

Handbook Of Textile Fibres Woodhead Publishing Series In Textiles

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Handbook of Textile Design J Wilson 2001-09-21 Designers in the textile industry have a wide range of roles and responsibilities and are frequently required to make design decisions throughout the manufacturing process. This very practical handbook provides a comprehensive overview of the role of the textile designer within the textile industry. It deals with the all aspects of the design process from the beginning – from how to go about attracting clients through range planning and development to presentation. It firmly locates the work of the textile designer within the wider context of the global textile and clothing industries and considers the process of design for both freelance and in-house designers. Commercial considerations are also covered, together with trend forecasting and the factors influencing purchasing decisions. Based on the author's experience as a textile designer in industry and as a lecturer at UMIST, Manchester, UK, this book covers the entire textile design process from briefing through initial ideas, research and design development, to finished fabrics being sold to garment manufacturers and to retail. The Handbook of textile design is an invaluable reference for students of textile design as well as buyers and merchandisers of textile products, and anyone requiring an understanding of the textile design process. The range and diversity of textile design techniques available to the designer The professional practice of running a textile design studio How design work is carried out from the initial brief all the way through to invoicing the client

Electrospun Nanofibers Mehdi Afshari 2016-09-13 Electrospun Nanofibers covers advances in the electrospinning process including characterization, testing and modeling of electrospun nanofibers, and electrospinning for particular fiber types and applications. Electrospun Nanofibers offers systematic and comprehensive coverage for academic researchers, industry professionals, and postgraduate students working in the field of fiber science. Electrospinning is the most commercially successful process for the production of nanofibers and rising demand is driving research and development in this field. Rapid progress is being made both in terms of the electrospinning process and in the production of nanofibers with superior chemical and physical properties. Electrospinning is becoming more efficient and more specialized in order to produce particular fiber types such as bicomponent and composite fibers, patterned and 3D nanofibers, carbon nanofibers and nanotubes, and nanofibers derived from chitosan. Provides systematic and comprehensive coverage of the manufacture, properties, and applications of nanofibers recent developments in nanofibers materials including electrospinning of bicomponent, chitosan, carbon, and conductive fibers Brings together expertise from academia and industry to provide comprehensive, up-to-date information on nanofiber research and development Offers systematic and comprehensive coverage for academic researchers, industry professionals, and postgraduate students working in the field of fiber science

Functional Nanofibers and their Applications Q Wei 2012-05-24 Nanofibers are a flexible material with a huge range of potential applications in such areas as technical textiles. Functional nanofibers and their applications summarises key trends in the processing and applications of these exciting materials. Part one focuses on the types and processing of nanofibers. Beginning with an overview of the principles and techniques involved in their production, it goes on to review core-shell, aligned, porous and gradient nanofibers. The processing and application of composite functional nanofibers, carbon and polymer nanofiber reinforcements in polymer matrix composites, and inorganic functional nanofibers are then explored in detail, before part one concludes with a consideration of surface functionalization. A wide variety of functional nanofiber applications are then reviewed in part two. Following consideration of their use in filtration, drug delivery and tissue engineering applications, the role of functional nanofibers in lithium-ion batteries, sensor applications, protective clothing, food processing and water purification is explored. Discussion of their use in sound absorption, electromagnetic wave attenuation and biomedical and microelectronic applications follows, before a final discussion of future trends. With its distinguished editor and international team of expert contributors, Functional nanofibers and applications is a key text for all those working in the fields of technical textiles, as well as areas using nanofibers such as composites, biomaterials and microelectronics. Summarises key trends in the processing and applications of functional nanofibers in areas such as technical textiles Provides an overview of the principles and techniques involved in the production of nanofibres and reviews core-shell, aligned, porous and gradient nanofibers Considers the use of nanofibres in filtration, drug delivery and tissue engineering applications and the role of functional nanofibres in lithium-ion batteries, sensor applications, protective clothing, food processing and water purification

Fibre Structure Siba Prasad Mishra 2016-07-06 Fibre Structure states that each and every fibre from their manufacturing (man-made fibres) or during development (natural fibres) creates and develops its own and specialized structure. It might be the chemical structure, crystalline structure, amorphous structure and/or morphology. This structure can be modified during processing. The structure equally influences the processing conditions as well as the properties of the fibre. With this background, the present book deals with different fibres and their structures. Different aspects of structure are dealt separately in a concise and compact manner. This will serve as a reference for researchers, technologists as well as professionals as a reference book to know about the structure of different fibres and their measurement.

High Performance Textiles and Their Applications C. Lawrence 2014-08-21 High performance textiles represent one of the most dynamic sectors of the international textile and clothing industry. With contributions from leading experts in the field, this book provides an important overview of key developments in the field. Chapters cover the use of high performance textiles in such areas as protective clothing, heat and fire protection, medicine, civil engineering and the energy sector. Reviews various approaches to modelling the geometry, structure and mechanical and physical properties of advanced textile materials Evaluates novel surface treatments involving plasma and laser technologies for a range of high performance textiles Focuses on textiles for specific purposes, with chapters devoted to textiles for heat and fire protection, wound care, industrial filtration, geotextiles, civil engineering and sustainable energy applications

High-Performance Fibres J. W. S. Hearle 2001-10-26 This important new handbook provides comprehensive coverage of how high performance fibres are designed and manufactured and covers their capabilities and applications. The high-modulus, high-tenacity (HM-HT) fibres fall naturally into three groups – polymer fibres such as aramids and polyethylene fibres; carbon fibres such as Kevlar; and inorganic fibres based on glass and ceramic fibres. The books shows how high performance fibres are being increasingly used for a wide range of applications including geotextiles and geomembranes and for construction and civil engineering projects as well as in specialist fibres within composite materials where their ability to fulfil demanding roles makes them an effective choice for the engineer and materials scientist. Provides a comprehensive overview of how high performance fibres are designed and manufactured and covers their capabilities and applications Explains how high performance fibres are being increasingly used for a wide range of applications, including geotextiles and geomembranes and construction and civil engineering projects

Textile-led Design for the Active Ageing Population Jane McCann 2014-08-19 Despite the world's ageing population, suitable clothing for the older community is a largely neglected area. This book considers the needs of the growing number of active older people and investigates how recent developments in textiles, fibres, finishes, design and integrated technology can be deployed to serve this group and improve quality of life. Part I provides an understanding of the active ageing population by considering the group's experiences of and attitudes towards clothing and reviewing the barriers to their adoption of new wearable technologies. Part II focuses on the needs of the older population, including effective communication with designers and the age-related anatomical and physiological changes that designs should consider. Part III reviews design requirements and processes, and finally Part IV reviews the manufacture of suitable apparel, with chapters on suitable textile fibres, balancing technology and aesthetics and wearable electronics. Summarises the wealth of recent research on attitudes to clothing amongst the active ageing population Looks into how their aspirations can be investigated and appropriate apparel designed to meet their needs Examines design and manufacturing issues, including ways of accommodating physiological changes with age and the use of wearable electronics

Advances in Textile Biotechnology V Nierstrasz 2010-09-01 Biotechnology has impacted the textiles industry through the development of more efficient and environmentally friendly manufacturing processes, as well as enabling the design of improved textile materials. This book will provide a thorough overview of current and future focuses of biotechnology in the fibre and textile industry. Part one of the book opens with a review of technologies involved in textile biotechnology. Chapters explore the design and engineering of novel enzymes for textile applications and developments in processes and equipment for enzymatic textile treatments. Part two investigates the modification of particular fibres through the use of biotechnology. Key topics include the treatment of wool and silk fibres and the enzymatic treatment versus conventional processing of cotton. With expert contributions from leaders in their fields, Advances in textile biotechnology is a comprehensive guide for those in the textile and fibre industry, as well as experts in the biology, chemical and environmental engineering industries. Provides a thorough overview of current and future focuses of biotechnology in the fibre and textile industry Explores production of enzymes, searching for efficient production systems and also documents the advantages and limitations associated with the process Reviews the debate surrounding enzymatic treatment versus conventional processing of cotton along with engineering of plants for improved fibre qualities

Odour in Textiles G. Thilagavathi 2022-03-18 Odour in Textiles: Generation and Control presents the essential science and mechanisms behind the formation of odours in textiles. It discusses consumer perception of odour in clothing, the mechanism of odour formation in the skin, and the role of textile fibres and structures in odour formation. It also discusses odour controls and testing methods available for measurement of odours in textiles. Features: • Fills a gap in the literature as the first book to focus on textile and odour interaction • Discusses microbiological aspects of odour formation in simple terms • Details the role of textile fibres and structures on odour formation • Describes various testing methods, standards, and regulatory norms for odour analysis This book will appeal to a broad audience, including industry professionals in the textiles industry, hygiene and health care, the chemical and finishing industry, and odour measurement and testing. It will also interest advanced students and research scholars studying textile engineering, clothing science, and fashion design.

Structure and Properties of High-Performance Fibers Gajanan Bhat 2016-08-21 Structure and Properties of High-Performance Fibers explores the relationship between the structure and properties of a wide range of high-performance fibers. Part I covers high-performance inorganic fibers, including glasses and ceramics, plus carbon fibers

of various types. In Part II, high-performance synthetic polymer fibers are discussed, while Part III reviews those natural fibers that can be used to create advanced textiles. The high-performance properties of these fibers are related to their chemistry and morphology, as well as the ways in which they are synthesized and spun. High-performance fibers form the basis of textile materials with applications in protection, medicine, and composite reinforcement. Fibers are selected for these technical applications due to their advanced physical, mechanical, and chemical properties. Offers up-to-date coverage of new and advanced materials for the fiber and textile industries Reviews structure-property relationships of high-performance inorganic, carbon, synthetic polymer, and natural fibers Includes contributions from an international team of authors edited by an expert in the field Reviews those natural fibers that can be used to create advanced textiles

Handbook of Technical Textiles A. Richard Horrocks 2000 This major handbook provides comprehensive coverage of the manufacture, processing and applications of high tech textiles for a huge range of applications including: heat and flame protection; waterproof and breathable fabrics; textiles in filtration; geotextiles; medical textiles; textiles in transport engineering and textiles for extreme environments. Handbook of technical textiles is an essential guide for textile yarn and fiber manufacturers; producers of woven, knitted and non-woven fabrics; textile finishers; designers and specifiers of textiles for new or novel applications as well as lecturers and graduate students on university textile courses. Published in association with The Textile Institute.

Handbook of Natural Fibres Ryszard M. Kozłowski 2012 As a consequence of the growing awareness of environmental issues, the use of natural fibres is increasing. This 2 volume collection offers the reader an increased understanding of the properties of a wide range of natural fibres, how to improve fibres as well as the types of products they can be applied to. Volume 2 includes processing techniques to improve natural fibres. Subsequent chapters provide examples of how natural fibres can be used in a variety of applications extending from the automotive sector through to the textile industry. This book is an essential text for professionals and academics within the agricultural and horticultural fields, as well as those in the textile industry.

Advances in Smart Medical Textiles Lieva van Langenhove 2015-12-02 Advances in Smart Medical Textiles: Treatments and Health Monitoring provides comprehensive coverage on smart textiles, the emerging and important materials that are finding applications in the fields of medicine and healthcare. The book explores the range of smart textiles available for use in medicine and the transfer of these innovative technologies into medical applications. Early chapters survey various smart fibers, fabrics, and finishes, while subsequent sections focus on the role of smart textiles in treating patients, from wound care to rehabilitation, and the use of textile-based sensors and wearable electronics for monitoring patient health. Provides a comprehensive review of the materials used in smart medical textiles Analyzes the application of these textiles in medical treatments and sensors for health monitoring Covers the range of international research in the field and keeps focus on the needs of the textile industry

Handbook of Yarn Production Peter R. Lord 2003-07-11 Written by one of the world's leading experts, Handbook of yarn production: technology, science and economics is an authoritative and comprehensive guide to textile yarn manufacturing. The book is designed to allow readers to explore the subject in various levels of detail. The first three chapters provide an overview of yarn production, products and key principles. The major part of the book then reviews in detail the production processes for short-staple, long-staple and filament yarns. There are also chapters on quality control and the economics of staple-yarn production. The final part of the book consists of a series of appendices which provide in-depth analysis of key topics with detailed technical data and worked examples which is an invaluable reference in itself for anyone concerned with the behaviour, performance and economics of a textile mill. Handbook of yarn production: technology, science and economics is a standard work for both yarn manufacturers and those researching and studying in this important area of the textile industry. A practical and authoritative new handbook for yarn manufacturing Shows how problems can arise and how to deal with them Includes invaluable technical data, calculations, worked examples and case studies

Handbook of Natural Fibres Ryszard M. Kozłowski 2020-01-25 The Handbook of Natural Fibres: Volume Two, Processing and Applications, Second Edition provides detailed coverage of the latest processing techniques and industrial applications of a wide range of natural fibers. Natural fibrous resources, both lignocellulosic and protein ones, are renewable, biodegradable, and nontoxic, making them an important source of sustainable textile solutions. A broad range of sources of natural fibers are covered in the book, including flax, hemp, bast, jute, coir, linen, cotton and silk. This wealth of expert information provides a uniquely detailed reference for the processing, characterization, selection and application of natural fibers. Connects natural fibers to a wide range of industries, including construction, automotive, packaging and medical Helps readers appraise natural fibers on the basis of their mechanical, electrokinetic, antimicrobial or flame retardant qualities Provides a rare glimpse of emerging manufacturing methods for silk

Green Composites for Automotive Applications Georgios Koronis 2018-11-10 Green Composites for Automotive Applications presents cutting-edge, comprehensive reviews on the industrial applications of green composites. The book provides an elaborative assessment of both academic and industrial research on eco-design, durability issues, environmental performance, and future trends. Particular emphasis is placed on the processing and characterization of green composites, specific types of materials, such as thermoset and thermoplastic, nanocomposites, sandwich, and polymer biofoams. Additional sections cover lifecycle and risk analysis. As such, this book is an essential reference resource for R&D specialists working in materials science, automotive, chemical, and environmental engineering, as well as R&D managers in industry. Contains contributions from leading experts in the field Covers experimental, analytical and numerical analysis Deals with most important automotive aspects Provides a special section dedicated to lifecycle assessment

Specialist Yarn and Fabric Structures R H Gong 2011-09-14 Specialist yarn, woven and fabric structures are key elements in the manufacturing process of many different types of textiles with a variety of applications. This book explores a number of different specialist structures, discussing the developments in technology and manufacturing processes that have taken place in recent years. With its distinguished editor and international team of contributors, Specialist yarn, woven and fabric structures is essential reading for all textile researchers, technicians, engineers and technologists, and will also be suitable for academic purposes. Looks at developments that have occurred in the manufacturing of specialist yarn, weave and fabric structures Discusses different types of specialist yarn structures, such as hybrid, fancy and compound yarns Offers insight into multicomponent fabric structures such as 3D nonwovens, flocked, knotted and jacquard woven fabrics

Process Control in Textile Manufacturing Abhijit Majumdar 2012-11-27 Complex raw materials and manufacturing processes mean the textile industry is particularly dependent on good process control to produce high and consistent product quality. Monitoring and controlling process variables during the textile manufacturing process also minimises waste, costs and environmental impact. Process control in textile manufacturing provides an important overview of the fundamentals and applications of process control methods. Part one introduces key issues associated with process control and principles of control systems in textile manufacturing. Testing and statistical quality control are also discussed before part two goes on to consider control in fibre production and yarn manufacture. Chapters review process and quality control in natural and synthetic textile fibre cultivation, blowroom, carding, drawing and combing. Process control in ring and rotor spinning and maintenance of yarn spinning machines are also discussed. Finally part three explores process control in the manufacture of knitted, woven, nonwoven textiles and colouration and finishing, with a final discussion of process control in apparel manufacturing. With its distinguished editors and international team of expert contributors, Process control in textile manufacturing is an essential guide for textile engineers and manufacturers involved in the processing of textiles, as well as academic researchers in this field. Provides an important overview of the fundamentals and applications of process control methods Discusses key issues associated with process control and principles of control systems in textile manufacturing, before addressing testing and statistical quality control Explores process control in the manufacture of knitted, woven, nonwoven textiles and colouration and finishing, with a discussion on process control in apparel manufacturing

Ink Jet Textile Printing Christina Cie 2015-02-11 With the rapid expansion of ink jet printing, textile printing and allied industries need to understand the principles underpinning this technology and how it is currently being successfully implemented into textile products. Considering the evolution of new print processes, technological development often involves a balance of research across different disciplines. Translating across the divide between scientific research and real-world engagement with this technology, this comprehensive publication covers the basic principles of ink jet printing and how it can be applied to textiles and textile products. Each step of the ink jet printing process is covered, including textiles as a substrate, colour management, pre-treatments, print heads, inks and fixing processes. This book also considers the range of textile printing processes using ink jet technology, and discusses their subsequent impact on the textile designer, manufacturer, wholesaler, retailer and the environment. Covers the foundations and development of ink jet textile printing technology Discusses the steps of ink jet printing from colour management to fixing processes Analyses how ink jet printing has affected the textile industry

The Global Textile and Clothing Industry Roshan Shishoo 2012-07-18 Advances in technology, combined with the ever-evolving needs of the global market, are having a strong impact on the textile and clothing sector. The global textile and clothing industry: Technological advances and future challenges provides an essential review of these changes, and considers their implications for future strategies concerning production and marketing of textile products. Beginning with a review of trends in the global textile industry, the book goes on to consider the impact of environmental regulation on future textile products and processes. Following this, the importance of innovation-driven textile research and development, and the role of strategic technology roadmapping are highlighted. Both the present structure and future adaptation of higher education courses in textile science are reviewed, before recent advances in textile manufacturing technology, including joining techniques, 3D body scanning and garment design and explored in depth. Finally, The global textile and clothing industry concludes by considering automating textile preforming technology for the mass production of fibre-reinforced polymer (FRP) composites. With its distinguished editor and international team of expert contributors, The global textile and clothing industry: Technological advances and future challenges is an essential guide to key challenges and developments in this industrial sector. Comprehensively examines the implications of technological advancements and the evolving needs of the global market on the textile and clothing industry and considers their role on the future of textile manufacturing The importance of innovation-driven textile research and development and the role of strategic technology roadmapping are thoroughly investigated Recent advances in textile manufacturing technology, including joining techniques, 3D body scanning and garment design and explored in depth

Biotextiles as Medical Implants M W King 2013-10-31 Textiles play a vital role in the manufacture of various medical devices, including the replacement of diseased, injured or non-functioning organs within the body. Biotextiles as medical implants provides an invaluable single source of information on the main types of textile materials and products used for medical implants. The first part of the book focuses on polymers, fibers and textile technologies, and these chapters discuss the manufacture, sterilization, properties and types of biotextiles used for medical applications, including nanofibers, resorbable polymers and shaped biotextiles. The chapters in part two provide a comprehensive discussion of a range of different clinical applications of biotextiles, including surgical sutures, arterial prostheses, stent grafts, percutaneous heart valves and drug delivery systems. This book provides a concise review of the technologies, properties and types of biotextiles used as medical devices. In addition, it addresses the biological dimension of how to design devices for different clinical applications, providing an invaluable reference for biomedical engineers of medical textiles, quality control and risk assessment specialists, as well as managers of regulatory affairs. The subject matter will also be of interest to professionals within the healthcare system including surgeons, nurses, therapists, sourcing and purchasing agents, researchers and students in different disciplines. Provides an invaluable single source of information on the main types of textile materials and products used for medical implants Addresses the technologies used and discusses the manufacture,

properties and types of biotextiles Examines applications of biotextiles as medical implants, including drug delivery systems and stent grafts and percutaneous heart valves

Medical and Healthcare Textiles Subhash C. Anand 2010-07-15 Medical textiles remain one of the most dynamic areas of research in textiles. Medical and healthcare textiles is the fourth in a series of conferences held at the University of Bolton. Like its predecessors, it has attracted papers from some of the leading international centres of expertise in the field. Contributors cover a range of topics including emerging textile-based biomaterials, hygienic textiles, the use of textiles in infection control and as barrier materials, bandaging and pressure garments for managing chronic infections such as ulcers, the role of textiles in the management of burns and wounds, textile-based implantable devices such as tissue scaffolds and sutures, and intelligent textiles. Provides a comprehensive overview of medical textiles from the risk of infection control and barrier materials through to directives, regulations and standards shaping the medical device industry Explores developments in healthcare and hygiene products, including odor and pH control as well as protective and disposable fabrics Reviews development in the area of implantable materials featuring vascular grafts, knee implants and scaffolds

Handbook of Museum Textiles, Volume 2 Seiko Jose 2023-01-12 Handbook of Museum Textiles Textiles have been known to us throughout human history and played a vital role in the lives and traditions of people. Clothing was made by using different materials and methods from natural fibers. There are different varieties of textiles, out of which certain traditional textiles, archaeological findings, or fragments are of cultural, historical, and sentimental value such as tapestries, embroideries, flags, shawls, etc. These kinds of textiles, due to their historical use and environmental factors, require special attention to guarantee their long-term stability. Textile conservation is a complex, challenging, and multi-faceted discipline and it is one of the most versatile branches of conservation. Volume II of the Handbook of Museum Textiles provides precise instruction for conservation techniques to preserve the textile heritage more scientifically and technologically. Additionally, the book covers the most modern techniques used to characterize archaeological textiles and dyes. Progress and innovation in nanotechnology-based interventions in museum textiles are emphasized. Chapters cover the general introduction to biological damage caused by physical and chemical agents and their prevention methods. Information on microscopy and characterization of historical textiles, ancient dyes, and prints is highlighted. Several aspects of assessment of degradation, repair, and stabilization of antique textiles are presented in depth. Experimental research methods for diagnosis and scientific study of fibers and natural dyes using LC-MS and UV-VIS are described. Practical knowledge based on analysis and visualization of historical textiles for the needs of museum conservation, exhibition, digital technology, and virtual museums is addressed as well. Audience It will serve as an educational asset and tool for researchers, art scholars, archaeologists, museum curators, and those who are interested in the field of traditional or historic textile collections.

Antimicrobial Textiles Gang Sun 2016-04-11 Antimicrobial textiles have attracted a great deal of interest in recent years due to their potential for reducing the transmission of infection in medical and healthcare environments. Antimicrobial properties can also improve the performance and lifespan of consumer products, and so these fabrics are increasingly finding applications in the wider textile and apparel industry. This book provides systematic coverage of the technologies and materials required for developing these important textiles. In Part One, chapters address key issues and technologies in the creation of antimicrobial textile products. Topics covered include testing and regulation, microencapsulation, sol-gel coating and plasma technologies, nanotechnology and life cycle assessment. Part Two then reviews key antimicrobial agents, such as N-halamines, plant based compounds and photo-active chemicals. Finally, the chapters of Part Three offer detailed reviews of antimicrobial textiles for particular important applications, including medical devices, protective clothing and products with improved durability and longevity. Reviews key issues and technologies in the creation of antimicrobial textile products Offered a detailed overview of by antimicrobial agents and a wide range of important applications Produced by an experienced editor and a distinguished and international team of contributors

Biocomposites for High-Performance Applications Dipa Ray 2017-05-15 Biocomposites for High-Performance Applications: Current Barriers and Future Needs Towards Industrial Development focuses on future research directions that will make biocomposites a successful player in the field of high-strength structural applications. With contributions from eminent academic researchers and industrial experts who have first-hand experience on the advantages/disadvantages of biocomposites in their daily lives, the book examines the industrial development of biocomposite products, identifying the current barriers and their future industrial needs Topics covered include: recent research activities from academia in the biocomposite research field, valuable thoughts and insights from biocomposite manufacturing industries, the strength and weaknesses of biocomposite products, and the practical issues that need to be addressed to reach the next level. Highlights the practical issues involved in biocomposites research Contains contributions from eminent academic researchers and industrial experts Discusses recent research activities from academia in the biocomposite research field, along with valuable thoughts and insights from biocomposite manufacturing industries

Active Coatings for Smart Textiles Jinlian Hu 2016-04-06 Active Coatings for Smart Textiles presents the latest information on active materials and their application to textiles in the form of coatings and finishes for the purpose of improving performance and creating active functional effects. This important book provides detailed coverage of smart coating types, processes, and applications. After an introduction to the topic, Part One introduces various types of smart and active coatings, including memory polymer coatings, durable and self-cleaning coatings, and breathable coatings. Technologies and related processes for the application of coatings to textiles is the focus of Part Two, with chapters devoted to microencapsulation technology, plasma surface treatments, and nanotechnology-based treatments. The book ends with a section on applications of smart textiles with responsive coatings, which are increasingly finding commercial niches in sportswear, protective clothing, medical textiles, and architecture. Introduces various types of smart and active coatings for textiles Covers technologies and application processes for the coating and finishing of textiles Reviews commercial applications of such coatings, including in sportswear, protective clothing, medical textiles and architecture

Innovative Jacquard Textile Design Using Digital Technologies Frankie Ng 2013-02-26 Jacquard fabrics feature intricately woven designs. Through the use of digital technology, new design concepts, principles and methods for producing jacquard fabrics have been established, facilitating the creation of a range of novel effects. Innovative jacquard textile design using digital technologies is a unique guide to the fundamental design principles, techniques and applications resulting from this important development. Beginning with an introduction to jacquard textile design, the book goes on to give an overview of the development of jacquard fabrics and textile design methods. The principles and methods of digital jacquard textile design are considered, followed by a chapter on structural digital design. Subsequent chapters cover the digital design of colourless and colourful jacquard textiles, and the use of novel simulative effects, shot effects and double-face effects in jacquard textiles. A review of the applications of digitally designed jacquard textiles is then presented before the book concludes with a discussion of current issues and future trends in digital jacquard textile design. With its distinguished authors, Innovative jacquard textile design using digital technologies is an authoritative guide for all those looking to employ this exciting technology in their work, including designers and product developers in the textile, interior and apparel industries, and academics interested in this field. Provides a unique guide to the fundamental design principles, techniques and applications of jacquard textile design Covers structural digital design, digital design of colourless and colourful jacquard textiles, simulative effects, shot effects and double-face effects Includes a comprehensive discussion of current issues and future trends in digital jacquard textile design

New Product Development in Textiles L Horne 2011-11-24 An increasingly important feature across the technical textile industry is to produce textiles faster and to have more effective new product development (NPD). New product development in textiles: Innovation and production not only provides a fascinating overview of how products are launched, but is also a source of practical guidance for developing textile products successfully. Part one provides a general overview of innovation and textile product development that introduces the reader to the principles of developing and defining new products. Part two goes on to discuss a collection of international studies from across the textile industry. Chapters describe actual new product development projects, identifying the problems that were faced and what can be learnt from these projects, such as customer co-creation and methods for reducing the risk in NPD. Topics range from technical textiles and apparel to the end uses of textiles used within the automotive and packaging industries. With its distinguished editor and international team of expert contributors New product development in textiles: Innovation and production is an essential guide for academics and textile development professionals worldwide, in sectors ranging from design, production and marketing through to management. Provides a fascinating overview of how products are launched A source of practical guidance for developing textile products successfully Covers topics from technical textiles and apparel to the end uses of textiles used within the automotive and packaging industries

Soft Computing in Textile Engineering Abhijit Majumdar 2010-11-29 Soft computing refers to a collection of computational techniques which study, model and analyse complex phenomena. As many textile engineering problems are inherently complex in nature, soft computing techniques have often provided optimum solutions to these cases. Although soft computing has several facets, it mainly revolves around three techniques; artificial neural networks, fuzzy logic and genetic algorithms. The book is divided into five parts, covering the entire process of textile production, from fibre manufacture to garment engineering. These include soft computing techniques in yarn manufacture and modelling, fabric and garment manufacture, textile properties and applications and textile quality evaluation. Covers the entire process of textile production, from fibre manufacture to garment engineering including artificial neural networks, fuzzy logic and genetic algorithms Examines soft computing techniques in yarn manufacture and modelling, fabric and garment manufacture Specifically reviews soft computing in relation to textile properties and applications featuring garment modelling and sewing machines

Technical Textile Yarns R Alagirusamy 2010-06-30 Technical yarns are produced for the manufacture of technical textiles. As the range of technical textiles is rapidly increasing, an understanding of the range of yarns available and their properties is important, in order to be able to meet the requirements of the intended end-use. Part one of the book begins by reviewing the advances in yarn production. Topics examine the advances in textile yarn spinning, modification of textile yarn structures, yarn hairiness and its reduction and coatings for technical textile yarns. The second group of chapters describes the range of technical yarns, such as electro-conductive textile yarns, novel yarns and plasma treated yarns for biomedical applications. Technical sewing threads and biodegradable textile yarns are also discussed. Technical textile yarns provides essential reading for yarn and fabric manufacturers, textile scientists, technicians, engineers and technologists, covering a wide range of areas within textile applications. This book will also be an important information source for academics and students. Provides a comprehensive overview of the variety of technical textile yarns available along with individual characteristics and production methods Documents advances in textile yarn spinning and texturing featuring compact, rotor and friction spinning Assesses different types of technical yarns including plasma-treated yarns for biomedical applications and hybrid yarns for thermoplastic composites

Handbook of Natural Fibres Ryszard M. Kozłowski 2012 As a consequence of the growing awareness of environmental issues, the use of natural fibres is increasing. This 2 volume collection offers the reader an increased understanding of the properties of a wide range of natural fibres, how to improve fibres as well as the types of products they can be applied to. Volume 1 opens with a discussion of the main types of natural fibres and their properties. Part 2 covers aspects of how to improve natural fibres through breeding and cultivation. This book is an essential text for professionals and academics within the agricultural and horticultural fields, as well as those in the textile industry.

Electronic Textiles Tilak Dias 2015-04-28 The integration of electronics into textiles and clothing has opened up an array of functions beyond those of conventional textiles. These novel materials are beginning to find applications in commercial products, in fields such as communication, healthcare, protection and wearable technology. Electronic Textiles: Smart Fabrics and Wearable Technology opens with an initiation to the area from the editor, Tilak Dias. Part One introduces conductive fibres, carbon nano-tubes and polymer yarns. Part Two discusses techniques for integrating textiles and electronics, including the design of textile-based sensors and actuators, and energy harvesting methods. Finally, Part Three covers a range of electronic textile applications, from wearable electronics to technical textiles featuring expert chapters on embroidered antennas for communication systems and wearable sensors for athletes. Comprehensive overview of conductive fibres, yarns and fabrics for electronic textiles Expert analysis of textile-based sensors design, integration of micro-electronics with yarns and photovoltaic energy harvesting for intelligent textiles Detailed coverage of applications in electronic textiles, including wearable sensors for athletes, embroidered antennas for communication and electronic textiles for military personnel

Functional Textiles for Improved Performance, Protection and Health N Pan 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

Handbook of Textile Fibres J Gordon Cook 1984-01-15 A comprehensive survey of the natural fibers animal, vegetable and mineral on which we depended for our textiles until comparatively recently.

Textile Design A Briggs-Goode 2011-04-15 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

Smart Textile Coatings and Laminates William C Smith 2010-01-28 Smart coatings can produce coatings that offer above and beyond the normal functions of a coating, these range from improving the performance of fabrics, producing new forms of materials to providing decoration. This book reviews a variety of topics about textile coatings and laminates and aims to provide a stimulus for developing new and improved textile products. The first part of the book introduces the fundamentals of textile coatings and laminates, addressing general areas such as coating and laminating processes and techniques, as well as base fabrics and their interaction in coated fabrics. Part two discusses different types of smart and intelligent coatings and laminates for textiles. Topics include microencapsulation technology, conductive coatings, breathable coatings and phase change materials and their application in textiles. With its highly distinguished editor and array of international contributors, Smart textile coatings and laminates is a valuable reference book for chemists, textile technologists, fibre scientists, textile engineers and all those wishing to improve and understand the developments in textile coating and laminating technology. It will also be suitable for researchers in industry or academia. Reviews a number of issues surrounding textile coatings and laminates Discusses the fundamentals of textile coatings and laminates addressing processes and techniques Examines types of smart and intelligent coatings and laminates for textiles, including microencapsulation technology, conductive and breathable coatings

Multidisciplinary Know-How for Smart-Textiles Developers T üdne Kirstein 2013-04-04 Smart-textiles developers draw on diverse fields of knowledge to produce unique materials with enhanced properties and vast potential. Several disciplines outside the traditional textile area are involved in the construction of these smart textiles, and each individual field has its own language, specific terms and approaches. Multidisciplinary know-how for smart-textiles developers provides a filtered knowledge of these areas of expertise, explaining key expressions and demonstrating their relevance to the smart-textiles field. Following an introduction to the new enabling technologies, commercialisation and market trends that make up the future of smart-textiles development, part one reviews materials employed in the production of smart textiles. Types and processing of electro-conductive and semiconducting materials, optical fibres for smart photonic textiles, conductive nanofibres and nanocoatings, polymer-based resistive sensors, and soft capacitance fibres for touch-sensitive smart textiles are all discussed. Part two then investigates such technologies as the embedding of electronic functions, the integration of thin-film electronics, and the development of organic and large-area electronic (OLAE) technologies for smart textiles. Joining technologies are also discussed, alongside kinetic, thermoelectric and solar energy harvesting technologies, and signal processing technologies for activity-aware smart textiles. Finally, product development and applications are the focus of part three, which investigates strategies for technology management, innovation and improved sustainability, before the book concludes by exploring medical, automotive and architectural applications of smart textiles. With its distinguished editor and international team of expert contributors, Multidisciplinary know-how for smart-textiles developers is a key tool for readers working in industries including design, fashion, textiles, through to electronics, computing and material science. It also provides a useful guide to the subject for academics working across a wide range of fields. Reviews materials used in the production of smart textiles Examines the technologies used in smart textiles, such as optical fibres and polymer based resistive sensors Investigates strategies for technology management, innovation and improved development

Woven Terry Fabrics Jitendra Pratap Singh 2016-08-19 Woven Terry Fabrics: Manufacturing and Quality Management encompasses all aspects of terry fabric production, from raw material choice and weave design to technological developments, dyeing, and quality evaluation. Nothing feels more luxurious and comforting than wrapping myself or one of my children in a thick, soft, fluffy towel after bathing says Lindsey, a healthcare administrator and mother of two children in Boston. Consumers pay an average 15 USD for a bath towel. So, it has become a luxury item today. To meet the demand of growing population, the terry fabric industry has grown to a large extent. Lots of technological developments have taken place in this field. Provides an excellent overview of the best production methods, quality control systems, latest research, and process parameters Offers in-depth information on all aspects of production Covers comprehensively, for the first time, the whole process from raw material through to finished fabric Includes coverage of technological developments

Handbook of Natural Fibres: Types, Properties and Factors Affecting Breeding and Cultivation Ryszard M. Koz Owski 2017-11-13 Growing awareness of environmental issues has led to increasing demand for goods produced from natural products, including natural fibres. The two-volume Handbook of natural fibres is an indispensable tool in understanding the diverse properties and applications of these important materials. Volume 1: Types, properties and factors affecting breeding and cultivation is an essential guide to a wide range of natural fibres, and highlights key techniques for their improvement. Part one reviews key types and fundamental properties of natural textile fibres. The production, identification and testing of a range of cotton, bast, silk and wool fibres are discussed, alongside bioengineered natural textile fibres. Part two goes on to explore the improvement of natural fibre properties and production through breeding and cultivation, beginning with a discussion of fibrous flax and cotton. Improved natural fibre production through the prevention of fungal growth is explored, along with the use of genetic engineering and biotechnology to enhance desirable characteristics. Finally, the wider impact of natural textile production is discussed, using wild silk enterprise programs as an example. With its distinguished editor and international team of expert contributors, the two volumes of the Handbook of natural fibres are essential texts for professionals and academics in textile science and technology. Provides an essential guide to a wide range of natural fibres and highlights key techniques for their improvement Reviews key types and fundamental properties of natural textile fibres, addressing the production, identification and testing of a range of cotton, bast, silk and wool fibres Explores the improvement of natural fibre properties and production through breeding and cultivation, beginning with a discussion of fibrous flax and cotton

Activated Carbon Fiber and Textiles Jonathan Y Chen 2016-08-05 Activated Carbon Fiber and Textiles provides systematic coverage of the fundamentals, properties, and current and emerging applications of carbon fiber textiles in a single volume, providing industry professionals and academics working in the field with a broader understanding of these materials. Part I discusses carbon fiber principles and production, including precursors and pyrolysis, carbon fiber spinning, and carbonization and activation. Part II provides more detailed analysis of the key properties of carbon fiber textiles, including their thermal, acoustic, electrical, adsorption, and mechanical behaviors. The final section covers applications of carbon fiber such as filtration, energy protection, and energy and gas storage. Features input from an editor who is an expert in his field: Professor Jonathan Chen has a wealth of experience in the area of activated carbon fiber materials Provides systematic and comprehensive coverage of the key aspects of activated carbon fiber textiles, from their principles, processing, and properties to their industrial applications Offers up-to-date coverage of new technology for the fiber and textiles industries Covers applications such as filtration, energy protection, and energy and gas storage