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KEY=FUNCTIONAL - RIVERA RANDALL

Functional Textiles for Improved Performance, Protection and Health

Elsevier 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 Medical Textiles

Elsevier With a rising population and the increasing range of textiles for medical products, the need to understand and improve medical textiles is gaining in importance. The Handbook of medical textiles provides an overview of the different types of medical textiles currently available as well as specific information on more specialised topics and applications. In part one, the types and properties of medical textiles are discussed, with chapters covering topics including reusable textiles, textiles for implants and textiles with cosmetic effects. Part two focuses on the interaction of textiles with the skin, examining key issues such as contact sensations, allergies and mechanical irritation. Chapters in part three provide information on the latest developments in textiles for hygiene and infection control, while part four provides a range of applications and case studies, including improvements in medical occupational clothing, medical filters and superabsorbent fibres. With its expert editor and contributions from some of the world's leading authorities, the Handbook of medical textiles is a standard reference for designers and manufacturers of medical textile products, as well as for biomaterials scientists and medical professionals. Explores the different types of medical textiles currently available as well as specific information on more specialised areas and applications Chapters cover topics such as reusable textiles, textiles for implants and interaction of textiles with the skin Is a standard reference for designers and manufacturers of medical textile products, as well as for biomaterials scientists and medical professionals

Biotextiles as Medical Implants

Elsevier 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

Smart Textiles for Medicine and Healthcare Materials, Systems and Applications

Elsevier Smart or intelligent textiles are a relatively novel area of research within the textile industry with enormous potential within the healthcare industry. This book provides a unique insight into recent developments in how smart textiles are being used in the medical field. The first part of the book assesses trends in smart medical textiles. Chapters cover topics such as wound care materials, drug-based release systems and electronic sensors for health care. The second part of the book discusses the role of smart textile in monitoring the health of particular groups such as pregnant women, children, the elderly and those with particular physical disabilities. With its distinguished editor and team of international contributors, this book provides a unique and essential reference to those concerned with intelligent textiles in healthcare. Unlocks the significant potential of smart textiles within the healthcare industry. Provides a unique insight into recent developments in this exciting field

Joining Textiles

Principles and Applications

Elsevier Understanding the techniques for joining fabrics together in a way that considers durability, strength, leak-tightness, comfort in wear and the aesthetics of the joints is critical to the production of successful, structurally secure fabric products. Joining textiles: Principles and applications is an authoritative guide to the key theories and methods used to join fabrics efficiently. Part one provides a clear overview of sewing technology. The mechanics of stitching, sewing and problems related to sewn textiles are discussed, along with mechanisms of sewing machines and intelligent sewing systems. Part two goes on to explore adhesive bonding of textiles, including principles, methods and applications, along with a review of bonding requirements in coating and laminating of textiles. Welding technologies are the focus of part three. Heat sealing, ultrasonic and dielectric textile welding are covered, as are laser seaming of fabrics and the properties and performance of welded or bonded seams. Finally, part four reviews applications of joining textiles such as seams in non-iron shirts and car seat coverings, joining of wearable electronic components and technical textiles, and the joining techniques involved in industrial and medical products including nonwoven materials. With its distinguished editors and international team of expert contributors, Joining textiles is an important reference work for textile product manufacturers, designers and technologists, fibre scientists, textile engineers and academics working in this area. Provides an authoritative guide to the key theories and methods used to efficiently join fabrics Discusses the mechanics of stitching and sewing and problems related to sewn textiles, alongside mechanisms of sewing machines, and intelligent sewing systems Explores adhesive bonding of textiles, including principles, methods and applications, along with a review of bonding requirements in coating and laminating of textiles

Advances in Smart Medical Textiles

Treatments and Health Monitoring

Woodhead Publishing 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

Cotton

Science and Technology

Woodhead Publishing Despite the increased variety of manufactured fibres available to the textile industry, demand for cotton remains high because of its suitability on the basis of price, quality and comfort across a wide range of textile products. Cotton producing nations are also embracing sustainable production practices to meet growing consumer demand for sustainable resource production. This important book provides a comprehensive analysis of the key scientific and technological advances that ensure the quality of cotton is maintained from the field to fabric. The first part of the book discusses the fundamental chemical and physical structure of cotton and its various properties. Advice is offered on measuring and ensuring the quality of cotton fibre. Building on these basics, Part two analyses various means for producing cotton such as genetic modification and organic production. Chapters focus on spinning, knitting and weaving technologies as well as techniques in dyeing. The final section of the book concludes with chapters concerned with practical aspects within the industry such as health and safety issues and recycling methods for used cotton. Written by an array of international experts within the field, Cotton: science and technology is an essential reference for all those concerned with the manufacture and quality control of cotton. Summarises key scientific and technological issues in ensuring cotton quality Discusses the fundamental chemical and physical structure of cotton Individual chapters focus on spinning, knitting and weaving technologies

Medical and Healthcare Textiles

Elsevier 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

Innovation and Technology of Women's Intimate Apparel

Woodhead Publishing The intimate apparel business is undergoing major technological change. New measurement and design techniques, combined with innovative materials and production methods, are transforming the range, quality and applications of women's lingerie. This important book provides an authoritative review of these developments After an introductory chapter on the concept of body beauty, a first group of chapters discuss innovations in the manufacture of brassieres, including developments in breast measurement and sizing, innovations in bra design and improvements in bra pattern technology. The following sequence of chapters reviews key developments in girdles. Topics discussed include innovations in girdle design and use and research on the physiological effects of body shapers. The book concludes by assessing developments in intimate apparel with special functions such as sports bras, and innovation in knitted and seamless intimate apparel. Innovation and technology of women's intimate apparel is a standard reference for designers and engineers working in this important area of the textile industry. Reviews the technological and innovative developments of ladies intimate apparel Describes the research principles and scientific understandings of size, materials, pattern and fit to achieve functional and technical design Written by leading experts in the field

Medical Textile Materials

Woodhead Publishing Medical Textile Materials provides the latest information on technical textiles and how they have found a wide range of medical applications, from wound dressings and sutures, to implants and tissue scaffolds. This book offers a systematic review of the manufacture, properties, and applications of these technical textiles. After a brief introduction to the human body, the book gives an overview of medical textile products and the processes used to manufacture them. Subsequent chapters cover superabsorbent textiles, functional wound dressings, bandages, sutures, implants, and other important medical textile technologies. Biocompatibility testing and regulatory control are then addressed, and the book finishes with a review of research and development strategy for medical textile products. Provides systematic and comprehensive coverage of the manufacture, properties, and

applications of medical textile materials Covers recent developments in medical textiles, including antimicrobial dressings, drug-releasing materials, and superabsorbent textiles Written by a highly knowledgeable author with extensive experience in industry and academia

Sizing in Clothing

Elsevier The basic concepts behind sizing systems currently used in the manufacture of ready-to-wear garments were originally developed in the 19th century. These systems are frequently based on outdated anthropometric data, they lack standard labelling, and they generally do not accommodate the wide variations of body sizes and proportions that exist in the population. However, major technological improvements have made new population data available worldwide, with the potential to affect the future of sizing in many ways. New developments in computer-aided design and sophisticated mathematical and statistical methods of categorizing different body shapes can also contribute to the development of more effective sizing systems. This important book provides a critical appreciation of the key technological and scientific developments in sizing and their application. The first chapter in the book discusses the history of sizing systems and how this has affected the mass production of ready-to-wear clothing. Chapters two and three review methods for constructing new and adapting existing sizing systems, and the standardisation of national and international sizing systems. Marketing and fit models are reviewed in chapter four whilst chapter five presents an analysis of the grading process used to create size sets. Chapters six and seven discuss fit and sizing strategies in relation to function, and the communication of sizing. Mass customization and a discussion of material properties and their affect on sizing are addressed in chapters eight and nine. Military sizing and the aesthetics of sizing are detailed in chapters ten and eleven. The final chapter reviews the impact on sizing of production systems and specifications. Written by an international team of contributors, this book is an essential reference to researchers, designers, students and manufacturers in the clothing and fashion industry. Provides a critical appreciation of key technological and scientific developments in sizing and their application Discusses how developments in sizing affect the mass production of ready to wear clothing Reviews methods of constructing new and adapting existing sizing systems

Textiles for Cold Weather Apparel

Elsevier Cold weather can be a potential hazard to human health, adversely affecting physiological functions, work performance and wellbeing. Designing suitable apparel for cold environments is therefore a complex task. Textiles for cold weather apparel reviews the principles, materials and requirements of cold weather apparel and will stimulate ideas for future innovation and improved end

performance. The first part of the book covers the fundamental scientific issues and types of materials suitable for cold weather clothing. Topics include how to achieve comfort and thermoregulation in cold weather clothing as well as the use of coated and laminated fabrics. It also discusses design and ergonomic aspects such as designing for ventilation. Part two discusses ways of evaluating cold weather clothing, including standards and legislation governing cold weather clothing and laboratory assessments. Part three concludes with applications including cold weather apparel for the military and footwear for cold weather conditions. With an array of international contributors, this book is a valuable reference for producers, manufacturers, retailers and all those wishing to improve and understand developments in cold weather apparel. Reviews the principles, materials and requirements of cold weather apparel Discusses design and ergonomic aspects including ventilation and insulation Examines methods used to evaluate cold weather clothing as well as standards and legislation in practice

Textiles for Hygiene and Infection Control

Elsevier 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 its 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

Handbook of Fire Resistant Textiles

Elsevier 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 Textile Design

Elsevier 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

Medical Textiles and Biomaterials for Healthcare

Elsevier Medical textiles are a major growth area within the technical textiles industry and the range of applications continues to grow and increase in diversity with every new development. Recent innovations include novel chitosan-alginate fibres for advanced wound dressings, ultrasonic energy for bleaching cotton medical textiles, durable and rechargeable biocidal textiles, spider silk supportive matrix for cartilage regeneration, barbed bi-directional surgical sutures and intelligent textiles for medical applications. Medical textiles and biomaterials for healthcare is a culmination of the worldwide research into medical textiles and biomaterials. It is divided into eight parts covering the main areas of basic biomaterials, healthcare and hygiene products, infection control and barrier materials, bandaging and pressure garments, woundcare materials, implantable and medical devices and smart technologies. Each part contains a comprehensive overview written by leading experts in the area. The overviews are then followed by a selection of the best papers from the 2003 MEDTEX Conference, hosted by the University of Bolton. It has been extensively edited to produce what is expected to be the leading reference on this subject. Discusses worldwide research into medical textiles and biomaterials Invaluable reference for this developing area of technical textiles A selection of the best papers from the 2003 MEDTEX Conference, hosted by University of Bolton are included

Advanced Textiles for Wound Care

CRC Press This collection provides a detailed review of how textiles are incorporated into wound care applications, explaining the importance and suitability of using textiles on different wound types. It introduces wound care and covers wound management and the importance of laboratory testing in relation to wound care. It comprehensively reviews the different textile dressings available, moist wound management, and bioactive dressings to promote healing. The concluding chapters describe how advanced textiles, such as smart temperature controlled textiles and composites, can be used for wound care products. The final chapter gives an interesting insight into the use of fibrous scaffolds for tissue engineering.

Advances in 3D Textiles

Elsevier *Advances in 3D Textiles* presents the most recent advances in the production of three-dimensional fibrous structures and how their use has resulted in the creation of novel fabrics and applications. The text covers a wide range of fabric types, including their structures, properties, and uses in the textiles industry. Beginning with the various types of woven three-dimensional fabrics, the text then examines 3-D knitted, braided, and non-woven textiles, and the main applications and uses of three-dimensional textiles. Presents the most recent advances in the production of three-dimensional fibrous structures and how their use has resulted in the creation of novel fabrics and applications Examines many types of 3-D textiles, including knitted, braided, and non-woven textiles, and the main uses of three-dimensional textiles Covers their structures, properties, and uses within the textiles industry

3-D Fibrous Assemblies

Properties, Applications and Modelling of Three-Dimensional Textile Structures

Elsevier There have been important recent developments in the production and application of three dimensional fabrics. These 3D textile structures have great potential for new fabrics and textile applications. 3D fibrous assemblies summarises some key developments and their applications in the textile industry. The book begins with an introductory chapter which defines the concepts and types of 3D fibrous assemblies. The book then discusses how 3D fabrics can be applied in textile products. These range from composites and protective clothing to medical textiles. The remainder of the book reviews the two main 3D fabrics; multi-axial warp knitted fabrics and multi-layer woven fabrics. Themes such as structure, manufacture, properties and modelling are considered for both fabrics. Written by a distinguished author, 3D fibrous assemblies is a pioneering guide for a broad spectrum of readers, ranging from fibre scientists and designers through to those involved in research and development of new generation textile products. Presents exciting opportunities for the creation of new textiles through the use of three dimensional textile fibre assemblies A comprehensive account of the different types of 3D fabrics and their associated structure, properties, manufacture and modelling Examples of how three dimensional fibres can be applied in textile products

Textiles for Protection

Elsevier In today's climate there is an increasing requirement for protective textiles, whether for personal protection, protection against the elements, chemical, nuclear or ballistic attack. This comprehensive book brings together the leading protective textiles experts from around the world. It covers a wide variety of themes from materials and design, through protection against specific hazards, to specific applications. This is the first book of its kind to give a complete coverage of textiles for protection. Covers a wide variety of themes from materials and design, through protection against specific hazards, to specific applications The first book of its kind to give a complete coverage of textiles for protection Written by leading protective textiles experts from around the world

Medical Textiles

Proceedings of the 2nd international Conference, 24th and 25th August 1999, Bolton Institute, UK

Elsevier Medical textiles is one of the major growth areas within technical textiles and the use of textile materials for medical and healthcare products ranges from simple gauze or bandage materials to scaffolds for tissue culturing and a large variety of prostheses for permanent body implants. Recent advances include: The development of polylactic acid and polyglycolic acid fibres as structures for cell growth Temporary bioresorbable textile supports for growing human organic tissue The development of smart fibres - based on naturally-occurring polymers and also on non-animal-based protein fibres and structures - for the treatment of wounds and ulcers These are a few examples of the wide range of textile-based non-implantable and implantable products used in medicine and surgery and covered in this cutting-edge collection of the latest research in this fascinating area.

Antimicrobial Textiles

Woodhead Publishing 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

Handbook of Fibre Rope Technology

Elsevier The field of fibre rope technology has witnessed incredible change and technological advance over the last few decades. At the forefront of this change has been the development of synthetic fibres and modern types of rope construction. This handbook updates the history and structural mechanics of fibre rope technology and describes the types and properties of modern rope-making materials and constructions. Following an introduction to fibre ropes, the Handbook of fibre rope technology takes a comprehensive look at rope-making materials, rope structures, properties and mechanics and covers rope production, focusing on laid strand, braided, low-twist and parallel yarn ropes. Terminations are also introduced and the many uses of rope are illustrated. The key issues surrounding the inspection and retirement of rope are identified and rope testing is thoroughly examined. The final two chapters review rope markets, distribution and liability and provide case studies from the many environments in which fibre rope is used. The Handbook of fibre rope technology is an essential reference for everyone assisting in the design, selection, use, inspection and testing of fibre rope. A comprehensive look at rope-making materials and structures, properties and mechanics Covers rope production including laid strand, braided, low-twist and parallel yarn ropes and rope terminations Rope testing is examined in depth, as well as the key issues surrounding rope retirement

Biotextiles as medical implants

7. Regulation of biotextiles for medical use

Elsevier Inc. Chapters The chapter describes the regulatory framework applicable to medical devices, and specifically to biotextiles, principally in the United States, but also in the European Union. With the emergence of new technologies and materials, new forms of regulation have become necessary, and some of the traditional classifications no longer match present-day applications. Problems encountered by manufacturers with regard to premarket approval clearance and material supply quality standards assurance are discussed, as well as issues increasingly arising when one biotextile-based medical device is evolved into another for a different use.

Chemical Finishing of Textiles

Elsevier The role of the textile finisher has become increasingly demanding, and now requires a careful balance between the compatibility of different finishing products and treatments and the application processes used to provide textiles with desirable properties. In one comprehensive book, Chemical finishing of textiles details the fundamentals of final chemical finishing, covering the range of effects that result from the interplay between chemical structures and finishing products. After an introductory chapter covering the importance of chemical finishing, the following chapters focus on particular finishing techniques, from softening, easy-care and permanent press, non-slip and soil-release, to flame-retardant, antistatic and antimicrobial. Within each chapter, sections include an introduction, mechanisms, chemistries, applications, evaluations and troubleshooting. The book concludes with a chapter on the future trends in chemical finishing. Chemical finishing of textiles is an essential reference for all academic and industrial textile chemists and for those studying textile education programmes. Discusses the advantages and disadvantages of every important type of chemical finish Combines technical understanding and practical experience concisely Essential tool to assist in the demanding challenge of chemical finishing for textiles

Multidisciplinary Know-How for Smart-Textiles Developers

Elsevier 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

Atlas of Fibre Fracture and Damage to Textiles

Woodhead Publishing Based on over 25 years of research at the University of Manchester Institute of Science & Technology, this book contains more than 1,500 scanning electron micrographs and other pictures, offering a unique collection of documentary information. The explanatory text presents fiber and polymer scientists an explanation of fracture mechanisms and outlines way to maximize textile life span, enabling textile technologists and design engineers to manufacture improved textile products, and helping forensic scientists to identify cause of failure.

Woven Terry Fabrics

Manufacturing and Quality Management

Woodhead Publishing 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

Thermal Protective Clothing for Firefighters

Woodhead Publishing Thermal Protective Clothing for Firefighters explores the materials, design, and usage of thermal protective clothing. The characteristics of fire hazards are discussed in detail, and the thermal environments faced by firefighters in these fire hazards are also examined. The different types of potential burn injuries and the heat stress that occurs to firefighters' bodies when exposed to such thermal environments are analyzed. Furthermore, the development of various high performance fibers and fabrics for thermal protective clothing is discussed. The test methods and existing standards to evaluate the thermal protective and physiological comfort performances of the fabrics and clothing are critically reviewed. Recent developments in the field of fire- and heat-resistant materials have led to significant improvements in thermal protective clothing. In parallel with this, the complexity and risk levels of fires, especially in industrial-storage facilities, and developments in health and safety cultures have increased the demand for high-performance heat- and flame-resistant clothing and equipment, designed to mitigate skin burn injuries and reduce risk of death from fire hazards. Throughout the work, the gaps and limitations in existing test methods and standards are identified, and approaches are recommended for the development of enhanced test methods. Scenario modeling and its implications for firefighters' protective clothing is discussed, and various factors affecting performance are established. Finally, various key issues related to thermal protective clothing are addressed to guide the future research in the field of thermal protective clothing for firefighters. This book will help materials-textile engineers to develop high performance thermal protective clothing that can enhance the protection, safety, and

comfort of firefighters. Offers a helpful guide to the successful specification and design of high performance protective clothing to meet the high standards of today's regulatory framework Introduces the new materials technical innovations that are transforming fire protective clothing Explores the role of clothing from the operational perspective, including technical innovations Offers a critical review of the test methods and existing standards to evaluate the thermal protective and physiological comfort performances of the fabrics and clothing

Advances in Technical Nonwovens

Woodhead Publishing *Advances in Technical Nonwovens* presents the latest information on the nonwovens industry, a dynamic and fast-growing industry with recent technological innovations that are leading to the development of novel end-use applications. The book reviews key developments in technical nonwoven manufacturing, specialist materials, and applications, with Part One covering important developments in materials and manufacturing technologies, including chapters devoted to fibers for technical nonwovens, the use of green recycled and biopolymer materials, and the application of nanofibres. The testing of nonwoven properties and the specialist area of composite nonwovens are also reviewed, with Part Two offering a detailed and wide-ranging overview of the many applications of technical nonwovens that includes chapters on automotive textiles, filtration, energy applications, geo- and agrotexiles, construction, furnishing, packaging and medical and hygiene products. Provides systematic coverage of trends, developments, and new technology in the field of technical nonwovens Focuses on the needs of the nonwovens industry with a clear emphasis on applied technology Contains contributions from an international team of authors edited by an expert in the field Offers a detailed and wide-ranging overview of the many applications of technical nonwovens that includes chapters on automotive textiles, filtration, energy applications, geo- and agrotexiles, and more

Textiles and Fashion

Materials, Design and Technology

Elsevier *This major textbook is designed for students studying textiles and fashion at higher and undergraduate level, as well as those needing a comprehensive and authoritative overview of textile materials and processes. The first part of the book reviews the main types of natural and synthetic fibres and their properties. Part two provides a systematic review of the key processes involved*

first in converting fibres into yarns and then transforming yarns into fabrics. Part three discusses the range of range of finishing techniques for fabrics. The final part of the book looks specifically at the transformation of fabric into apparel, from design and manufacture to marketing. With contributions from leading experts in their fields, this major book provides the definitive one-volume guide to textile manufacture. Provides comprehensive coverage of the types and properties of textile fibres to yarn and fabric manufacture, fabric finishing, apparel production and fashion Focused on the needs of college and undergraduate students studying textiles or fashion courses Each chapter ends with a summary to emphasise key points, a comprehensive self-review section, and project ideas are also provided

Intelligent Textiles and Clothing

Woodhead Publishing The use of intelligent textiles in clothing is an exciting new field with wide-ranging applications. Intelligent textiles and clothing summarises some of the main types of intelligent textiles and their uses. Part one of the book reviews phase change materials (PCM), their role in such areas as thermal regulation and ways they can be integrated into outdoor and other types of clothing. The second part of the book discusses shape memory materials (SMM) and their applications in medical textiles, clothing and composite materials. Part three deals with chromic (colour change) and conductive materials and their use in such areas as sensors within clothing. The final part of the book looks at current and potential applications, including work wear and medical applications. With its distinguished editor and international team of contributors, Intelligent textiles and clothing is an essential guide for textile manufacturers in such areas as specialist clothing (for example, protective, sports and outdoor clothing) as well as medical textiles. Summarises the main types of intelligent textiles and their uses Reviews phase change materials and their role in clothing Discusses shape memory materials and their applications

Plasma Technologies for Textiles

Elsevier Plasma technologies present an environmentally-friendly and versatile way of treating textile materials in order to enhance a variety of properties such as wettability, liquid repellency, dyeability and coating adhesion. Recent advances made in commercially viable plasma systems have greatly increased the potential of using plasma technology in industrial textile finishing. This pioneering book provides an essential guide to both the technology and science related to plasmas and its practical applications in the textile industry. The first part of the book discusses the science and technology behind plasmas. Chapters give detailed and comprehensive descriptions on the characteristics of plasmas and methods of control and treatment in the processing of textiles. Both low pressure

cold plasma and atmospheric pressure cold plasma processes are described as well as the diagnosis and control of plasma parameters in plasma generating reactors. A chapter is devoted to the use of plasma technology to achieve nanoscale treatment of textile surfaces. The second part of the book concentrates on specific applications of plasma technologies. Chapters cover treatments for water and oil repellency of textiles, engineering of biomedical textiles and woollen finishing techniques through the use of plasma technologies. Further chapters cover the modification of fibres for use in composites and the potential use of plasma technologies for the finishing of fabrics made of man made fibres. The final chapter in the book gives a comprehensive analysis of the surface chemical and physical characterisation of plasma treated fabrics. Written by a distinguished international team of experts, Plasma technologies for textiles is an invaluable reference for researchers, scientists and technologists alike. Summarises both the science and technology of plasma processing, and its practical applications Discusses how plasma technology improves textile properties such as wettability and liquid repelling An invaluable reference for researchers, scientists and technologists

Smart Textiles and Their Applications

Woodhead Publishing Smart Textiles and Their Applications outlines the fundamental principles of applied smart textiles, also reporting on recent trends and research developments. Scientific issues and proposed solutions are presented in a rigorous and constructive way that fully presents the various results, prototypes, and case-studies obtained from academic and industrial laboratories worldwide. After an introduction to smart textiles and their applications from the editor, Part One reviews smart textiles for medical purposes, including their use in health monitoring, treatment delivery, and assistive technologies. Part Two covers smart textiles for transportation and energy, with chapters covering smart textiles for the monitoring of structures and processes, as well as smart textiles for energy generation. The final section considers smart textiles for protection, security, and communication, and includes chapters covering electrochromic textile displays, textile antennas, and smart materials for personal protective equipment. Scientific issues and proposed solutions are presented in a rigorous and constructive way regarding various results, prototypes, and case-studies obtained from academic and industrial laboratories worldwide Useful for researchers and postgraduate students, and also for existing companies and start-ups that are developing products involving smart textiles Authored and edited by an international team who are experts in the field ensure comprehensive coverage and global relevance

Advances in Yarn Spinning Technology

Elsevier This book provides an invaluable single source of information on the advances in yarn spinning technologies. Advanced spinning systems are described and comparisons are made of the properties of the yarns produced, and resultant finished products, with those from conventional systems. Part one provides an introduction to yarn fibre spinning and structure. Chapters discuss the principles of ring spinning and open-end spinning of yarns. Yarn structure and properties from different spinning techniques and yarn structural requirements for knitted and woven fabrics are also examined. Part two covers advances in particular yarn spinning technologies. Topics range from siro spinning to compact spinning technology and air-jet spinning. Final chapters explore how to minimise fibre damage which occur during spinning and the use of spin finishes for textiles. With its distinguished editor and array of international contributors, Advances in yarn spinning technology is an important text for spinners, yarn manufacturers and fabric producers, as well as researchers, technicians, engineers and technologists in this sector of the textile industry. Documents advances in spinning technologies and presents comparisons between systems Assesses particular textile spinning technologies with specific chapters focusing on siro, compact, rotor, friction and air-jet spinning Reviews measures to minimise fibre damage caused by spinning are investigated with specific relevance to rotor and friction spinning

Handbook of Technical Textiles

Elsevier 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 fibre 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. Comprehensive handbook for all aspects of technical textiles Detailed coverage of processes, fabric structure and applications Contributions from recognised experts world-wide

Woven Textiles

Principles, Technologies and Applications

Woodhead Publishing Woven Textiles: Principles, Technologies and Applications, Second Edition, is an essential guide to woven textiles. This new edition is updated and expanded to include major new application areas, as well as the latest developments and innovations in terms of fibers, yarns, fabrics, machinery and technology. Sections cover fibers and yarns used for weaving, key preparatory techniques, the fundamentals of weaving technology, the characteristics of woven structures, the use of computer assisted design (CAD) systems, techniques for modelling the structure of woven fabrics, methods for the manufacture of 3D woven structures, and the application of woven textiles in a range of technologies. With its distinguished editor and international team of expert contributors, this second edition will be an indispensable guide for all designers, engineers and technicians involved in the design, manufacture and use of woven textiles, as well as for academics and researchers in the field of textiles. Provides extensive coverage of woven textiles, including their preparation, manufacture, woven structures and characteristics Presents the latest technical applications of woven textiles, such as transportation, geotextiles, medical applications, sports and leisure, filtration, and composite structures Enables the reader to understand the latest technological advances in the area of woven textiles

Handbook of Textile and Industrial Dyeing

Principles, Processes and Types of Dyes

Elsevier Dyeing is one of the most effective and popular methods used for colouring textiles and other materials. Dyes are employed in a variety of industries, from cosmetic production to the medical sector. The two volumes of the Handbook of textile and industrial dyeing provide a detailed review of the latest techniques and equipment used in the dyeing industry, as well as examining dyes and their application in a number of different industrial sectors. Volume 1 deals with the principles of dyeing and techniques used in the dyeing process, and looks at the different types of dyes currently available. Part one begins with a general introduction to dyeing, which is followed by chapters that examine various aspects of the dyeing process, from the pre-treatment of textiles to the machinery employed. Chapters in part two then review the main types of dyes used today, including disperse dyes, acid dyes, fluorescent dyes,

and many others for a diverse range of applications. With its distinguished editor and contributions from some of the world's leading authorities, the Handbook of textile and industrial dyeing is an essential reference for designers, colour technologists and product developers working in a variety of sectors, and will also be suitable for academic use. Examines dyeing and its application in a number of different industrial sectors Deals with the principles of dyeing and techniques used in the dyeing process, as well as types of dyes currently available Chapters review various dye types right through to modelling and predicting dye properties and the chemistry of dyeing

Active Coatings for Smart Textiles

Woodhead Publishing 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

Advances in the dyeing and finishing of technical textiles

5. Regulations relating to the use of textile dyes and chemicals

Elsevier Inc. Chapters We are witnessing an ever-increasing level of concern for human health and awareness of environmental issues. In the field of textiles, consumers are now more selective in their choice of fabric, paying more attention to the question of how

the chosen textile might affect their health. There is also growing concern about the fate of the material at the end of its life cycle and its likely impact on the environment. In response, various pieces of legislation have been drawn up, along with the use of ecolabels and adherence to retailer standards. This chapter addresses these issues, with particular emphasis on restricted substances and the legislation governing their use in the textile industry.