

## Food And Beverage Stability And Shelf Life Woodhead Publishing Series In Food Science Technology And Nutrition

Value-Added Ingredients and Enrichment of Beverages, Volume Fourteen in The Science of Beverages series, takes a multidisciplinary approach in addressing what consumers demand in natural beverages. This in-depth reference covers both natural and unnatural ingredients and explains their impact on consumer health and nutrition. Sweeteners, vitamins, oils and other natural ingredients to improve beverages are included. The book addresses some of the most common enrichments used in the industry, including those with biomedical and nutritional applications. This volume will be useful to anyone in the beverages industry who needs a better understanding of advances in the industry. Discusses health-related benefits and risks, along with the potential harmful effects of additives and preservatives Provides research examples of health promoting ingredients in beverages to further research and development Presents key steps in designing formulations of enriched beverages, analysis, product development, shelf life, cost-benefit ratio and compliance with WHO regulations

One-third of adults are now obese, and children's obesity rates have climbed from 5 to 17 percent in the past 30 years. The causes of the nation's obesity epidemic are multi-factorial, having much more to do with the absence of sidewalks and the limited availability of healthy and affordable foods than a lack of personal responsibility. The broad societal changes that are needed to prevent obesity will inevitably affect activity and eating environments and settings for all ages. Many aspects of the obesity problem have been identified and discussed; however, there has not been complete agreement on what needs to be done to accelerate progress. Accelerating Progress in Obesity Prevention reviews previous studies and their recommendations and presents five key recommendations to accelerate meaningful change on a societal level during the next decade. The report suggests recommendations and strategies that, independently, can accelerate progress, but urges a systems approach of many strategies working in concert to maximize progress in accelerating obesity prevention. The recommendations in Accelerating Progress in Obesity Prevention include major reforms in access to and opportunities for physical activity; widespread reductions in the availability of unhealthy foods and beverages and increases in access to healthier options at affordable, competitive prices; an overhaul of the messages that surround Americans through marketing and education with respect to physical activity and food consumption; expansion of the obesity prevention support structure provided by health care providers, insurers, and employers; and schools as a major national focal point for obesity prevention. The report calls on all individuals, organizations, agencies, and sectors that do or can influence physical activity and nutrition environments to assess and begin to act on their potential roles as leaders in obesity prevention.

Oxidative rancidity is a major cause of food quality deterioration, leading to the formation of undesirable off-flavours as well as unhealthy compounds. Antioxidants are widely employed to inhibit oxidation, and with current consumer concerns about synthetic additives and natural antioxidants are of much interest. The two volumes of Oxidation in foods and beverages and antioxidant applications review food quality deterioration due to oxidation and methods for its control. The second volume reviews problems associated with oxidation and its management in different industry sectors. Part one focuses on animal products, with chapters on the oxidation and protection of red meat, poultry, fish and dairy products. The oxidation of fish oils and foods enriched with omega-3 polyunsaturated fatty acids is also covered. Part two reviews oxidation in plant-based foods and beverages, including edible oils, fruit and vegetables, beer and wine. Oxidation of fried products and emulsion-based foods is also discussed. Final chapters examine encapsulation to inhibit lipid oxidation and antioxidant active packaging and edible films. With its distinguished international team of editors and contributors, the two volumes of Oxidation in foods and beverages and antioxidant applications is standard references for R&D and QA professionals in the food industry, as well as academic researchers interested in food quality. Reviews problems associated with oxidation and its management in different industry sectors Examines animal products, with chapters on the oxidation and protection of red meat, poultry and fish Discusses oxidation of fish oils and foods enriched with omega-3 and polyunsaturated fatty acids

Flavour is a critical aspect of food production and processing, requiring careful design, monitoring and testing in order to create an appealing food product. This book looks at flavour generation, flavour analysis and sensory perception of food flavour and how these techniques can be used in the food industry to create new and improve existing products. Part one covers established and emerging methods of characterising and analysing taste and aroma compounds. Part two looks at different factors in the generation of aroma. Finally, part three focuses on sensory analysis of food flavour. Covers the analysis and characterisation of aromas and taste compounds Examines how aromas can be created and predicted Reviews how different flavours are perceived Over the past decade, new applications of genetic engineering in the fermentation of food products have received a great deal of coverage in scientific literature. While many books focus solely on recent developments, this reference book highlights these developments and provides detailed background and manufacturing information. Co-Edited by Fidel

For a food product to be a success in the marketplace it must be stable throughout its shelf-life. Quality deterioration due to chemical changes and alterations in condition due to physical instability are not always recognised, yet can be just as problematic as microbial spoilage. This book provides an authoritative review of key topics in this area. Chapters in part one focus on the chemical reactions which can negatively affect food quality, such as oxidative rancidity, and their measurement. Part two reviews quality deterioration associated with physical changes, such as moisture loss, gain and migration, crystallization and emulsion breakdown. Contributions in the following section outline the likely effects on different foods and beverages, including bakery products, fruit and vegetables, ready-to-eat meals and wine. With contributions from leaders in their fields, Chemical deterioration and physical instability of food and beverages is an essential reference for R&D and QA staff in the food industry and researchers with an interested in this subject. Examines chemical reactions which can negatively affect food quality and measurement Reviews quality deterioration associated with physical changes such as moisture loss, gain and migration, and crystallization Documents deterioration in specific food and beverage products including bakery products, frozen foods and wine

The Encyclopedia of Food and Health provides users with a solid bridge of current and accurate information spanning food production and processing, from distribution and consumption to health effects. The Encyclopedia comprises five volumes, each containing comprehensive, thorough coverage, and a writing style that is succinct and straightforward. Users will find this to be a meticulously organized resource of the best available summary and conclusions on each topic. Written from a truly international perspective, and covering of all areas of food science and health in over 550 articles, with extensive cross-referencing and further

reading at the end of each chapter, this updated encyclopedia is an invaluable resource for both research and educational needs. Identifies the essential nutrients and how to avoid their deficiencies Explores the use of diet to reduce disease risk and optimize health Compiles methods for detection and quantitation of food constituents, food additives and nutrients, and contaminants Contains coverage of all areas of food science and health in nearly 700 articles, with extensive cross-referencing and further reading at the end of each chapter

Preservatives for the Beverage Industry, Volume Fifteen, a new release in The Science of Beverages series, is a valuable resource that discusses preservatives and their impact in the beverage industry, including potential health impacts. The book takes a broad, multidisciplinary approach to explore both conventional and novel approaches of the types and uses of preservatives. The latest applications and techniques to reduce the use of non-natural or health-threatening preservation elements are also covered. This is a must-have reference for anyone who needs to increase their technical-scientific knowledge in this field. Includes information on the use of hurdle technology in the preservation of beverages Provides the latest research and impact of antimicrobial use in the beverages industry Presents the benefits and risks of preservatives to ensure safety in beverage products The second edition of The Stability and Shelf-life of Food is a fully revised and thoroughly updated edition of this highly-successful book. This new edition covers methods for shelf-life and stability evaluation, reviewing the modelling and testing of the deterioration of products as well as the use of sensory evaluation methods for testing food spoilage. The first part of the book focuses on deteriorative processes and factors influencing shelf-life, covering aspects such as chemical deterioration, physical instability and microbiological spoilage. The effects of process and packaging on the stability and shelf-life of products are also covered in this part. Part Two reviews the methods for shelf life and stability evaluation. These include sensory evaluation methods and instrumental methods to determine food quality deterioration. The final section of the book covers stability of important ingredient categories, from oils and fats, to beverages such as beer, wine, coffee and fruit juices, in addition to bakery products and meats. With updated chapters reflecting advances made in the field and with the addition of new chapters covering the stability and shelf-life a variety of products, this new edition will provide the latest research for both academics working in the field of food quality as well as providing essential information for food scientists working in industry. Thoroughly revised and updated edition of a very popular and well regarded book Includes dedicated chapters covering the shelf-life and stability of specific products making this book ideal for those working in industry Presents a wide coverage of the processes and factors influencing shelf-life, the evaluation of stability and shelf-life and the stability and shelf-life of particular products makes this book valuable for both academics and those working in industry

Handbook on Natural Pigments: Industrial Applications for Improving Food Colour is unique in its approach to the improvement of food colors. The book is written with industrial applications in mind, with each chapter focusing on a color solution for a specific commodity that will provide food scientists with a one-stop, comprehensive reference on how to improve the color of a particular food product. The first section of the book looks at the legal frameworks which underpin natural food colorings, also investigating the consumer expectations of food color. The second section of the book focuses on specific industrial applications of natural colorants with chapters covering the use of natural colorants in aqueous food products, cereal-based foods, and meat products, amongst many other topics. The various pigments which can be used to effectively color these commodities are presented with information on safety and testing included throughout. The final section in the book looks at recent developments and future perspectives in natural food colorings. There are chapters which cover the health benefits of natural pigments, the use of novel fruits and vegetables in pigments, and stable natural solutions for blue colorings. Presents recent advances in consumer demand and worldwide legislation regarding natural food colorants Discusses the use of natural food colorants for one specific product category per chapter rather than one pigment class per chapter – this makes the book extremely useable for industrialists working in a specific sector Contains a comprehensive array of product-specific coloration approaches, from using pigment-enriched feed additives to the direct addition of color formulations

Food process engineering, a branch of both food science and chemical engineering, has evolved over the years since its inception and still is a rapidly changing discipline. While traditionally the main objective of food process engineering was preservation and stabilization, the focus today has shifted to enhance health aspects, flavour and taste, nutrition, sustainable production, food security and also to ensure more diversity for the increasing demand of consumers. The food industry is becoming increasingly competitive and dynamic, and strives to develop high quality, freshly prepared food products. To achieve this objective, food manufacturers are today presented with a growing array of new technologies that have the potential to improve, or replace, conventional processing technologies, to deliver higher quality and better consumer targeted food products, which meet many, if not all, of the demands of the modern consumer. These new, or innovative, technologies are in various stages of development, including some still at the R&D stage, and others that have been commercialised as alternatives to conventional processing technologies. Food process engineering comprises a series of unit operations traditionally applied in the food industry. One major component of these operations relates to the application of heat, directly or indirectly, to provide foods free from pathogenic microorganisms, but also to enhance or intensify other processes, such as extraction, separation or modification of components. The last three decades have also witnessed the advent and adaptation of several operations, processes, and techniques aimed at producing high quality foods, with minimum alteration of sensory and nutritive properties. Some of these innovative technologies have significantly reduced the thermal component in food processing, offering alternative nonthermal methods. Food Processing Technologies: A Comprehensive Review covers the latest advances in innovative and nonthermal processing, such as high pressure, pulsed electric fields, radiofrequency, high intensity pulsed light, ultrasound, irradiation and new hurdle technology. Each section will have an introductory article covering the basic principles and applications of each technology, and in-depth articles covering the currently available equipment (and/or the current state of development), food quality and safety, application to various sectors, food laws and regulations, consumer acceptance, advancements and future scope. It will also contain case studies and examples to illustrate state-of-the-art applications. Each section will serve as an excellent reference to food industry professionals involved in the processing of a wide range of food categories, e.g., meat, seafood, beverage, dairy, eggs, fruits and vegetable products, spices, herbs among others.

Soft Drinks and Fruit Juice Problems Solved, Second Edition, follows the innovative question and answer format of the first edition, presenting a quick problem-solving reference. Questions like: Does the use of a preservative in a product mean that it does not need to be pasteurized? How much deviation from ingredient specification is needed to cause a noticeable alteration in product quality? What kinds of organisms will grow in bottled waters? When is it necessary to obtain expert assistance in the event of a

contamination incident? are all answered in detail. The book's new introduction covers basic questions about soft drinks, their ingredients, and packaging. Additional new chapters expand on microbiological problems, shelf life and storage, and fruit juices and nectars, as well as product nutrition and health claims. Final chapters offer soft drink and fruit juice data sources. Written by authors with extensive industrial experience, the book is an essential reference and problem-solving manual for professionals and trainees in the beverage industry. Uses a detailed and clear question and answer format that is ideal for quick reference Contains additional, new, up-to-date problems and solutions. Contains an expanded introduction and new sections on microbiological problems, shelf life and storage, fruit juices and nectars, product claims, nutrition and health claims, and soft drink and fruit juice data sources Presents a broad scope of topics and process solutions from the experts in the beverages industry

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

Ensuring that foods and beverages remain stable during the required shelf life is critical to their success in the market place, yet companies experience difficulties in this area. Food and beverage stability and shelf life provides a comprehensive guide to factors influencing stability, methods of stability and shelf life assessment and the stability and shelf life of major products. Part one describes important food and beverage quality deterioration processes, including microbiological spoilage and physical instability. Chapters in this section also investigate the effects of ingredients, processing and packaging on stability, among other factors. Part two describes methods for stability and shelf life assessment including food storage trials, accelerated testing and shelf life modelling. Part three reviews the stability and shelf life of a wide range of products, including beer, soft drinks, fruit, bread, oils, confectionery products, milk and seafood. With its distinguished editors and international team of expert contributors, Food and beverage stability and shelf life is a valuable reference for professionals involved in quality assurance and product development and researchers focussing on food and beverage stability. A comprehensive guide to factors influencing stability, methods of stability and shelf life assessment and the stability and shelf life of major products Describes important food and beverage quality deterioration processes exploring microbiological spoilage and physical instability Investigate the effects of ingredients, processing and packaging on stability and documents methods for stability and shelf life assessment

Engineering Tools in the Beverage Industry, Volume Three in The Science of Beverages series, is an invaluable resource for anyone in the beverages field who is involved with quality assurance, lab analysis, and the safety of beverage products. The book offers updates on the latest techniques and applications, including extraction, biochemical isotope analysis, metabolomics, microfiltration, and encapsulation. Users will find this book to be an excellent resource for industrial research in an ever-changing field. Provides practical tools and techniques for research and development in beverages. Offers analysis strategies for beverage quality evaluation. Presents analytical methods for ingredient authenticity.

Microencapsulation is being used to deliver everything from improved nutrition to unique consumer sensory experiences. It's rapidly becoming one of the most important opportunities for expanding brand potential. Microencapsulation in the Food Industry: A Practical Implementation Guide is written for those who see the potential benefit of using microencapsulation but need practical insight into using the technology. With coverage of the process technologies, materials, testing, regulatory and even economic insights, this book presents the key considerations for putting microencapsulation to work. Application examples as well as online access to published and issued patents provide information on freedom to operate, building an intellectual property portfolio, and leveraging ability into potential in licensing patents to create produce pipeline. This book bridges the gap between fundamental research and application by combining the knowledge of new and novel processing techniques, materials and selection, regulatory concerns, testing and evaluation of materials, and application-specific uses of microencapsulation. Practical applications based on the authors' more than 50 years combined industry experience Focuses on application, rather than theory Includes the latest in processes and methodologies Provides multiple "starting point" options to jump-start encapsulation use

Cereals are a staple of the human diet and have a significant effect on health. As a result, they are of major significance to the food industry. Cereal grains for the food and beverage industries provides a comprehensive overview of all of the important cereal and pseudo-cereal species, from their composition to their use in food products. The book reviews the major cereal species, starting with wheat and triticale before covering rye, barley and oats. It goes on to discuss other major species such as rice, maize, sorghum and millet, as well as pseudo-cereals such as buckwheat, quinoa and amaranth. Each chapter reviews grain structure, chemical composition (including carbohydrate and protein content), processing and applications in food and beverage products. Cereal grains for the food and beverage industries is an essential reference for academic researchers interested in the area of cereal grains and products. It is also an invaluable reference for professionals in the food and beverage industry working with cereal products, including ingredient manufacturers, food technologists, nutritionists, as well as policy-makers and health care professionals. A comprehensive overview of all of the important cereal and pseudo-cereal species Chapters review each of the following species: Wheat, Maize, Rice, Barley, Triticale, Rye, Oats, Sorghum, Millet, Teff, Buckwheat, Quinoa and Amaranth Reviews grain structure, chemical composition, processing and applications in food and beverage products for each of the considered

grains

*Integrating the Packaging and Product Experience in Food and Beverages: A Road-Map to Consumer Satisfaction* focuses on the interrelationship between packaging and the product experience. In both industry and academia there has been a growing interest in investigating approaches that capture consumer responses to products that go beyond traditional sensory and liking measures. These approaches include assessing consumers' emotional responses, obtaining temporal measures of liking, as well as numerous published articles considering the effect of situation and context in the evaluation of food and beverage products. For fast-moving consumer goods (FMCG) products in particular, packaging can be considered as a contributor to consumer satisfaction. Recent cross-modal research illustrated consumers' dissatisfaction or delight with a product can be evoked when there is dissonance between the packaging and the product experience. The book includes an extensive overview of an adapted satisfaction scale that has been tailored for the food and beverage sector and which identifies varying satisfaction response modes such as contentment, pleasure, and delight with a product. This is an important development as it provides insights about products that can be used to market specific categories and brands of foods and beverages. The book demonstrates the value of this approach by bringing together case studies that consider the interrelationships between packaging design, shape, on-pack sensory messages, expectations, and consumer satisfaction with the product. Focuses on the inter-relationship between packaging and the product experience, specifically in the context of the food and beverage sector Presents the expectancy disconfirmation model of satisfaction, which is well developed within the social sciences, to the food and beverage sector Contains case studies demonstrating how these practices can be used in industry to better enhance customer's responses to products Includes an extensive overview of an adapted satisfaction scale that has been tailored for the food and beverage sector and which identifies varying satisfaction response modes such as contentment, pleasure, and delight with a product

Explains the basics of food technology and new product development from initial planning through formulation, market research, manufacturing and product launch Carefully outlined test protocols plus quantified sensory, financial and feasibility analysis Recaps key technical concepts across the entire food science curriculum Developed as a comprehensive guide to how food products are planned, budgeted, manufactured and launched, this original textbook forms a cohesive introduction to all phases of food product development. A unique feature of the book is that it reviews the main concepts of food chemistry, ingredient functionality, additives, processing, quality control, safety, package labeling and more—virtually the entire food technology curriculum. With this specialized information as context, the book spells out the procedures needed to formulate, cost-justify and test market safe and profitable new products that meet regulatory guidelines and consumer expectations. The technical exposition is highlighted by case studies of novel food items introduced by U.S. companies. Syllabus-ready and furnished with back-of-chapter questions and projects, the volume is highly suited for university courses, including the capstone, as well as in-house and team training short courses in industry.

How we produce and consume food has a bigger impact on Americans' well-being than any other human activity. The food industry is the largest sector of our economy; food touches everything from our health to the environment, climate change, economic inequality, and the federal budget. From the earliest developments of agriculture, a major goal has been to attain sufficient foods that provide the energy and the nutrients needed for a healthy, active life. Over time, food production, processing, marketing, and consumption have evolved and become highly complex. The challenges of improving the food system in the 21st century will require systemic approaches that take full account of social, economic, ecological, and evolutionary factors. Policy or business interventions involving a segment of the food system often have consequences beyond the original issue the intervention was meant to address. *A Framework for Assessing Effects of the Food System* develops an analytical framework for assessing effects associated with the ways in which food is grown, processed, distributed, marketed, retailed, and consumed in the United States. The framework will allow users to recognize effects across the full food system, consider all domains and dimensions of effects, account for systems dynamics and complexities, and choose appropriate methods for analysis. This report provides example applications of the framework based on complex questions that are currently under debate: consumption of a healthy and safe diet, food security, animal welfare, and preserving the environment and its resources. *A Framework for Assessing Effects of the Food System* describes the U.S. food system and provides a brief history of its evolution into the current system. This report identifies some of the real and potential implications of the current system in terms of its health, environmental, and socioeconomic effects along with a sense for the complexities of the system, potential metrics, and some of the data needs that are required to assess the effects. The overview of the food system and the framework described in this report will be an essential resource for decision makers, researchers, and others to examine the possible impacts of alternative policies or agricultural or food processing practices.

Creating an environment in which children in the United States grow up healthy should be a high priority for the nation. Yet the prevailing pattern of food and beverage marketing to children in America represents, at best, a missed opportunity, and at worst, a direct threat to the health prospects of the next generation. Children's dietary and related health patterns are shaped by the interplay of many factors—their biologic affinities, their culture and values, their economic status, their physical and social environments, and their commercial media environments—all of which, apart from their genetic predispositions, have undergone significant transformations during the past three decades. Among these environments, none have more rapidly assumed central socializing roles among children and youth than the media. With the growth in the variety and the penetration of the media have come a parallel growth with their use for marketing, including the marketing of food and beverage products. What impact has food and beverage marketing had on the dietary patterns and health status of American children? The answer to this question has the potential to shape a

generation and is the focus of Food Marketing to Children and Youth. This book will be of interest to parents, federal and state government agencies, educators and schools, health care professionals, industry companies, industry trade groups, media, and those involved in community and consumer advocacy.

Nanotechnology has the potential to impact on food processing significantly. This important book summarises current research in this area and provides an overview of both current and possible future applications of nanotechnologies in the food industry. Issues such as safety and regulation are also addressed. After an introductory overview, the first part discusses general issues such as risk assessment, the regulatory framework, detection and characterisation of nanoparticles in food. Part two summarises the wide range of applications of nanotechnology in food processing, including nanoscale nutraceutical delivery systems, nanoemulsions and colloids, nanoscale rapid detection devices for contaminants, nanofiltration and nanocomposite packaging materials. With its distinguished editor and international team of contributors, Nanotechnology in the food, beverage and nutraceutical industries is a valuable reference work for both food processors and those researching this expanding field. Discusses issues such as risk assessment, regulatory framework, detection and characterisation of nanoparticles in food Summarises the wide range of applications of nanotechnology in food processing, including nutraceutical delivery and packaging materials Written by a distinguished team of international contributors, this book is an invaluable reference for industry professionals and academics alike In recent years, the concern of society about how food influences the health status of people has increased. Consumers are increasingly aware that food can prevent the development of certain diseases, so in recent years, the food industry is developing new, healthier products taking into account aspects such as trans fats, lower caloric intake, less salt, etc. However, there are bioactive compounds that can improve the beneficial effect of these foods and go beyond the nutritional value. This book provides information on impact of bioactive ingredients (vitamins, antioxidants, compounds of the pulses, etc.) on nutrition through food, how functional foods can prevent disease, and tools to evaluate the effects of bioactive ingredients, functional foods, and diet.

Now in a fully revised and updated second edition, this volume provides a contemporary overview of food processing/packaging technologies. It acquaints the reader with food preservation processes, shelf life and logistical considerations, as well as packaging materials, machines and processes necessary for a wide range of packaging presentations. The new edition addresses environmental and sustainability concerns, and also examines applications of emerging technologies such as RFID and nanotechnology. It is directed at packaging technologists, those involved in the design and development of packaging, users of packaging in food companies and those who specify or purchase packaging. Key Features: An up-to-date and comprehensive handbook on the most important sector of packaging technology Links methods of food preservation to the packaging requirements of the common types of food and the available food packages Covers all the key packaging materials - glass, plastics and paperboard Fully revised second edition now covers sustainability, nanotechnology and RFID

Beer is the only detailed book that specifically addresses the science of beer quality. It explores the quality attributes of beer as well as the various impacts on and perception of beer quality. It includes expert insights based on real-world experience. This book details, with extensive referencing, the research that has been devoted to beer and beer quality. It is the first book to approach beer in this way and comprises an essential reference for anyone seeking an authoritative account of the science of beer appearance, flavor, stability and wholesomeness. Chapters discuss beer foam and how to achieve a suitable head; beer flavour and its instability; colloidal stability of beer; microbiological stability of beer; beer gushing; beer color; and the health aspects of beer. This book will be of interest to employees on the technical production side of the alcoholic beverage industry; students studying the subject; people involved in related and associated biotechnology industries; people from the brewing industry; and academic researchers. \* The only detailed book that specifically addresses the science of beer quality \* Addresses the various impacts on and perception of beer quality \* Includes expert insights based on real-world experience

Food colour additives have been the focus of much research in the last few years, and there is increasing consumer demand for natural and safer synthetic colours. This book reviews the natural and synthetic colours available, their properties and applications, as well as regulatory, sensory and analytical issues. Part one covers the development and safety of food colour additives. Part two covers properties and methods of analysis, and part three focuses on specific food product applications and future trends. Reviews the natural and synthetic colour additives available for foods and beverages, looking at their properties and applications as well as regulatory, sensory and analytical issues Expert analysis of natural origin colours, synthetic origin colours, overview of regulations, safety analysis and consumer health Comprehensive coverage of properties and development in food colours: chemical purity, colour stability, and consumer sensory perception

The shelf-life of a product is critical in determining both its quality and profitability. This important collection reviews the key factors in determining shelf-life and how it can be measured. Part one examines the factors affecting shelf-life and spoilage, including individual chapters on the major types of food spoilage, the role of moisture and temperature, spoilage yeasts, the Maillard reaction and the factors underlying lipid oxidation. Part two addresses the best ways of measuring the shelf-life of foods, with chapters on modelling food spoilage, measuring and modelling glass transition, detecting spoilage yeasts, measuring lipid oxidation, the design and validation of shelf-life tests and the use of accelerated shelf-life tests. Understanding and measuring the shelf-life of food is an important reference for all those concerned with extending the shelf-life of food. Reviews the key factors in determining shelf-life and how they can be measured Examines the importance of the shelf-life of a product in determining its quality and profitability Brings together the leading international experts in the field

Food and beverage companies are increasingly choosing to enhance internal idea development by pursuing an 'open

innovation' approach, allowing the additional exploitation of external ideas and paths to market. Drawing on a range of important case studies, Open innovation in the food and beverage industry investigates the challenges and opportunities afforded by the incorporation of open innovation into the food industry. Part one provides a comprehensive overview of the changing nature of innovation in the food and drink industry, acknowledging trends and considering the implications and impact of open innovation. Part two then reviews the role of partners and networks in open innovation, with collaboration, co-creation of value with consumers, the effectiveness of cluster organizations and the importance of network knowledge all discussed, before part three goes on to explore the establishment and varied management aspects of open innovation partnerships and networks. Finally, open-innovation tools, processes and managerial frameworks are the focus of part four, with discussion of the development, application and psychology of a range of initiatives. With its distinguished editor and international team of expert contributors, Open innovation in the food and beverage industry is a unique guide to the implementation and management of open innovation for all food industry professionals involved in management, research and product development, as well as academics with an interest in open innovation across all industries. Investigates the challenges and opportunities afforded by the incorporation of open innovation into the food industry Provides a comprehensive overview of the changing nature of innovation in the food and drink industry and reviews the role of partners and networks in open innovation Explores the establishment and varied management aspects of open innovation partnerships and networks and discusses the development, application and psychology of a range of initiatives

A Handbook for Sensory and Consumer Driven New Product Development explores traditional and well established sensory methods (difference, descriptive and affective) as well as taking a novel approach to product development and the use of new methods and recent innovations. This book investigates the use of these established and new sensory methods, particularly hedonic methods coupled with descriptive methods (traditional and rapid), through multivariate data analytical interfaces in the process of optimizing food and beverage products effectively in a strategically defined manner. The first part of the book covers the sensory methods which are used by sensory scientists and product developers, including established and new and innovative methods. The second section investigates the product development process and how the application of sensory analysis, instrumental methods and multivariate data analysis can improve new product development, including packaging optimization and shelf life. The final section defines the important sensory criteria and modalities of different food and beverage products including Dairy, Meat, Confectionary, Bakery, and Beverage (alcoholic and non-alcoholic), and presents case studies indicating how the methods described in the first two sections have been successfully and innovatively applied to these different foods and beverages. The book is written to be of value to new product development researchers working in large corporations, SMEs (micro, small or medium-sized enterprises) as well as being accessible to the novice starting up their own business. The innovative technologies and methods described are less expensive than some more traditional practices and aim to be quick and effective in assisting products to market. Sensory testing is critical for new product development/optimization, ingredient substitution and devising appropriate packaging and shelf life as well as comparing foods or beverages to competitor's products. Presents novel and effective sensory-based methods for new product development—two related fields that are often covered separately Provides accessible, useful guidance to the new product developer working in a large multi-national food company as well as novices starting up a new business Offers case studies that provide examples of how these methods have been applied to real product development by practitioners in a wide range of organizations Investigates how the application of sensory analysis can improve new product development including packaging optimization Flavor of Foods and Beverages Chemistry and Technology covers the proceedings of an international conference sponsored by the Agricultural and Food Chemistry Division of the American Chemical Society held in Athens, Greece on June 27-29, 1978. It presents information on the flavor of foods and beverages. This book discusses wide ranging subjects, such as flavor of meat, meat analogs, chocolate and cocoa substitutes, cheese aroma, beverages, baked goods, confections, tea, citrus and other fruits, olive oil, and sweeteners. It also examines new analytical methodology on taste and aroma, as well as flavor production, stability, and composition. This book will be useful for students, chemists, technologists, and manufacturers involved in any facet of producing foods and beverages.

FROM THE PREFACE: Fortunately, chemistry--the root of all life processes--is becoming better understood and more accessible. A strong synergism between the chemical, agricultural, and related sciences is highly desirable. This handbook attempts to provide in easily accessible detail up-to-date information relevant to the stability of foods and beverages. Highly qualified scientists have compiled an extraordinary amount of data on the chemical, biochemical, and microbiological stability, along with sensory aspects, of selected foods and beverages. These data have been distilled and are presented mostly in tabular form, with a minimum of commentary whenever possible.\*\*\*\*A total of 17 chapters (10 on food, 7 on beverages) by renowned experts in their particular fields from the United States, Europe, and Japan present a wealth of food and beverage stability information in handbook format. In particular, the chapters on fish and shellfish, cheese, and meat are remarkable in presenting data not readily available in an easily digestible form.\*\*\*\*This handbook, encompassing as it does aging, shelf life, and stability--in short, the knowledge necessary to ensure preservation of our food supply--should help to bring about the above-mentioned synergism between chemical, agricultural, and related sciences. It is expected to fill a need, especially through the convenience of its tabular presentations. A valuable reference book containing useful information for food scientists and technologists. As the application of science to world food supply needs becomes increasingly important, there is a greater need for improved stability and shelf life of foods and beverages. This handbook distills a great amount of information on all aspects of food and beverage stability into easily accessible, uncluttered tabular form.\*\*A wealth of carefully selected, up-to-date information is compiled on a wide variety of foods and beverages, including:\*\*meat and meat products\*\*fish and

shellfish\*\*dairy products\*\*fruits, legumes, and vegetables\*\*bakery goods and more.\*\*Expert researchers in the field present new information, unpublished results, and previously hard-to-find references. All food scientists and technologists will want a copy of this handbook within easy reach in the laboratory.

The stability and shelf-life of a food product are critical to its success in the market place, yet companies experience considerable difficulties in defining and understanding the factors that influence stability over a desired storage period. This book is the most comprehensive guide to understanding and controlling the factors that determine the shelf-life of food products.

Advances in Food and Beverage Labelling reviews recent advances in labelling research and regulation, covering issues such as nutrition and hazard information, traceability, health claims and standardisation, as well as new labelling technologies and consumer issues. The EU Food Information Regulation will come into force in December 2014 and the book is designed to provide timely and useful information to manufacturers in this area, as well as on a global scale. Part one covers the different types of information that can, or must be present on a food label. Part two looks at recent developments in food labelling technology, regulations and enforcement. Brings together contributions from industry, trade bodies, government and academia. Offers timely advice for those concerned with the legal framework for food labelling, with information about the EU Food Information Regulation, as well as the US market. Reviews issues surrounding nutrition and health claims and GM, ethical and environmental labelling.

Food and Beverage Stability and Shelf LifeElsevier

Fermentation is used in a wide range of food and beverage applications, and the technology for enhancing this process is continually evolving. This book reviews the use of fermentation in foods and beverages and key aspects of fermented food production. Part one covers the health benefits of fermented foods. Part two includes chapters on fermentation microbiology, while part three looks at ways of controlling and monitoring the quality and safety of fermented foods. Part four covers advances in fermentation technology. Finally, part five covers particular fermented food products.

Shelf life, a term recognised in EU/UK food legislation, may be defined as the period of time for which a food product will remain safe and fit for use, provided that it is kept in defined storage conditions. During this period, the product should retain its desired sensory, chemical, physical, functional and microbiological characteristics, as well as accurately comply with any nutritional information printed on the label. Shelf life therefore refers to a number of different aspects; each food product has a microbiological shelf life, a chemical shelf life, and a sensory (or organoleptic) shelf life. These categories reflect the different ways in which a food product will deteriorate over time. Ultimately the shelf life of a food product is intended to reflect the overall effect of these different aspects. Shelf life has always been an important facet of industrial food preparation and production, as food and drink are often produced in one area and then distributed to other areas for retailing and consumption. Globalised distribution and supply chains make it imperative that food should survive the transit between producer and consumer – as a perishable commodity, food carries a high risk of spoilage. As such, a realistic, workable and reproducible shelf life has to be determined every time a new food product is developed and marketed; shelf life determination of food has become an integral part of food safety, quality assurance, product development, marketing, and consumer behaviour. Dominic Mans Shelf Life, now in a revised and updated second edition, encompasses the core considerations about shelf life. Section 1 introduces shelf life, describes its relationship to food safety, and provides answers to the frequently asked questions around shelf life determination and testing which are a manager's chief concerns. Section 2 covers the science of the various ways in which food deteriorates and spoils, including the physical, chemical and microbiological changes. Section 3 looks at shelf life in practice, using case studies of different products to illustrate how shelf life may be determined in real life settings. This book will be invaluable to both practitioners and students in need of a succinct and comprehensive overview of shelf life concerns and topics.

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

Oxidative Stability and Shelf Life of Foods Containing Oils and Fats focuses on food stability and shelf life, both important factors in the improvement and development of food products. This book, relevant for professionals in the food and pet food industries, presents an evaluation of methods for studies on the oxidative stability and shelf life of bulk oils/fats, fried oils and foods, food emulsions, dried foods, meat and meat products, and seafood in food and pet food. Focuses on the application of various evaluation methods to studies of oxidative stability and shelf life in oils and fats and oils and fats-containing foods in the food and pet food industries Discusses oxidative stability and shelf life of low-moisture (dry) food, including dry pet food Discusses lipid co-oxidation with protein because a number of food products contain both lipids and proteins Directed mainly toward readers working in the food and pet food industries

The increased emphasis on food safety during the past two decades has decreased the emphasis on the loss of food through spoilage, particularly in developed countries where food is more abundant. In these countries spoilage is a commercial issue that affects the profit or loss of producers and manufacturers. In lesser developed countries spoilage continues to be a major concern. The amount of food lost to spoilage is not known. As will be evident in this text, stability and the type of spoilage are influenced by the inherent properties of the food and many other factors. During the Second World War a major effort was given to developing the technologies needed to ship foods to different regions of the world without spoilage. The food was essential to the military and to populations in countries that could not provide for themselves. Since then, progress has been made in improved product formulations, processing, packaging, and distribution systems. New products have continued to evolve, but for many new

perishable foods product stability continues to be a limiting factor. Many new products have failed to reach the marketplace because of spoilage issues.

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