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Alginates in Drug Delivery Design of Clothing Manufacturing Processes Handbook of Fire Resistant Textiles Handbook of Herbs and Spices Functional Textiles for Improved Performance, Protection and Health Improving the Safety and Quality of Eggs and Egg Products Biosensors for Medical Applications Advanced Knitting Technology Implantable Sensor Systems for Medical Applications Understanding the Tensile Properties of Concrete Nuclear Corrosion Science and Engineering Biomass Combustion Science, Technology and Engineering Advances in Wind Turbine Blade Design and Materials Trends in Packaging of Food, Beverages and Other Fast-Moving Consumer Goods (FMCG) Semiconductor Lasers Nanomaterials in Tissue Engineering Mems for Biomedical Applications Printed Films Nanotechnology in the Food, Beverage and Nutraceutical Industries Managing Nuclear Projects Inhaler Devices Fibre-Rich and Wholegrain Foods Handbook of Solid-State Lasers Handbook of Advanced Radioactive Waste Conditioning Technologies Infectious Disease in Aquaculture Protective Cultures, Antimicrobial Metabolites and Bacteriophages for Food and Beverage Biopreservation Alcoholic Beverages An Introduction to Pharmaceutical Sciences Rapid Prototyping of Biomaterials Biomaterials for Cancer Therapeutics Improving the Safety and Quality of Eggs and Egg Products Durability and Reliability of Medical Polymers Rice Quality Advances in the Dyeing and Finishing of Technical Textiles Metabolomics in Food and Nutrition Textile Design Fundamentals of Femtosecond Optics Textiles for Hygiene and Infection Control Advances in the dyeing and finishing of technical textiles Biotextiles as medical implants

Alginates in Drug Delivery

2020-07-23

alginates in drug delivery explores the vital precepts basic and fundamental aspects of alginates in pharmaceutical sciences biopharmacology and in the biotechnology industry the use of natural polymers in healthcare applications over synthetic polymers is becoming more prevalent due to natural polymers biocompatibility biodegradability economic extraction and ready availability to fully utilize and harness the potential of alginates this book presents a thorough understanding of the synthesis purification and characterization of alginates and their derivative this book collects in a single volume all relevant information on alginates in health care including recent advances in the field this is a highly useful resource for pharmaceutical scientists health care professionals and regulatory scientists actively involved in the pharmaceutical product and process development of natural polymer containing drug delivery as well as postgraduate students and postdoctoral research fellows in pharmaceutical sciences provides a single source on the complete alginate chemistry collection chemical modifications characterization and applications in healthcare fields includes high quality illustrations along with practical examples and research case studies contains contributions by global leaders and experts from academia industry and regulatory agencies who are pioneers in the application of natural polysaccharides in diverse pharmaceutical fields

Design of Clothing Manufacturing Processes

2013-07-31

the era of mass manufacturing of clothing and other textile products is coming to an end what is emerging is a post industrial production system that is able to achieve the goal of mass customised low volume production where the conventional borders between product design production and user are beginning to merge to continue developing knowledge on how to design better products and services we need to design better clothing manufacturing processes grounded in science technology and management to help the clothing industry to compete more effectively design of clothing manufacturing processes reviews key issues in the design of more rapid integrated and flexible clothing manufacturing processes the eight chapters of the book provide a detailed coverage of the design of clothing manufacturing processes using a systematic approach to planning scheduling and control the book starts with an overview of standardised clothing classification systems and terminologies for individual clothing types chapter 2 explores the development of standardised sizing systems chapter 3 reviews the key issues in the development of a garment collection chapters 4 to 7 discuss particular aspects of clothing production ranging from planning and organization to monitoring and control finally chapter 8 provides an overview of common quality requirements for clothing textile materials design of clothing manufacturing processes is intended for r d managers researchers technologists and designers throughout the clothing industry as well as academic researchers in the field of clothing design engineering and other aspects of clothing production considers in detail the design of sizing and classification systems discusses the planning required in all aspects of clothing production from design and pattern making to manufacture overviews the management of clothing production and material quality requirements

Handbook of Fire Resistant Textiles

2013-05-15

given its importance to consumer safety fire resistant textiles are one of the fastest growing sectors in industrial textiles handbook of fire resistant textiles provides a comprehensive review of the considerable advances that have occurred in the field of fire resistant textiles in recent years it draws together scientific and technical expertise from around the world to produce an important source of current knowledge on fire resistant textiles and their use for protection in hostile environments part one provides an overview of fire resistant textiles chapters discuss burning and combustion mechanisms of textile fibers chemical modification of natural and synthetic fibers to improve flame retardancy multi component flame resistant coating techniques for textiles care and maintenance of fire resistant textiles along with the safety health and environmental aspects of flame retardants part two covers different types of fire resistant fibers and fabrics including flame retardant cotton wool ceramic fibers and blends composites and nonwovens part three reviews standards regulations and characterization of fire resistant textiles part four includes case studies of major applications of fire resistant textiles the handbook of fire resistant textiles is an invaluable resource for a broad spectrum of professionals in the textiles and apparel industries including textile and garment manufacturers engineers researchers designers developers and buyers provides a comprehensive review of the considerable advances that have occurred in the field of fire resistant textiles in recent years discusses burning and combustion mechanisms of textile fibers and chemical modification of natural and synthetic fibers to improve flame retardancy covers different types of fire resistant fibers and fabrics including flame retardant cotton wool ceramic fibers and blends composites and nonwovens

Handbook of Herbs and Spices

2012-09-21

herbs and spices are among the most versatile ingredients in food processing and alongside their sustained popularity as flavourants and colourants they are increasingly being used for their natural preservative and potential health promoting properties an authoritative new edition in two volumes handbook of herbs and spices provides a comprehensive guide to the properties production and application of a wide variety of commercially significant herbs and spices volume 2 begins with a discussion of such issues as the medicinal uses of herbs and spices and their sustainable production herbs and spices as natural antimicrobials in foods and the effect of their natural antioxidants on the shelf life of food are explored before the book goes on to look in depth at individual herbs and spices ranging from ajowan to tamarind each chapter provides detailed coverage of a single herb or spice and begins by considering origins chemical composition and classification the cultivation production and processing of the specific herb or spice is then discussed in detail followed by analysis of the main uses functional properties and toxicity with its distinguished editor and international team of expert contributors the two volumes of the new edition of handbook of herbs and spices are an essential reference for manufacturers using herbs and spices in their products they also provide valuable information for nutritionists and academic researchers provides a

comprehensive guide to the properties production and application of a wide variety of commercially significant herbs and spices begins with a discussion of such issues as the medicinal uses of herbs and spices and their sustainable production explores herbs and spices as natural antimicrobials in foods and the effect of their natural antioxidants on the shelf life of food

Functional Textiles for Improved Performance, Protection and Health

2011-06-21

the textile industry is increasingly based on ongoing innovation and development of higher performance products and the field of functional textiles is no exception this book explores the development of textiles with a wide range of functions with the aim of improving the performance of the product in terms of the protection and health benefits that it can offer the book is split into two parts part one focuses on functional textiles for improved performance and protection with chapters reviewing antistatic flame retardant and infrared functional textiles among many others chapters in part two examine the uses of functional textiles in a medical context including superhydrophobic materials antibacterial textiles and insect repellent materials with its distinguished editors and contributions from some of the world s leading authorities functional textiles for improved performance protection and health is invaluable for textile scientists technologists and engineers as well as those designing and manufacturing textiles it is also a suitable reference for the academic sector examines the use of functional textiles in a medical context including superhydrophobic materials antibacterial textiles and insect repellent materials topics range from textile chemicals and their interaction with skin to novel pesticide protective clothing considers anti ultraviolet protection of clothing and flame retardant textiles

Improving the Safety and Quality of Eggs and Egg Products

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 1 focuses on egg chemistry production and consumption part one sets the scene with information on egg production and consumption in certain countries part two then provides essential information on egg formation and chemistry factors that impact egg quality are the focus of part three chapters cover the role of poultry breeding hen nutrition and laying environment among other significant topics part four addresses organic and free range egg production the impact of egg production on the environment and non poultry eggs a chapter on processed egg products completes the volume with its distinguished editors and international team of contributors volume 1 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 chemistry production and consumption with reference to the factors than can impact egg quality reviews

recent research in the areas of disease egg quality and the development of new technologies to assure egg safety comprehensively covers organic free range and processed egg production

Biosensors for Medical Applications

2012-08-21

biomedical sensors are an essential tool in the detection and monitoring of a wide range of medical conditions from cancer to parkinson s disease biosensors for medical applications provides a comprehensive review of established cutting edge and future trends in biomedical sensors and their applications part one focuses on key principles and transduction approaches reviewing electrochemical piezoelectric and nano sized biosensors impedance interrogated affinity biosensors for medical applications and practical applications of enzyme biosensors are explored before part two goes on to review specific medical applications biosensors for dna and rna detection and characterization disease biomarker detection and the use of affibodies as an alternative to antibodies in cancer marker biosensors are investigated along with biosensors for drug testing and discovery non invasive measurements and wearable biosensors for medical applications with its distinguished editor and international team of expert contributors biosensors for medical applications is an essential guide for all those involved in the research design production and use of medical biosensors provides a comprehensive review of established cutting edge and future trends in biomedical sensors and their applications examines key principles and transduction approaches reviewing electrochemical piezoelectric and nano sized biosensors reviews biosensors for dna and rna detection and characterisation disease biomarker detection and the use of affibodies as an alternative to antibodies in cancer marker biosensors

Advanced Knitting Technology

2021-08-22

advanced knitting technology provides complete coverage of the latest innovations and developments in knitting technology including emerging methods as well as the latest best practice for classical processes many technologies can be used for the production of cloth such as weaving knitting nonwoven and braiding knitting methods are being selected for a growing range of applications due to the spectacular properties of knitted fabric such as softer tactile quality higher stretchability bulkiness and functional properties that compare favorably with other woven fabrics beyond the well known apparel applications specially designed knitted structures are uniquely suitable for high performance applications like reinforcement for composites medical implants and geotextiles this book presents recent advances in knitting technology including structures properties and applications of knitted fabrics in modern apparel activewear composites medical textiles and geotextiles with reference to the latest industry practice testing quality and process control methods for knitting technologies are discussed advanced knitting technology covers recent advances in knitting technology properties and performance of knitted structures their applications in apparel and technical fields provides detailed and practical instructions for the sustainable production of knitted textiles including sustainable chemical processing natural dyeing

processes and sustainability analysis methods draws on the latest research to discuss the future of knitted apparels and high tech applications of knitted structures as technical textiles explores the latest applications of ai and machine learning to the knitting process

Implantable Sensor Systems for Medical Applications

2013-01-02

implantable sensor systems offer great potential for enhanced medical care and improved quality of life consequently leading to major investment in this exciting field implantable sensor systems for medical applications provides a wide ranging overview of the core technologies key challenges and main issues related to the development and use of these devices in a diverse range of medical applications part one reviews the fundamentals of implantable systems including materials and material tissue interfaces packaging and coatings microassembly electrode array design and fabrication and the use of biofuel cells as sustainable power sources part two goes on to consider the challenges associated with implantable systems biocompatibility sterilization considerations and the development of active implantable medical devices in a regulated environment are discussed along with issues regarding data protection and patient privacy in medical sensor networks applications of implantable systems are then discussed in part three beginning with microelectromechanical systems mems for in vivo applications before further exploration of tripolar interfaces for neural recording sensors for motor neuroprostheses implantable wireless body area networks and retina implants with its distinguished editors and international team of expert contributors implantable sensor systems for medical applications is a comprehensive guide for all those involved in the design development and application of these life changing technologies provides a wide ranging overview of the core technologies key challenges and main issues related to the development and use of implantable sensor systems in a range of medical applications reviews the fundamentals of implantable systems including materials and material tissue interfaces packaging and coatings and microassembly considers the challenges associated with implantable systems including biocompatibility and sterilization

Understanding the Tensile Properties of Concrete

2013-07-31

the response of concrete under tensile loading is crucial for most applications because concrete is much weaker in tension than in compression understanding the response mechanisms of concrete under tensile conditions is therefore key to understanding and using concrete in structural applications understanding the tensile properties of concrete summarises key recent research in this important subject after an introduction to concrete the book is divided into two parts part one on static response and part two on dynamic response part one starts with a summary chapter on the most important parameters that affect the tensile response of concrete chapters show how multi scale modelling is used to relate concrete composition to tensile properties part two focuses on dynamic response and starts with an introduction to the different regimes of dynamic

loading ranging from the low frequency loading by wind or earthquakes up to the extreme dynamic conditions due to explosions and ballistic impacts following chapters review dynamic testing techniques and devices that deal with the various regimes of dynamic loading later chapters highlight the dynamic behaviour of concrete from different viewpoints and the book ends with a chapter on practical examples of how detailed knowledge on tensile properties is used by engineers in structural applications drawing on the work of some of the leading experts in the field understanding the tensile properties of concrete is a valuable reference for civil and structural engineers as well as those researching this important material summarises key recent research in the areas of understanding the response mechanisms of concrete under tensile conditions provides a summary of the most important parameters that affect the tensile response of concrete and shows how multi scale modeling is used to relate concrete composition to tensile properties highlights the dynamic behaviour of concrete from different viewpoints and provides practical examples of how detailed knowledge on tensile properties is used by engineers in structural applications

Nuclear Corrosion Science and Engineering

2012-02-21

corrosion of nuclear materials i e the interaction between these materials and their environments is a major issue for plant safety as well as for operation and economic competitiveness understanding these corrosion mechanisms the systems and materials they affect and the methods to accurately measure their incidence is of critical importance to the nuclear industry combining assessment techniques and analytical models into this understanding allows operators to predict the service life of corrosion affected nuclear plant materials and to apply the most appropriate maintenance and mitigation options to ensure safe long term operation this book critically reviews the fundamental corrosion mechanisms that affect nuclear power plants and facilities initial sections introduce the complex field of nuclear corrosion science with detailed chapters on the different types of both aqueous and non aqueous corrosion mechanisms and the nuclear materials susceptible to attack from them this is complemented by reviews of monitoring and control methodologies as well as modelling and lifetime prediction approaches given that corrosion is an applied science the final sections review corrosion issues across the range of current and next generation nuclear reactors and across such nuclear applications as fuel reprocessing facilities radioactive waste storage and geological disposal systems with its distinguished editor and international team of expert contributors nuclear corrosion science and engineering is an invaluable reference for nuclear metallurgists materials scientists and engineers as well as nuclear facility operators regulators and consultants and researchers and academics in this field comprehensively reviews the fundamental corrosion mechanisms that affect nuclear power plants and facilities chapters assess different types of both aqueous and non aqueous corrosion mechanisms and the nuclear materials susceptible to attack from them considers monitoring and control methodologies as well as modelling and lifetime prediction approaches

Biomass Combustion Science, Technology and Engineering

2013-04-04

the utilisation of biomass is increasingly important for low or zero carbon power generation developments in conventional power plant fuel flexibility allow for both direct biomass combustion and co firing with fossil fuels while the integration of advanced technologies facilitates conversion of a wide range of biomass feedstocks into more readily combustible fuel biomass combustion science technology and engineering reviews the science and technology of biomass combustion conversion and utilisation part one provides an introduction to biomass supply chains and feedstocks and outlines the principles of biomass combustion for power generation chapters also describe the categorisation and preparation of biomass feedstocks for combustion and gasification part two goes on to explore biomass combustion and co firing including direct combustion of biomass biomass co firing and gasification fast pyrolysis of biomass for the production of liquids and intermediate pyrolysis technologies largescale biomass combustion and biorefineries are then the focus of part three following an overview of large scale biomass combustion plants key engineering issues and plant operation are discussed before the book concludes with a chapter looking at the role of biorefineries in increasing the value of the end products of biomass conversion with its distinguished editor and international team of expert contributors biomass combustion science technology and engineering provides a clear overview of this important area for all power plant operators industrial engineers biomass researchers process chemists and academics working in this field reviews the science and technology of biomass combustion conversion and utilisation provides an introduction to biomass supply chains and feedstocks and outlines the principles of biomass combustion for power generation describes the categorisation and preparation of biomass feedstocks for combustion and gasification

Advances in Wind Turbine Blade Design and Materials

2013-10-31

wind energy is gaining critical ground in the area of renewable energy with wind energy being predicted to provide up to 8 of the world s consumption of electricity by 2021 advances in wind turbine blade design and materials reviews the design and functionality of wind turbine rotor blades as well as the requirements and challenges for composite materials used in both current and future designs of wind turbine blades part one outlines the challenges and developments in wind turbine blade design including aerodynamic and aeroelastic design features fatigue loads on wind turbine blades and characteristics of wind turbine blade airfoils part two discusses the fatigue behavior of composite wind turbine blades including the micromechanical modelling and fatigue life prediction of wind turbine blade composite materials and the effects of resin and reinforcement variations on the fatigue resistance of wind turbine blades the final part of the book describes advances in wind turbine blade materials development and testing including biobased composites surface protection and coatings structural performance testing and the design manufacture and testing of small wind turbine blades advances in wind turbine blade design and materials offers a comprehensive review of the recent advances and challenges encountered in wind turbine blade materials and design and will provide an invaluable reference for researchers and innovators in the field of wind energy production including materials scientists and engineers wind turbine blade manufacturers and maintenance technicians scientists researchers and academics reviews the design and functionality of wind turbine rotor blades examines the requirements and challenges for composite materials used in both current and future designs of wind turbine blades provides an invaluable

reference for researchers and innovators in the field of wind energy production

Trends in Packaging of Food, Beverages and Other Fast-Moving Consumer Goods (FMCG)

2013-02-26

packaging plays an essential role in protecting and extending the shelf life of a wide range of foods beverages and other fast moving consumer goods there have been many key developments in packaging materials and technologies in recent years and trends in packaging of food beverages and other fast moving consumer goods fmcg provides a concise review of these developments and international market trends beginning with a concise introduction to the present status and trends in innovations in packaging for food beverages and other fast moving consumer goods the book goes on to consider modified atmosphere packaging and other active packaging systems including smart and intelligent packaging and the role these play in augmenting and securing the consumer brand experience developments in plastic and bioplastic materials and recycling systems are then discussed followed by innovations and trends in metal paper and paperboard packaging further chapters review international environmental and sustainability regulatory and legislative frameworks before the use of nanotechnology smart and interactive packaging developments for enhanced communication at the packaging user interface are explored finally the book concludes by considering potential future trends in materials and technologies across the international packaging market with its distinguished editor and international team of expert contributors trends in packaging of food beverages and other fast moving consumer goods fmcg is an important reference tool providing a practical overview of emerging packaging technologies and market trends for research and design professionals in the food and packaging industry and academics working in this area introduces the present status current trends and new innovations in the field whilst considering future trends in materials and technologies considers modified atmosphere packaging and other active packaging systems including smart and intelligent packaging discusses developments in plastic and bioplastic materials and recycling systems

Semiconductor Lasers

2013-04-23

semiconductor lasers have important applications in numerous fields including engineering biology chemistry and medicine they form the backbone of the optical telecommunications infrastructure supporting the internet and are used in information storage devices bar code scanners laser printers and many other everyday products semiconductor lasers fundamentals and applications is a comprehensive review of this vital technology part one introduces the fundamentals of semiconductor lasers beginning with key principles before going on to discuss photonic crystal lasers high power semiconductor lasers and laser beams and the use of semiconductor lasers in ultrafast pulse generation part two then reviews applications of visible and near infrared emitting lasers nonpolar and semipolar gan based lasers advanced self assembled inas quantum dot lasers and vertical cavity surface emitting lasers are all considered in addition to semiconductor disk and hybrid silicon lasers finally applications of mid and far infrared emitting lasers are the focus of part three topics covered include gasb based

type i quantum well diode lasers interband cascade and terahertz quantum cascade lasers whispering gallery mode lasers and tunable mid infrared laser absorption spectroscopy with its distinguished editors and international team of expert contributors semiconductor lasers is a valuable guide for all those involved in the design operation and application of these important lasers including laser and telecommunications engineers scientists working in biology and chemistry medical practitioners and academics working in this field provides a comprehensive review of semiconductor lasers and their applications in engineering biology chemistry and medicine discusses photonic crystal lasers high power semiconductor lasers and laser beams and the use of semiconductor lasers in ultrafast pulse generation reviews applications of visible and near infrared emitting lasers and mid and far infrared emitting lasers

Nanomaterials in Tissue Engineering

2013-07-31

nanomaterial technologies can be used to fabricate high performance biomaterials with tailored physical chemical and biological properties they are therefore an area of interest for emerging biomedical technologies such as scaffolding tissue regeneration and controlled drug delivery nanomaterials in tissue engineering explores the fabrication of a variety of nanomaterials and the use of these materials across a range of tissue engineering applications part one focuses on the fabrication of nanomaterials for tissue engineering applications and includes chapters on engineering nanoporous biomaterials layer by layer self assembly techniques for nanostructured devices and the synthesis of carbon based nanomaterials part two goes on to highlight the application of nanomaterials in soft tissue engineering and includes chapters on cardiac neural and cartilage tissue engineering finally the use of nanomaterials in hard tissue engineering applications including bone dental and craniofacial tissue engineering is discussed in part three nanomaterials in tissue engineering is a standard reference for researchers and tissue engineers with an interest in nanomaterials laboratories investigating biomaterials and academics interested in materials science chemical engineering biomedical engineering and biological sciences explores the fabrication of a variety of nanomaterials and their use across a range of tissue engineering applications examines engineering nanoporous biomaterials layer by layer self assembly techniques for nanostructured devices and the synthesis of carbon based nanomaterials highlights the application of nanomaterials in soft tissue engineering and includes chapters on cardiac neural and cartilage tissue engineering

Mems for Biomedical Applications

2012-07-18

the application of micro electro mechanical systems mems in the biomedical field is leading to a new generation of medical devices mems for biomedical applications reviews the wealth of recent research on fabrication technologies and applications of this exciting technology the book is divided into four parts part one introduces the fundamentals of mems for biomedical applications exploring the microfabrication of polymers and reviewing sensor and actuator mechanisms part two describes

applications of mems for biomedical sensing and diagnostic applications mems for in vivo sensing and electrical impedance spectroscopy are investigated along with ultrasonic transducers and lab on chip devices mems for tissue engineering and clinical applications are the focus of part three which considers cell culture and tissue scaffolding devices biomems for drug delivery and minimally invasive medical procedures finally part four reviews emerging biomedical applications of mems from implantable neuroprobes and ocular implants to cellular microinjection and hybrid mems with its distinguished editors and international team of expert contributors mems for biomedical applications provides an authoritative review for scientists and manufacturers involved in the design and development of medical devices as well as clinicians using this important technology reviews the wealth of recent research on fabrication technologies and applications of micro electro mechanical systems mems in the biomedical field introduces the fundamentals of mems for biomedical applications exploring the microfabrication of polymers and reviewing sensor and actuator mechanisms considers mems for biomedical sensing and diagnostic applications along with mems for in vivo sensing and electrical impedance spectroscopy

Printed Films

2012-08-30

whilst printed films are currently used in varied devices across a wide range of fields research into their development and properties is increasingly uncovering even greater potential printed films provides comprehensive coverage of the most significant recent developments in printed films and their applications materials and properties of printed films are the focus of part one beginning with a review of the concepts technologies and materials involved in their production and use printed films as electrical components and silicon metallization for solar cells are discussed as are conduction mechanisms in printed film resistors and thick films in packaging and microelectronics part two goes on to review the varied applications of printed films in devices printed resistive sensors are considered as is the role of printed films in capacitive piezoelectric and pyroelectric sensors mechanical micro systems and gas sensors the applications of printed films in biosensors actuators heater elements varistors and polymer solar cells are then explored followed by a review of screen printing for the fabrication of solid oxide fuel cells and laser printed micro and meso scale power generating devices with its distinguished editors and international team of expert contributors printed films is a key text for anyone working in such fields as microelectronics fuel cell and sensor technology in both industry and academia provides a comprehensive analysis of the most significant recent developments in printed films and their applications reviews the concepts properties technologies and materials involved in the production and use of printed films analyses the varied applications of printed films in devices including printed restrictive sensors for physical quantities and printed thick film mechanical micro systems mems among others

Nanotechnology in the Food, Beverage and Nutraceutical Industries

2012-04-19

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

Managing Nuclear Projects

2013-08-31

in addition to the nuclear power industry the nuclear field has extensive projects and activities in the areas of research reactors medical isotope production decommissioning and remediation of contaminated sites managing nuclear projects focuses on the management aspects of nuclear projects in a wide range of areas with emphasis on process requirements and lessons learned part one provides a general overview of the nuclear industry including basic principles for managing nuclear projects nuclear safety culture management of worker risk training and management of complex projects part two focuses on managing reactor projects with discussion on a variety of topics including management of research reactor projects medical radioisotope production power reactor modifications power uprates outage management and management of nuclear related r d chapters in part three highlight the areas of radioactive waste and spent fuel management reactor decommissioning and remediation of radioactively contaminated sites finally part four explores regulation guidance and emergency management in the nuclear industry chapters discuss quality assurance and auditing programs licensing procedures for nuclear installations emergency preparedness management of nuclear crises and international nuclear cooperation with its distinguished editor and contributors managing nuclear projects is a valuable resource for project managers plant managers engineers regulators training professionals consultants and academics examines the basic principles of managing nuclear projects focussing on processes and requirements discusses the management of reactor projects explores regulation guidance and emergency management in the nuclear industry

Inhaler Devices

2013-04-23

given their direct impact on the health and quality of life for millions inhalers represent a major turning point in the history of modern medicine inhaler devices fundamentals design and drug delivery provides readers with an introduction to the fundamentals of inhaler technology with a comprehensive discussion of the history of inhalers as well as a discussion on current research and development part one discusses the fundamentals and development of inhaler devices as well as drug formulations for inhalers the treatment of asthma is also discussed part two reviews recent developments in drug formulation and nanotechnology for inhaler devices emerging inhaler technology and possible future trends inhaler devices fundamentals design and drug delivery is an essential design guide for good industrial practice and will be an invaluable resource for those researching and treating conditions such as asthma and those developing and manufacturing inhalation devices introduces the fundamentals of inhaler technology discusses the history of inhalers as well as current research and development as well as possible future trends considers the development of inhaler devices drug formulations and discusses the treatment of asthma

Fibre-Rich and Wholegrain Foods

2013-03-26

consumers are increasingly seeking foods that are rich in dietary fibre and wholegrains but are often unwilling to compromise on sensory quality fibre rich and wholegrain food reviews key research and best industry practice in the development of fibre enriched and wholegrain products that efficiently meet customer requirements part one introduces the key issues surrounding the analysis definition regulation and health claims associated with dietary fibre and wholegrain foods the links between wholegrain foods and health the range of fibre dietary ingredients and a comparison of their technical functionality are discussed as are consumption and consumer challenges of wholegrain foods part two goes on to explore dietary fibre sources including wheat and non wheat cereal dietary fibre ingredients vegetable fruit and potato fibres improving the quality of fibre rich and wholegrain foods including such cereal products as wholegrain bread muffins pasta and noodles is the focus of part three fibre in extruded products is also investigated before part four reviews quality improvement of fibre enriched dairy products meat products seafood beverages and snack foods companion animal nutrition as affected by dietary fibre inclusion is discussed before the book concludes with a consideration of soluble and insoluble fibre in infant nutrition with its distinguished editors and international team of expert contributors fibre rich and wholegrain foods provides a comprehensive guide to the field for researchers working in both the food industry and academia as well as all those involved in the development production and use of fibre enriched and wholegrain foods reviews key research and best industry practice in the development of fibre enriched and wholegrain products considers analysis definition regulation and health claims associated with dietary fibre and wholegrain foods explores sources of dietary fibre including wheat and non wheat cereal vegetable fruit and potato fibres

Handbook of Solid-State Lasers

2013-02-20

solid state lasers which offer multiple desirable qualities including enhanced reliability robustness efficiency and wavelength diversity are absolutely indispensable for many applications the handbook of solid state lasers reviews the key materials processes and applications of solid state lasers across a wide range of fields part one begins by reviewing solid state laser materials fluoride laser crystals oxide laser ceramics crystals and fluoride laser ceramics doped by rare earth and transition metal ions are discussed alongside neodymium erbium and ytterbium laser glasses and nonlinear crystals for solid state lasers part two then goes on to explore solid state laser systems and their applications beginning with a discussion of the principles powering and operation regimes for solid state lasers the use of neodymium doped materials is considered followed by system sizing issues with diode pumped quasi three level materials erbium glass lasers and microchip fiber raman and cryogenic lasers laser mid infrared systems laser induced breakdown spectroscopy and the clinical applications of surgical solid state lasers are also explored the use of solid state lasers in defense programs is then reviewed before the book concludes by presenting some environmental applications of solid state lasers with its distinguished editors and international team of expert contributors the handbook of solid state lasers is an authoritative guide for all those involved in the design and application of this technology including laser and materials scientists and engineers medical and military professionals environmental researchers and academics working in this field reviews the materials used in solid state lasers explores the principles of solid state laser systems and their applications considers defence and environmental applications

Handbook of Advanced Radioactive Waste Conditioning Technologies

2011-01-24

radioactive wastes are generated from a wide range of sources including the power industry and medical and scientific research institutions presenting a range of challenges in dealing with a diverse set of radionuclides of varying concentrations conditioning technologies are essential for the encapsulation and immobilisation of these radioactive wastes forming the initial engineered barrier required for their transportation storage and disposal the need to ensure the long term performance of radioactive waste forms is a key driver of the development of advanced conditioning technologies the handbook of advanced radioactive waste conditioning technologies provides a comprehensive and systematic reference on the various options available and under development for the treatment and immobilisation of radioactive wastes the book opens with an introductory chapter on radioactive waste characterisation and selection of conditioning technologies part one reviews the main radioactive waste treatment processes and conditioning technologies including volume reduction techniques such as compaction incineration and plasma treatment as well as encapsulation methods such as cementation calcination and vitrification this coverage is extended in part two with in depth reviews of the development of advanced materials for radioactive waste conditioning including geopolymers glass and ceramic matrices for nuclear waste immobilisation and waste packages and containers for disposal finally part three reviews the long term performance assessment and knowledge management techniques applicable to both spent nuclear fuels and solid radioactive waste forms with its distinguished international team of contributors the handbook of advanced radioactive waste conditioning technologies is a standard reference for all radioactive waste management professionals radiochemists academics and researchers involved in the development of the nuclear

fuel cycle provides a comprehensive and systematic reference on the various options available and under development for the treatment and immobilisation of radioactive wastes explores radioactive waste characterisation and selection of conditioning technologies including the development of advanced materials for radioactive waste conditioning assesses the main radioactive waste treatment processes and conditioning technologies including volume reduction techniques such as compaction

Infectious Disease in Aquaculture

2012-04-25

with an ever increasing demand for seafood that cannot be met by capture fisheries alone growing pressure is being placed on aquaculture production however infectious diseases are a major constraint infectious disease in aquaculture prevention and control brings together a wealth of recent research on this problem and its effective management part one considers the innate and adaptive immune responses seen in fish and shellfish together with the implications of these responses for disease control the specific immune response of molluscs and crustaceans is considered in depth along with the role of stress in resistance to infection advances in disease diagnostics veterinary drugs and vaccines are discussed in part two with quality assurance the use and effects of antibiotics and anti parasitic drugs in aquaculture and developments in vaccination against fish are explored part three focuses on the development of specific pathogen free populations and novel approaches for disease control specific pathogen free shrimp stocks developments in genomics and the use of bacteria and bacteriophages as biological agents for disease control are explored before the management and use of natural antimicrobial compounds with its distinguished editor and expert team of contributors infectious disease in aquaculture prevention and control provides managers of aquaculture facilities and scientists working on disease in aquaculture with a comprehensive and systematic overview of essential research in the prevention and control of infectious disease collates a wealth of recent research on infectious disease and its effective management in aquaculture production considers the innate and adaptive immune responses seen in fish and shellfish and the implications for disease control discusses advances in disease diagnostics veterinary drugs and vaccines

Protective Cultures, Antimicrobial Metabolites and Bacteriophages for Food and Beverage Biopreservation

2010-11-29

consumers favour foods with fewer synthetic additives but products must also be safe to eat and have a sufficiently long shelf life biopreservation the use of a product s natural microflora and its antibacterial products for protection against pathogens and spoilage is a method of growing interest for the safe production of high quality minimally processed foods this book provides an essential overview of key topics in this area initial chapters review central aspects in food biopreservation including the identification of new protective cultures and antimicrobial culture components existing commercial fermentates including nisin and natamycin and the potential of novel fermentates and bacteriophages to improve

food safety part ii concentrates on the use of protective cultures bacteriocins and bacteriophages to control the carriage of pathogenic microorganisms in food animals and to modulate human gut microflora chapters in the final section of the book review biopreservation of different types of foods including milk and dairy products fermented meats fresh seafood and fruit a review of active packaging for food biopreservation completes the volume edited by a leading expert protective cultures antimicrobial metabolites and bacteriophages for food and beverage biopreservation is a fundamental reference for researchers and food industry professionals working to ensure the safety of the food supply reviews the central aspects in food biopreservation including the identification of new protective cultures and antimicrobial culture components examines the use of protective cultures bacteriocins and bacteriophages to control the carriage of pathogenic microorganisms provides an overview of the biopreservation of different types of foods including milk and dairy products fermented meats fresh seafood and fruit

Alcoholic Beverages

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

An Introduction to Pharmaceutical Sciences

2011-08-08

rapid prototyping of biomaterials principles and applications provides a comprehensive review of established and emerging rapid prototyping technologies such as bioprinting for medical applications rapid prototyping also known as layer manufacturing additive manufacturing solid freeform fabrication or 3d printing can be used to create complex structures and devices for medical applications from solid powder or liquid precursors following a useful introduction which provides an

overview of the field the book explores rapid prototyping of nanoscale biomaterials biosensors artificial organs and prosthetic limbs further chapters consider the use of rapid prototyping technologies for the processing of viable cells scaffolds and tissues with its distinguished editor and international team of renowned contributors rapid prototyping of biomaterials is a useful technical resource for scientists and researchers in the biomaterials and tissue regeneration industry as well as in academia comprehensive review of established and emerging rapid prototyping technologies such as bioprinting for medical applications chapters explore rapid prototyping of nanoscale biomaterials biosensors artificial organs and prosthetic limbs examines the use of rapid prototyping technologies for the processing of viable cells scaffolds and tissues

Rapid Prototyping of Biomaterials

2014-02-13

cancer can affect people of all ages and approximately one in three people are estimated to be diagnosed with cancer during their lifetime extensive research is being undertaken by many different institutions to explore potential new therapeutics and biomaterials technology is now being developed to target treat and prevent cancer this unique book discusses the role and potential of biomaterials in treating this prevalent disease the first part of the book discusses the fundamentals of biomaterials for cancer therapeutics chapters in part two discuss synthetic vaccines proteins and polymers for cancer therapeutics part three focusses on theranosis and drug delivery systems whilst the final set of chapters look at biomaterial therapies and cancer cell interaction this extensive book provides a complete overview of the latest research into the potential of biomaterials for the diagnosis therapy and prevention of cancer biomaterials for cancer therapeutics is an essential text for academics scientists and researchers within the biomedical industry and will also be of interest to clinicians with a research interest in cancer therapies and biomaterials a complete overview of the latest research into the potential of biomaterials for the diagnosis therapy and prevention of cancer discusses the fundamentals of biomaterials for cancer therapeutics discusses synthetic vaccines proteins and polymers for cancer therapeutics

Biomaterials for Cancer Therapeutics

2013-11-23

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

Improving the Safety and Quality of Eggs and Egg Products

2011-08-19

given the widespread use of polymers in medical devices the durability and reliability of this material in use is an area of critical importance durability and reliability of medical polymers reviews the performance of both bioresorbable and non bioresorbable medical polymers part one provides a review of the types and properties of bioresorbable medical polymers the effect of molecular structure on properties is discussed along with the processing of bioresorbable and other polymers for medical applications transport phenomena and the degradation of bioresorbable medical polymers are reviewed before an exploration of synthetic bioresorbable polymers and their use in orthopaedic tissue regeneration part two goes on to explore the durability and reliability of non bioresorbable medical polymers and wear processes in polymer implants and ageing processes of biomedical polymers in the body are discussed in depth before an investigation into manufacturing defects and the failure of synthetic polymeric medical devices with its distinguished editors and international team of expert contributors durability and reliability of medical polymers is an essential tool for all materials scientists researchers and engineers involved in the design development and application of medical polymers whilst also providing a helpful overview of the subject for biologists chemist and clinicians comprehensively examines the performance of both bioresorbable and non bioresorbable medical polymers discusses the processing of bioresorbable and other polymers for medical applications before reviewing the degradation of bioresorbable medical polymers explores the durability and reliability of non bioresorbable medical polymers and discusses wear processes in polymer implants and ageing processes of biomedical polymers in the body

Durability and Reliability of Medical Polymers

2012-08-13

rice is a unique and highly significant crop thought to help feed nearly half the planet on a daily basis an understanding of its properties and their significance is essential for the provision of high quality products this is all the more true today as international trade in rice trade has been increasing rapidly in recent years this important book reviews variability in rice characteristics and their effects on rice quality after an introduction on rice quality that also explores paradoxes associated with the crop the book goes on to examine rice physical properties and milling quality this leads to a discussion

of the effects that the degree of milling has on rice quality the ageing of rice and its cooking and eating quality are investigated in the following chapters before an analysis of the effect of parboiling on rice quality later chapters consider the product making and nutritional quality of rice and investigate speciality rices and rice breeding for desirable quality the book concludes with an extensive chapter on rice quality analysis and an appendix containing selected rice quality test procedures with its distinguished author rice quality a guide to rice properties and analysis proves an invaluable resource for professionals in the rice industry and researchers and post graduate students interested in rice examines the physical properties of rice such as grain appearance and density and friction investigates the ageing of rice and its cooking and eating quality the product making and nutritional aspects of rice are also considered

Rice Quality

2011-06-27

the use of distinctive colourants and finishes has a significant impact on the aesthetic appeal and functionality of technical textiles advances in the textile chemical industry facilitate production of diverse desirable properties and are therefore of great interest in the production of textile products with enhanced performance characteristics drawing on key research advances in the dyeing and finishing of technical textiles details important advances in this field and outlines their development for a range of applications part one reviews advances in dyes and colourants including chromic materials optical effect pigments and microencapsulated colourants for technical textile applications other types of functional dyes considered include uv absorbent anti microbial and water repellent dyes regulations relating to the use of textile dyes are discussed before part two goes on to investigate such advances in finishing techniques as mechanical finishing softening treatments and the use of enzymes surfactants inkjet printing of technical textiles and functional finishes to improve the comfort and protection of apparel are also explored the use of nanotechnology in producing hydrophobic super hydrophobic and antimicrobial finishes is dealt with alongside coating and lamination techniques before the book concludes with a discussion of speciality polymers for the finishing of technical textiles with its distinguished editor and international team of expert contributors advances in the dyeing and finishing of technical textiles is a comprehensive guide for all those involved in the development production and application of technical textiles including textile chemists colour technologists colour quality inspectors product developers and textile finishers discusses important advances in the textile chemical industry considers developments in various dyes and colourants used in the industry including water repellent functional and anti microbial dyes chapters also examine advances in finishing techniques the use of nanotechnology and speciality polymers in technical textiles

Advances in the Dyeing and Finishing of Technical Textiles

2013-02-08

metabolomics enables valuable information about the biochemical composition of foods to be rapidly obtained since the

biochemical profile of food largely determines key food properties such as flavour and shelf life the information gained using metabolomics based methods will enable greater control of food quality and also help to determine the relationship between diet and health metabolomics in food and nutrition provides an overview of their current and potential use in the food industry part one reviews equipment methods and data interpretation in metabolomics including the use of nuclear magnetic resonance nmr statistical methods in metabolomics and metabolic reconstruction databases and their application to metabolomics research part two explores applications of metabolomics in humans plants and food chapters discuss metabolomics in nutrition human samples for health assessments and current methods for the analysis of human milk oligosaccharides hmos and their novel applications further chapters highlight metabolomic analysis of plants and crops metabolomics for the safety assessment of genetically modified gm crops and applications of metabolomics in food science including food composition and quality sensory and nutritional attributes with its distinguished editors and team of expert contributors metabolomics in food and nutrition is a technical resource for industrial researchers in the food and nutrition sectors interested in the potential of metabolomics methods and academics and postgraduate students working in the area provides an overview of the current and potential future use of metabolomics in the food industry chapters focus on key applications and review the analytical methods used and the bioinformatics techniques involved in processing the results discusses metabolomics in nutrition human samples for health assessments and current methods for the analysis of human milk oligosaccharides hmos and their novel applications

Metabolomics in Food and Nutrition

2013-10-31

textile design is a complex field of practice which operates in a competitive global industry designers need to take into account not only the design but also the manufacture technological development and application of the final product textile design provides a broad overview of the fundamentals of and advances in textile design as well as practical case studies of relevant industries part one covers the principles of fabric construction as applied to textile design with chapters on fundamental principles woven and knitted textile design part two discusses surface approaches to textile design with chapters on such topics as surface design of textiles printed and embroidered textile design dyeing and finishing and the use of colour in textile design finally part three focuses on the applications and advances in textile design including chapters covering colour trend forecasting sustainable textile design fashion interior and 2d to 3d design considerations and new developments in technical and future textiles with its distinguished editors and international team of contributors textile design is an essential reference for design professionals in the textile and fashion industries as well as those who specialise in interior textiles and academics with a research interest in the area a broad overview of textile design covering fundamental topics such as principles of fibres and fabrics knitted fabric design through to the dyeing finishing and printing aspects of textile design explores the design aspects of technical textiles and future textiles an invaluable source of information on textile design and suitable for design professionals in the textile and fashion industries as well as those in academia

Textile Design

2011-04-15

femtosecond optics involves the study of ultra short pulses of light understanding the behaviour of these light pulses makes it possible to develop ultra fast lasers with a wide range of applications in such areas as medical imaging chemical analysis and micro machining written by two leading experts in the field this book reviews the theory of the interaction of femtosecond light pulses with matter femtosecond lasers and laser systems and the principles of femtosecond coherent spectroscopy of impurity amorphous media reviews the theory of the interaction of femtosecond light pulses with matter discusses femtosecond lasers and laser systems considers the principles of femtosecond coherent spectroscopy of impurity amorphous media

Fundamentals of Femtosecond Optics

2013-05-22

understanding and improving hygiene and healthcare products is essential for improving infection prevention continuing woodhead publishing s series of specialised medical textile books textiles for hygiene and infection control provides readers with the latest developments in healthcare materials for hygiene and infection applications part one offers an insight into design and production techniques for hygiene textiles chapters discuss nanotechnology and it s applications in hygiene textiles knitted spacer fabrics innovative and sustainable packaging and biodegradable hygiene products part two explores design and production techniques for infection control textiles chapters examine micro organisms infection and the role of textiles the creation of barrier textiles through plasma processing and methods for ensuring fabrics survive sterilisation part three concludes by investigating the variety of available hygiene and infection control products chapters consider washable textile based absorbent products for incontinence coated textiles for skin infections and antimicrobial treatments of textiles for hygiene and infection control applications from an industrial perspective textiles for hygiene and infection control is an essential reference for manufacturers designers engineers and producers of hygiene and infection control products it is also a useful tool for medical scientists surgeons and nurses offers insight into design and production techniques for hygiene textiles chapters discuss a range of applications such as the use of textiles for incontinence an essential reference for manufacturers designers engineers and producers of hygiene and infection control products

Textiles for Hygiene and Infection Control

2011-07-26

the chemistry of synthetic dyes having functions other than color such as better light fastness antimicrobial activity water repellency biodegradability fluorescence and phosphorescence is described these dyes belong to the azo cyanine coumarin

xanthene naphthalimide perylene thioxanthone quinonoid and naphtholactam classes

Advances in the dyeing and finishing of technical textiles

2013-02-08

biotextile sterilization presents unique challenges the chapter describes the principles of sterilization and the way in which sterility assurance levels are defined and demonstrated traditional thermal chemical and radiation sterilization methods are described as well as newer methods such as plasma and microwave sterilization and applications for which each is suitable the advantages of the emerging technology of radiochemical sterilization are described together with some of its successful applications such as surgical sutures and tissue adhesive and the results of recent comparative studies of radiochemical and other sterilization methods for absorbable materials projected future trends in sterilization technology are also outlined

Biotextiles as medical implants

2013-10-31

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