers, and public health workers.

Hygiene in Food Processing Principles and Practice Elsevier

The implementation of robotics and automation in the food sector offers great potential for improved safety, quality and

profitability by optimising process monitoring and control. Robotics and automation in the food industry provides a comprehensive overview of current and emerging technologies and their applications in different industry sectors. Part one introduces key technologies and significant areas of development, including automatic process control and robotics in the food industry, sensors for automated quality and safety control, and the development of machine vision systems. Optical sensors and online spectroscopy, gripper technologies, wireless sensor networks (WSN) and supervisory control and data acquisition (SCADA) systems are discussed, with consideration of intelligent quality control systems based on fuzzy logic. Part two goes on to investigate robotics and automation in particular unit operations and industry sectors. The automation of bulk sorting and control of food chilling and freezing is considered, followed by chapters on the use of robotics and automation in the processing and packaging of meat, seafood, fresh produce and confectionery. Automatic control of batch thermal processing of canned foods is explored, before a final discussion on automation for a sustainable food industry. With its distinguished editor and international team of expert contributors, Robotics and automation in the food industry is an indispensable guide for engineering professionals in the food industry, and a key introduction for professionals and academics interested in food production, robotics and automation. Provides a comprehensive overview of current and emerging robotics and automation technologies and their applications in different industry sectors

Chapters in part one cover key technologies and significant areas of development, including automatic process control and robotics in the food industry and sensors for automated quality and safety control Part two investigates robotics and automation in particular unit operations and industry sectors, including the automation of bulk sorting and the use of robotics and automation in the processing and packaging of meat, seafood, fresh produce and confectionery

A high standard of hygiene is a prerequisite for safe food production, and the foundation on which HACCP and other safety management systems depend. Edited and written by some of the world's leading experts in the field, and drawing on the work of the prestigious European Hygienic Engineering and Design Group (EHEDG), Hygiene in food processing provides an authoritative and comprehensive review of good hygiene practice for the food industry. Part one looks at the regulatory context, with chapters on the international context, regulation in the EU and the USA. Part two looks at the key issue of hygienic design. After an introductory chapter on sources of contamination, there are chapters on plant design and control of airborne contamination. These are followed by a sequence of chapters on hygienic equipment design, including construction materials, piping systems, designing for cleaning in place and methods for verifying and certifying hygienic design. Part three then reviews good hygiene practices, including cleaning and disinfection, personal hygiene and the management of foreign bodies and insect pests. Drawing on a wealth of international experience and expertise, Hygiene in food processing is a standard work for the food industry in ensuring safe food production. An authoritative and comprehensive review of good hygiene practice for the food industry Draws on the work of the prestigious European Hygienic Engineering and Design Group (EHEDG) Written and edited by world renowned experts in the field

Food microbiology is a fascinating and challenging science. It is also very demanding with a constantly changing sea of guidelines, regulations and equipment. Public concerns over food safety issues can overemphasize certain risks and detract from the normal hygienic practice of food manufacturers. This new edition aims to update anyone concerned with the hygienic production of food on key issues of HACCP, food microbiology and the methods of microbe detection. I have taken a 'crystal ball' approach to certain topics. The use of rapid techniques such as lux gene technology and polymerase chain reaction (DNA probes) are progressing so rapidly in the research laboratory that when this book is in print the techniques may be more readily available. New methods for investigating viral gastroenteritis due to small round structured viruses (SRSV) have been developed past the 'research' stage and may become more standard in the next few years. Undoubtedly this will alter our understanding of the prevalence of viral food poisoning. I have also included issues such as new variant CJD (associated with BSE infected cattle) which at the time of writing has only caused the deaths of 20 people, but due to the uncertain incubation time could be a far more serious problem. In the UK there has been a much publicised outbreak of Escherichia coli 0157:H7 which has resulted in a government inquiry and the recommendation of the generic HACCP approach. Hence this approach to HACCP implementation has been included.

An Aspen Food Science Text Series Book. All of the essential information that you have come to rely on in the widely-acclaimed 'Principles of Food Sanitation' by Norman G. Marriott is now available to you in a simplified, practical, and updated format. Providing a step-by-step, hands-on approach, this incomparable text offers useful and interesting information on food sanitation at all stages of food processing and food service and stresses how important the role of each employee is at each stage. Essentials of Food Sanitation covers a wide variety of topics from cleaning and sanitizing compounds, systems and equipment to food sanitation in various types of food processing such as dairy products, seafood, meat and poultry, etc. Each chapter provides food handlers and students with interesting real-life reports of recent food sanitation problems plus different techniques to ensure firm understanding of the subject, including: visual aides; a comprehensive glossary; several summaries, study questions; references; chapter bibliographies; a resource section on how to learn more about the topic; and case studies. A thorough discussion of HACCP and how a HACCP system relates to quality assurance and sanitation functions is also outlined in the text. Furthermore, expanded material on foodservice, including the methods and principles for sanitary food handling and considerations at various control points in the flow of foodservice is provided.

Thermal Processing of Ready-to-Eat Meat Products provides critical technical information on all aspects of thermal processing of RTE meat products. Edited and authored by the most experienced and knowledgeable people in the meat industry on this subject, the book addresses all technical and regulatory aspects of the production of RTE meat products, such as heat and mass transfer, pathogen lethality, post-packaging pasteurization, sanitary design, predictive equations and supportive documentation for HACCP.

Food safety is vital for consumer confidence, and the hygienic design of food processing facilities is central to the manufacture of safe products. Hygienic design of food factories provides an authoritative overview of hygiene control in the design, construction and renovation of food factories. The business case for a new or refurbished food factory, its equipment needs and the impacts on factory design and construction are considered in two introductory chapters. Part one then reviews the implications of hygiene and construction regulation in various countries on food factory design. Retailer requirements are also discussed. Part two describes site selection, factory layout and the associated issue of airflow. Parts three, four and five then address the hygienic design of essential parts of a food factory. These include walls, ceilings, floors, selected utility and process support systems, entry and exit points, storage areas and changing rooms. Lastly part six

covers the management of building work and factory inspection when commissioning the plant. With its distinguished editors and international team of contributors, Hygienic design of food factories is an essential reference for managers of food factories, food plant engineers and all those with an academic research interest in the field. An authoritative overview of hygiene control in the design, construction and renovation of food factories Examines the implications of hygiene and construction regulation in various countries on food factory design Describes site selection, factory layout and the associated issue of airflow

Drawing from the expertise of the prestigious European Hygienic Equipment Design Group (EHEDG) and other experts in the field, this major new collection represents the standard on the issue of good hygiene practice in food processing. The work covers hygiene regulation in both the USA and Europe. It opens with an examination of the general principles of hygiene, then moves on to plant design and construction, as well as hygiene principles and methods. The book also provides a complete overview of the food supply chain, from farm to consumer.

Food Protection and Security: Preventing and Mitigating Intentional and Unintentional Contamination of Food and Beverage presents the latest information on our need to protect our food supply from accidental contamination, economically motivated adulteration, and contamination with intent to harm (bioterrorism or agro-terrorism). This book covers all three branches of food protection, providing a comprehensive overview of the methods and strategy involved. Part one covers the need for food protection, looking at potential hazards in the production, processing, and supply chain. Part two looks at detection methods for contaminants in food, with the final section addressing food contamination incidents and prevention and response strategies. Explores the need for food protection, from natural disasters to contamination in food processing facilities Examines techniques used to detect contaminants in food, such as microbiological testing and fingerprinting Provides key ways to address food contamination issues

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