



# Functional foods

Concept to product

Second edition

Edited by Maria Saarela

**Functional Foods Second Edition Concept To Product**  
**Woodhead Publishing Series In Food Science**  
**Technology And Nutrition**

**Charlotte Jacobsen, Nina Skall  
Nielsen, Anna Frisenfeldt Horn, Ann-  
Dorit Moltke Sørensen**

## **Functional Foods Second Edition Concept To Product Woodhead Publishing Series In Food Science Technology And Nutrition:**

**Processed Meats** Joseph P. Kerry, John F. Kerry, 2011-07-14 In a market in which consumers demand nutritionally balanced meat products producing processed meats that fulfil their requirements and are safe to eat is not a simple task Processed meats Improving safety nutrition and quality provides professionals with a wide ranging guide to the market for processed meats product development ingredient options and processing technologies Part one explores consumer demands and trends legislative issues key aspects of food safety and the use of sensory science in product development among other issues Part two examines the role of ingredients including blood by products hydrocolloids and natural antimicrobials as well as the formulation of products with reduced levels of salt and fat Nutraceutical ingredients are also covered Part three discusses meat products processing taking in the role of packaging and refrigeration alongside emerging areas such as high pressure processing and novel thermal technologies Chapters on quality assessment and the quality of particular types of products are also included With its distinguished editors and team of expert contributors Processed meats Improving safety nutrition and quality is a valuable reference tool for professionals working in the processed meat industry and academics studying processed meats Provides professionals with a wide ranging guide to the market for processed meats product development ingredient options processing technologies and quality assessment Outlines the key issues in producing processed meat products that are nutritionally balanced contain fewer ingredients have excellent sensory characteristics and are safe to eat Discusses the use of nutraceutical ingredients in processed meat products and their effects on product quality safety and acceptability

New Analytical Approaches for Verifying the Origin of Food Paul Brereton, 2013-07-31 Food and beverage labels often specify a product's geographical origin species variety and method of production These claims can significantly influence an item's economic value but their verification is not always straightforward New analytical approaches for verifying the origin of food reviews new analytical methods in this area together with applications to key commodities Part one introduces the concept of food origin and provides supporting information on labelling legislation and standards Part two moves on to explore new approaches for verifying the geographical origin of food using geospatial models and verifying species and varietal components of the food we eat Holistic methods of verification methods using vibrational spectroscopy and associated chemometrics are also discussed Finally part three highlights the applications of new analytical methods to verify the origin of particular food commodities fish honey and wine New analytical approaches for verifying the origin of food is a standard reference for professionals working in analytical laboratories testing food authenticity and for researchers in the food industry analytical laboratories and academia working on the development of analytical methods for food authenticity Includes a chapter on origin labelling legislation and standards Chapters address the applications of both established and novel methods in key product sectors Reviews new analytical methods and their applications in the food

industry     Sensory Analysis for Food and Beverage Quality Control David Kilcast, 2010-05-24 Producing products of reliable quality is vitally important to the food and beverage industry. In particular, companies often fail to ensure that the sensory quality of their products remains consistent, leading to the sale of goods which fail to meet the desired specifications or are rejected by the consumer. This book is a practical guide for all those tasked with using sensory analysis for quality control (QC) of food and beverages. Chapters in part one cover the key aspects to consider when designing a sensory QC program. The second part of the book focuses on methods for sensory QC and statistical data analysis. Establishing product sensory specifications and combining instrumental and sensory methods are also covered. The final part of the book reviews the use of sensory QC programs in the food and beverage industry. Chapters on sensory QC for taint prevention and the application of sensory techniques for shelf life assessment are followed by contributions reviewing sensory QC programs for different products including ready meals, wine and fish. A chapter on sensory QC of products such as textiles, cosmetics and cars completes the volume. Sensory analysis for food and beverage quality control is an essential reference for anyone setting up or operating a sensory QC program or researching sensory QC. Highlights key aspects to consider when designing a quality control program including sensory targets and proficiency testing. Examines methods for sensory quality control and statistical data analysis. Reviews the use of sensory quality control programs in the food and beverage industry featuring ready meals, wine and fish.

**Global Safety of Fresh Produce** Jeffrey Hoorfar, 2014-02-14 Continuing food poisoning outbreaks around the globe have put fresh produce safety at the forefront of food research. Global Safety of Fresh Produce provides a detailed and comprehensive overview of best practice for produce safety throughout the food chain and unique coverage of commercial technologies for fresh produce safety. Part one covers the production and regulation of fresh produce on the agricultural level, including issues of niche farm fresh products, FDA regulation and zoonotic transfer of pathogens from animals to farm products. Part two moves on to look at safety and environmental issues surrounding fresh produce processing, such as postharvest washing, alternative sanitizers and using produce waste as animal feed. Part three focuses on current and emerging commercial solutions for fresh produce safety, like ionizing radiation and edible coatings, and part four covers methods of laboratory testing and related legislation. The final section of the book covers a series of case studies of fresh produce safety breaches, including European E. coli outbreaks in sprouts and leafy greens and the illegal use of fluorescent whitening agents (FWAs) in China. This book is an essential text for R & D managers in the fresh produce industry, quality control professionals working with fresh produce throughout the food chain, postgraduate students and academic researchers with an interest in fresh produce safety. Provides a comprehensive overview of best practice for produce safety. Examines the production and regulation of fresh agricultural produce. Looks at safety and environmental issues surrounding fresh produce processing.

**Innovative Food Processing Technologies** Kai Knoerzer, Pablo Juliano, Geoffrey W. Smithers, 2016-06-29 Innovative Food Processing Technologies: Extraction, Separation, Component Modification and Process

Intensification focuses on advances in new and novel non thermal processing technologies which allow food producers to modify and process food with minimal damage to the foodstuffs The book is highly focused on the application of new and novel technologies beginning with an introductory chapter and then detailing technologies which can be used to extract food components Further sections on the use of technologies to modify the structure of food and the separation of food components are also included with a final section focusing on process intensification and enhancement Provides information on a variety of food processing technologies Focuses on advances in new and novel non thermal processing technologies which allow food producers to modify and process food with minimal damage to the foodstuffs Presents a strong focus on the application of technologies in a variety of situations Created by editors who have a background in both the industry and academia

**Improving the Safety and Quality of Nuts** Linda J Harris,2013-10-31 As tree nuts and peanuts become increasingly recognised for their health promoting properties the provision of safe high quality nuts is a growing concern Improving the safety and quality of nuts reviews key aspects of nut safety and quality management Part one explores production and processing practices and their influence on nut contaminants Chapters discuss agricultural practices to reduce microbial contamination of nuts pest control in postharvest nuts and the impact of nut postharvest handling de shelling drying and storage on quality Further chapters review the validation of processes for reducing the microbial load on nuts and integrating Hazard Analysis Critical Control Point HACCP and Statistical Process Control SPC for safer nut processing Chapters in part two focus on improving nut quality and safety and highlight oxidative rancidity in nuts the impact of roasting on nut quality and advances in automated nut sorting Final chapters explore the safety and quality of a variety of nuts including almonds macadamia nuts pecans peanuts pistachios and walnuts Improving the safety and quality of nuts is a comprehensive resource for food safety product development and QA professionals using nuts in foods those involved in nut growing nut handling and nut processing and researchers in food science and horticulture departments interested in the area Reviews key aspects of nut safety and quality management and addresses the influences of production and processing practices on nut safety Analyses particular nut contaminants safety management in nut processing and significant nut quality issues such as oxidative rancidity Places focus on quality and safety in the production and processing of selected types of nuts

**Alcoholic Beverages** John Piggott,2011-11-24 Sensory evaluation methods are extensively used in the wine beer and distilled spirits industries for product development and quality control while consumer research methods also offer useful insights as the product is being developed This book introduces sensory evaluation and consumer research methods and provides a detailed analysis of their applications to a variety of different alcoholic beverages Chapters in part one look at the principles of sensory evaluation and how these can be applied to alcoholic beverages covering topics such as shelf life evaluation and gas chromatography olfactometry Part two concentrates on fermented beverages such as beer and wine while distilled products including brandies whiskies and many others are discussed in part three Finally part four examines how

consumer research methods can be employed in product development in the alcoholic beverage industry With its distinguished editor and international team of contributors Alcoholic beverages is an invaluable reference for those in the brewing winemaking and distilling industries responsible for product development and quality control as well as for consultants in sensory and consumer science and academic researchers in the field Comprehensively analyses the application of sensory evaluation and consumer research methods in the alcoholic beverage industry Considers shelf life evaluation product development and gas chromatography Chapters examine beer wine and distilled products and the application of consumer research in their production

*Breadmaking* Stanley P. Cauvain, 2012-04-25 The first edition of *Breadmaking Improving quality* quickly established itself as an essential purchase for baking professionals and researchers in this area With comprehensively updated and revised coverage including six new chapters the second edition helps readers to understand the latest developments in bread making science and practice The book opens with two introductory chapters providing an overview of the breadmaking process Part one focuses on the impacts of wheat and flour quality on bread covering topics such as wheat chemistry wheat starch structure grain quality assessment milling and wheat breeding Part two covers dough development and bread ingredients with chapters on dough aeration and rheology the use of redox agents and enzymes in breadmaking and water control among other topics In part three the focus shifts to bread sensory quality shelf life and safety Topics covered include bread aroma staling and contamination Finally part four looks at particular bread products such as high fibre breads those made from partially baked and frozen dough and those made from non wheat flours With its distinguished editor and international team of contributors the second edition of *Breadmaking Improving quality* is a standard reference for researchers and professionals in the bread industry and all those involved in academic research on breadmaking science and practice With comprehensively updated and revised coverage this second edition outlines the latest developments in breadmaking science and practice Covers topics such as wheat chemistry wheat starch structure grain quality assessment milling and wheat breeding Discusses dough development and bread ingredients with chapters on dough aeration and rheology

**Developing Children's Food Products** David Kilcast, Fiona Angus, 2011-02-16 The development of food and drink products for children and adolescents represents an expanding market sector which has received little attention in the existing literature In recognition of increasing concerns regarding diet and nutrition in children and their potential impact on nutrition related health issues in later life this book covers three broad aspects relating to developing children s food products nutrition and health children s food choices and the design and testing of food and drink products for children Part one covers topical issues in pre adult nutrition and health such as nutritional requirements fluid intake needs diet and behaviour and growing 20th century health problems such as childhood obesity and food allergies Part two then focuses on children s food choices addressing food promotion and food choice in children and strategies that can be used to improve children s food choices both inside and outside of the home Finally part three considers the design of food

and drink products for children with an emphasis on working with children and adolescents to design food and drink products and how best to undertake consumer and sensory testing with children With its team of expert international contributors Developing children s food products is an essential resource for both academics and food industry professionals offering particular assistance to product developers working within the competitive children s market Covers topical issues in pre adult nutrition and health discussing diet and behaviour and growing health problems such as childhood obesity and food allergies Reviews children s food choices addressing food promotion and food choice in children and strategies that can be used to improve children s food choices Considers the design of food and drink products for children with an emphasis on working with children and how best to undertake testing

**Improving the Safety and Quality of Eggs and Egg Products** F Van Immerseel, Y Nys, M Bain, 2011-08-19 Eggs are economical and of high nutritional value yet can also be a source of foodborne disease Understanding of the factors influencing egg quality has increased in recent years and new technologies to assure egg safety have been developed Improving the safety and quality of eggs and egg products reviews recent research in these areas Volume 2 focuses on egg safety and nutritional quality Part one provides an overview of egg contaminants covering both microbial pathogens and chemical residues Salmonella control in laying hens is the focus of part two Chapters cover essential topics such as monitoring and control procedures in laying flocks and egg decontamination methods Finally part three looks at the role of eggs in nutrition and other health applications Chapters cover dietary cholesterol egg allergy egg enrichment and bioactive fractions of eggs among other topics With its distinguished editors and international team of contributors Volume 2 of Improving the safety and quality of eggs and egg products is an essential reference for managers in the egg industry professionals in the food industry using eggs as ingredients and all those with a research interest in the subject Focuses on egg safety and nutritional quality with reference to egg contaminants such as Salmonella Enteritidis Chapters discuss essential topics such as monitoring and control procedures in laying flocks and egg decontamination methods Presents a comprehensive overview of the role of eggs in nutrition and other health applications including dietary cholesterol egg allergy egg enrichment and bioactive fractions of eggs

**Handbook of Food Proteins** Glyn O. Phillips, Peter A. Williams, 2011-09-09 Traditionally a source of nutrition proteins are also added to foods for their ability to form gels and stabilise emulsions among other properties The range of specialised protein ingredients used in foods is increasing Handbook of food proteins provides an authoritative overview of the characteristics functionalities and applications of different proteins of importance to the food industry in one convenient volume The introductory chapter provides an overview of proteins and their uses in foods The following chapters each focus on a particular protein ingredient or group of ingredients covering their origins production properties and applications The proteins discussed are caseins whey proteins gelatin and other meat derived protein ingredients seafood proteins egg proteins soy proteins pea and other legume proteins mycoprotein wheat gluten canola and other oilseed proteins algal proteins and potato protein A chapter on

texturised vegetable proteins completes the volume Innovative products and potential methods for improving nutrition and diet using these proteins are described With its distinguished editors and international team of expert contributors Handbook of food proteins is an invaluable reference tool for professionals using food protein ingredients for both food and other applications An authoritative overview of the characteristics functionalities and applications of different proteins of importance to the food industry Chapters each focus on a particular protein ingredient or group of ingredients Innovative products and potential methods for improving nutrition and diet using proteins is also described

**Hygiene in Food Processing** H.L.M. Lelieveld, John Holah, David Napper, 2014-02-14 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

**Instrumental Assessment of Food Sensory Quality** David Kilcast, 2013-09-30 Instrumental measurements of the sensory quality of food and drink are of growing importance in both complementing data provided by sensory panels and in providing valuable data in situations in which the use of human subjects is not feasible Instrumental assessment of food sensory quality reviews the range and use of instrumental methods for measuring sensory quality After an introductory chapter part one goes on to explore the principles and practice of the assessment and analysis of food appearance flavour texture and viscosity Part two reviews advances in methods for instrumental assessment of food sensory quality and includes chapters on food colour measurement using computer vision gas chromatography olfactometry GC O electronic noses and tongues for in vivo food flavour measurement and non



destructive methods for food texture assessment Further chapters highlight in mouth measurement of food quality and emerging flavour analysis methods for food authentication Finally chapters in part three focus on the instrumental assessment of the sensory quality of particular foods and beverages including meat poultry and fish baked goods dry crisp products dairy products and fruit and vegetables The instrumental assessment of the sensory quality of wine beer and juices is also discussed Instrumental assessment of food sensory quality is a comprehensive technical resource for quality managers and research and development personnel in the food industry and researchers in academia interested in instrumental food quality measurement Reviews the range and use of instrumental methods for measuring sensory quality Explores the principles and practice of the assessment and analysis of food appearance flavour texture and viscosity Reviews advances in methods for instrumental assessment of food sensory quality

*Food Enrichment with Omega-3 Fatty Acids* Charlotte Jacobsen,Nina Skall Nielsen,Anna Frisenfeldt Horn,Ann-Dorit Moltke Sørensen,2013-07-31 Omega 3 fatty acids provide many health benefits from reducing cardiovascular disease to improving mental health and consumer interest in foods enriched with omega 3 fatty acids is increasing Formulating a product enriched with these fatty acids that is stable and has an acceptable flavour is challenging Food enrichment with omega 3 fatty acids provides an overview of key topics in this area Part one an introductory section reviews sources of omega 3 fatty acids and their health benefits Chapters in part two explore the stabilisation of both fish oil itself and foods enriched with omega 3 fatty acids Part three focuses on the fortification of different types of foods and beverages with omega 3 fatty acids including meat products by the modification of animal diets and other methods infant formula and baked goods Finally part four highlights new directions in the field and discusses algal oil as a source of omega 3 fatty acids and labelling and claims in foods containing omega 3 fatty acids Food enrichment with omega 3 fatty acids is a standard reference for professionals in the functional foods industry involved with research development and quality assessment and for researchers in academia interested in food lipids oxidation and functional foods Provides a comprehensive overview of formulating a product enriched with omega 3 fatty acids that is stable provides many health benefits and has an acceptable flavour Reviews sources of omega 3 fatty acids and their health benefits and explores the stabilisation of fish oil and foods enriched with omega 3 fatty acids Focuses on the fortification of different types of foods and beverages with omega 3 fatty acids and highlights new directions in the field

**Improving the Safety and Quality of Milk** Mansel W Griffiths,2010-04-21 Consumers demand quality milk with a reasonable shelf life a requirement that can be met more successfully by the milk industry through use of improved processes and technologies Guaranteeing the production of safe milk also remains of paramount importance Improving the safety and quality of milk provides a comprehensive and timely reference to best practice and research advances in these areas Volume 1 focuses on milk production and processing Volume 2 covers the sensory and nutritional quality of cow s milk and addresses quality improvement of a range of other milk based products The health aspects of milk its role in the diet and milk based functional

foods are the focus of the opening section of Volume 2 Part two reviews essential aspects of milk quality including milk microbial spoilage and chemical deterioration sensory evaluation factors affecting milk vitamin and mineral content and the impact of packaging on quality Chapters in part three look at improving particular products such as organic milk goat milk and sheep milk The impact of milk on the quality of yoghurt and cheese is also covered With its distinguished editor and international team of contributors volume 2 of Improving the safety and quality of milk is an essential reference for researchers and those in industry responsible for milk safety and quality Examines the sensory and nutritional quality of cow s milk and addresses quality improvement of a range of other milk based products Reviews the health aspects of milk and its role in the diet as well as the essential aspects of milk quality including microbial spoilage and chemical deterioration sensory evaluation and factors affecting milk vitamin and mineral content Discusses various application requirements of milk such as milk quality requirements in yoghurt making cheesemaking infant formulas and applications of milk components in products other than foods

**Case Studies in Novel Food Processing Technologies** C J Doona,2010-10-28 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

**Viruses in Food and Water** N Cook,2013-05-10 Viruses can be highly infectious and are capable of causing widespread disease outbreaks The significance of viral pathogens in food and waterborne illness is increasingly being recognised and viruses

transferred by these routes are important areas of research Viruses in food and water reviews the risks surveillance and control of food and waterborne viral disease Part one provides an introduction to food and environmental virology Part two goes on to explore methods of detection surveillance and risk assessment of viruses in food and water it includes chapters on molecular detection of viruses in foods and food processing environments quality control in the analytical laboratory and quantitative risk assessment for food and waterborne viruses Part three focuses on virus transmission routes and control of food and water contamination It contains chapters on fresh produce shellfish and viral presence and control methods in waste water and sewage Finally part four highlights particular pathogens including norovirus hepatitis A and emerging zoonotic viruses Viruses in food and water is a standard reference book for microbiologists in academia analytical labs and the food and water treatment industries as well as environmental health professionals and researchers working on foodborne viruses Explores methods of detection surveillance and risk assessment of viruses in food and water Considers virus transmission routes and control of food and water contamination Highlights advances in the understanding of specific pathogens including norovirus hepatitis A and rotaviruses and the advances in vaccine development

**Encapsulation Technologies and Delivery Systems for Food Ingredients and Nutraceuticals** Nissim Garti,D. Julian

McClements,2012-10-19 Improved technologies for the encapsulation protection release and enhanced bioavailability of food ingredients and nutraceutical components are vital to the development of future foods Encapsulation technologies and delivery systems for food ingredients and nutraceuticals provides a comprehensive guide to current and emerging techniques Part one provides an overview of key requirements for food ingredient and nutraceutical delivery systems discussing challenges in system development and analysis of interaction with the human gastrointestinal tract Processing technologies for encapsulation and delivery systems are the focus of part two Spray drying cooling and chilling are reviewed alongside coextrusion fluid bed microencapsulation microencapsulation methods based on biopolymer phase separation and gelation phenomena in aqueous media Part three goes on to investigate physicochemical approaches to the production of encapsulation and delivery systems including the use of micelles and microemulsions polymeric amphiphiles liposomes colloidal emulsions organogels and hydrogels Finally part four reviews characterization and applications of delivery systems providing industry perspectives on flavour fish oil iron micronutrient and probiotic delivery systems With its distinguished editors and international team of expert contributors Encapsulation technologies and delivery systems for food ingredients and nutraceuticals is an authoritative guide for both industry and academic researchers interested in encapsulation and controlled release systems Provides a comprehensive guide to current and emerging techniques in encapsulation technologies and delivery systems Chapters in part one provide an overview of key requirements for food ingredient and nutraceutical delivery systems while part two discusses processing technologies for encapsulation and delivery systems Later sections investigate physicochemical approaches to the production of encapsulation and delivery systems and review

characterization and applications of delivery systems

### **Computer Vision Technology in the Food and Beverage**

**Industries** D-W Sun,2012-08-13 The use of computer vision systems to control manufacturing processes and product quality has become increasingly important in food processing Computer vision technology in the food and beverage industries reviews image acquisition and processing technologies and their applications in particular sectors of the food industry Part one provides an introduction to computer vision in the food and beverage industries discussing computer vision and infrared techniques for image analysis hyperspectral and multispectral imaging tomographic techniques and image processing Part two goes on to consider computer vision technologies for automatic sorting foreign body detection and removal automated cutting and image analysis of food microstructure Current and future applications of computer vision in specific areas of the food and beverage industries are the focus of part three Techniques for quality control of meats are discussed alongside computer vision in the poultry fish and bakery industries including techniques for grain quality evaluation and the evaluation and control of fruit vegetable and nut quality With its distinguished editor and international team of expert contributors Computer vision technology in the food and beverage industries is an indispensable guide for all engineers and researchers involved in the development and use of state of the art vision systems in the food industry Discusses computer vision and infrared techniques for image analysis hyperspectral and multispectral imaging tomographic techniques and image processing Considers computer vision technologies for automatic sorting foreign body detection and removal automated cutting and image analysis of food microstructure Examines techniques for quality control and computer vision in various industries including the poultry fish and bakery fruit vegetable and nut industry

*A Complete Course in Canning and Related Processes* Susan Featherstone,2015-02-07 A Complete Course in Canning and Related Processes Fourteenth Edition Fundamental Information on Canning provides readers with a complete course on canning This latest edition continues the tradition for both professionals in the canning industry and students who have benefitted from this collection for over 100 years It contains extensively revised and expanded coverage and the three title set is designed to cover all phases of the canning process including planning processing storage and quality control Major changes for the new edition include new chapters on regulation and labeling that contrast the situation in different regions worldwide updated information on containers for canned foods and new information on validation and optimization of canning processes among other topics Continues the tradition of the series that has educated professionals and students for over 100 years Covers all aspects of the canning process including planning processing storage and control Analyzes worldwide food regulations standards and food labeling Incorporates processing operations plant location and sanitation

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