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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

Functional Finishes for Textiles Improving Comfort, Performance and Protection [Elsevier](#) Functional finishes for textiles reviews the most important fabric finishes in the textile industry. It discusses finishes designed to improve the comfort and other properties of fabrics, as well as finishes which protect the fabric or the wearer. Each chapter reviews the role of a finish, the mechanisms and chemistry behind the finish, types of finish and their methods of application, application to particular textiles, testing and future trends. Describes finishes to improve comfort, performance, and protection of fabric or the wearer Examines the mechanisms and chemistry behind different types of finishes and their methods of application, testing and future trends Considers environmental issues concerning functional finishes

Sports Materials [MDPI](#) Advances in materials are crucial to the development of sports equipment, from tennis rackets to skis to running shoes. Materials-driven improvements in equipment have helped athletes perform better, while enhancing safety and making sport more accessible and enjoyable. This book brings together a collection of 10 papers on the topic of sports materials, as published in a Special Issue of Applied Sciences. The papers within this book cover a range of sports, including golf, tennis, table tennis and baseball. State-of-the-art engineering techniques, such as finite element modelling, impact testing and full-field strain measurement, are applied to help further our understanding of sports equipment mechanics and the role of materials, with a view to improving performance, enhancing safety and facilitating informed regulatory decision making. The book also includes papers that describe emerging and novel materials, including auxetic materials with their negative Poisson's ratio (fattening when stretched) and knits made of bamboo charcoal. This collection of papers should serve as a useful resource for sports engineers working in both academia and industry, as well as engineering students who are interested in sports equipment and materials.

Sustainable Practices in the Textile Industry [John Wiley & Sons](#) The increasing environmental and health concerns owing to the use of large quantities of water and hazardous chemicals in conventional textile finishing processes has led to the design and development of new dyeing strategies and technologies. **Sustainable Practices in the Textile Industry** comprises 13 chapters from various research areas dealing with the application of different sustainable technologies for enhancing the dyeing and comfort properties of textile materials with substantial reduction in wastewater problems. Chapters focus on the sophisticated methods for improving dye extraction and dyeing properties which will minimize the use of bioresource products. This book also brings out the innovative ways of wet chemical processing to alleviate the environmental impacts arising from this sector. This book also discusses innovations in eco-friendly methods for textile wet processes and applications of enzymes in textiles in addition to the advancements in the use of nanotechnology for wastewater remediation.

Textiles for Functional Applications [BoD - Books on Demand](#) This book offers a detailed understanding of the principles, procedures, equipment, and operation of selected technologies used to manufacture and evaluate intelligent multifunctional textiles and apparel goods. Leading experts from different domains of polymers, fiber production, nanotechnology, and textile chemical finishing address the entire production process by delving into crucial concepts and topics such as the development, characterization, and potential applications of functional materials. **Textiles for Functional Applications** is an excellent resource for researchers,

designers, and academics who want to learn more about designing feasible functional textiles. **High Performance Technical Textiles** [Wiley](#) An authentic resource for the fundamentals, applied techniques, applications and recent advancements of all the main areas of technical textiles Created to be a comprehensive reference, **High Performance Technical Textiles** includes the review of a wide range of technical textiles from household to space textiles. The contributors—noted experts in the field from all the continents—offer in-depth coverage on the fibre materials, manufacturing processes and techniques, applications, current developments, sustainability and future trends. The contributors include discussions on synthetic versus natural fibres, various textile manufacturing techniques, textile composites and finishing approaches that are involved in the manufacturing of textiles for a specific high performance application. Whilst the book provides the basic knowledge required for an understanding of technical textiles, it can serve as a springboard for inspiring new inventions in hi-tech fibres and textiles. This important book: Contains a unique approach that offers a comprehensive understanding of the manufacturing and applications of technical textiles Includes a general overview to the fundamentals, current techniques, end use applications as well as the most recent advancements Explores the current standards in the industry and the ongoing research in the field Offers a comprehensive and single source reference on the topic Written for academics, researchers and professionals working in textile and related industries, **High Performance Technical Textiles** offers a systematic, structured, logical and updated source of information for understanding technical textiles. **Innovative and Emerging Technologies for Textile Dyeing and Finishing** [John Wiley & Sons](#) With the public enhanced awareness towards eco-preservation, eco-safety and health concerns, environmentally benign, nontoxic and sustainable bioresource materials produced mainly from non-food crops have revolutionized all industrial sectors particularly textile industry. In recent years, textile industries in developed countries are getting increasing interest in global interest due to the varied and changing world market conditions in terms of price, durability and fiber mixtures as well as design, colors, weight, ease of handling and product safety. The increasing environmental and health concerns owing to the use of large quantities of water and hazardous chemicals in conventional textile finishing processes lead to the design and development of new dyeing strategies and technologies. Effluents produced from these textiles wet processing industries are very diverse in chemical composition, ranging from inorganic finishing agents, surfactants, chlorine compounds, salts, total phosphate to polymers and organic products. This aspect forced western countries to exploit their high technical skills in the advancements of textile materials for high quality technical performances, and development of cleaner production technologies for cost effective and value-added textile materials. Therefore, vast and effective research investigations have been undertaken all over the world to minimize the negative environmental impact of synthetic chemical agents through the sustainable harvest of eco-friendly bioresource materials. The book will discuss following research developments in academic and industry: Improvement in dye extraction and its applications Impact of textile dyeing on environment Textile finishing by natural and ecofriendly means Natural dyes as environmental-friendly bioresource products Textile effluent remediation via physical, chemical and biological processes. **Advances in Functional and Protective Textiles** [Woodhead Publishing](#) **Advances in Functional and Protective Textiles** explores the latest research in the use of textile materials for protective clothing. The book's international roster of researchers in industry and academia describe innovative applications in defense, medical, sports, fire protection, radiation protection, and more. This book is an invaluable resource for readers seeking to produce textiles with self-cleaning, antimicrobial, super-hydrophobic, UV-protective, insect repellent, flame retardant or anti-felting properties. Particular attention is given to textile fibers, including cotton, wool, viscose, and other synthetic fibers whose properties solve many problems. Sustainable approaches to the processing of textiles for protective properties are also addressed, as are hazards. Introduces the advanced testing and modeling methods that are necessary for the production of protective textiles Describes the properties of the latest advanced chemicals and materials used to make protective textiles and clothing Covers every step in the development of protective clothing, from the engineering of novel materials, to advanced fabrication methodologies and applications **Physico-chemical Aspects of Textile Coloration** [John Wiley & Sons](#) The production of textile materials comprises a very large and complex global industry that utilises a diverse range of fibre types and creates a variety of textile products. As the great majority of such products are coloured, predominantly using aqueous dyeing processes, the coloration of textiles is a large-scale global business in which complex procedures are used to apply different types of dye to the various types of textile material. The development of such dyeing processes is the result of substantial research activity, undertaken over many decades, into the physico-chemical aspects of dye adsorption and the establishment of 'dyeing theory', which seeks to describe the mechanism by which dyes interact with textile fibres. **Physico-Chemical Aspects of Textile Coloration** provides a comprehensive treatment of the physical chemistry involved in the dyeing of the major types of natural, man-made and synthetic fibres with the principal types of dye. The book covers: fundamental aspects of the physical and chemical structure of both fibres and dyes, together with the structure and properties of water, in relation to dyeing; dyeing as an area of study as well as the terminology employed in dyeing technology and science; contemporary views of intermolecular forces and the nature of the interactions that can occur between dyes and fibres at a molecular level; fundamental principles involved in dyeing theory, as represented by the thermodynamics and kinetics of dye sorption; detailed accounts of the mechanism of dyeing that applies to cotton (and other cellulosic fibres), polyester, polyamide, wool, polyacrylonitrile and silk fibres; non-aqueous dyeing, as represented by the use of air, organic solvents and supercritical CO₂ fluid as alternatives to water as application medium. The up-to-date text is supported by a large number of tables, figures and illustrations as well as footnotes and widespread use of references to published work. The book is essential reading for students, teachers, researchers and professionals involved in textile coloration. **Textiles in Sport** [Elsevier](#) The technical developments in the sports clothing industry has resulted in the use of functional textiles for highly-specialised performances in different sports. Developments include thermal and functional properties and coated and laminated clothes. With bio- and smart materials providing such a strong focus in the textile industry generally, companies are

going for 'value-added' textiles, such as in-built sensors which monitor performance. In-built wear comfort is a growing market trend and includes clothing which improves the skin's performance. Written by a distinguished editor and a team of authors from the cutting edge of textile research, *Textiles in sport* discusses high-performance, high-function and intelligent textiles for sportswear. Invaluable for a broad range of readers *Discusses high-performance, high-function and intelligent textiles for sportswear* [Springer](#) This volume contains select papers presented during the Functional Textiles and Clothing Conference 2018. The book covers the recent scientific developments, cutting edge technologies, innovations, trends, challenges and opportunities in the field of functional and smart textiles and clothing. The contents of this volume will be of interest to researchers, professional engineers, entrepreneurs, and market stakeholders interested in functional textiles and clothing. *Principles and Practice of Photoprotection* [Springer](#) Written by internationally recognized leaders, and covering all facets of photoprotection, this book summarizes the beneficial roles of photoprotection in skin cancers, photoaging, photodermatoses, autoimmune diseases, and other skin conditions. It provides an update on the current state of UV filters, boosters, photostabilizers and formulation of sunscreen, and showcases the current techniques and regulation in the evaluating of UV filters and sunscreen products. Furthermore, it discusses the role of nanotechnology, antioxidants, DNA repair technology, and oral and systemic agents in photoprotection. Each chapter encapsulates decades of clinical, research or practical experience on topics that will surely be an interest for clinicians, researchers, industry scientists, regulators, and consumers. *Handbook of Research on Evolving Designs and Innovation in ICT and Intelligent Systems for Real-World Applications* [IGI Global](#) The relentless advances in all areas of information and communication technology, intelligent systems, and related domains have continued to drive innovative research. Most of these works have attempted to contribute in some form towards improving human life in general and have become indispensable elements of our day-to-day lives. The evolution continues at an accelerated pace while the world faces innumerable challenges and rapid advances in artificial intelligence, wireless communication, sensors, cloud and edge computing, and biomedical sciences. These advances must be documented and studied further in order to ensure society's continual development. *The Handbook of Research on Evolving Designs and Innovation in ICT and Intelligent Systems for Real-World Applications* disseminates details of works undertaken by various groups of researchers in emerging areas related to information and communication technology, electronics engineering, intelligent systems, and allied disciplines with real-world applications. Covering a wide range of topics such as augmented reality and wireless sensor networks, this major reference work is ideal for industry professionals, researchers, scholars, practitioners, academicians, engineers, instructors, and students. *High-Performance Apparel Materials, Development, and Applications* [Woodhead Publishing](#) *High-Performance Apparel: Materials, Development, and Applications* covers the materials and techniques used in creating high-performance apparel, the technical aspects of developing high-performance garments, and an array of applications for high-performance clothing and wearable technology. Part One covers fabric construction for high-performance garments, from fiber types and spinning methods, to weaving, knitting, finishing, and joining techniques. Development of high-performance apparel is covered in Part Two, with particular emphasis on design and product development for function and wearer comfort. Part Three covers a range of applications and wearable technology that make use of high-performance apparel, including chapters on sportswear, protective clothing, and medical, military, and intelligent textiles. The book provides an excellent resource for all those engaged in garment development and production, and for academics engaged in research into apparel technology and textile science. Offers a range of perspectives on high-performance apparel from an international team of authors with diverse expertise Provides systematic and comprehensive coverage of the topic from fabric construction, through apparel design and development, to the range of current and potential applications Presents an excellent resource for all those engaged in garment development and production, and for academics engaged in research *Sustainable Textile and Fashion Value Chains Drivers, Concepts, Theories and Solutions* [Springer Nature](#) This book illustrates key sustainability issues in global textile and fashion value chains, by examining individual types of fibers either at a single step in or along the entire value chain. It approaches sustainability-related issues in the textile and fashion value chain from an interdisciplinary and holistic viewpoint, with each contribution linking questions on the textile and fashion value chain to various drivers, indicators and concepts of sustainability. Each chapter represents a single step in the textile and fashion value chain, exploring and considering a wide range of interwoven and interdependent technological, environmental, social, political and economic aspects. Various fibers, textile engineering and chemical treatment steps, as well as innovative business concepts and regulatory frameworks across the entire textile and fashion value chain are identified, analyzed, discussed and critically evaluated. The book provides a systematic overview of the potential and challenges of sustainable textile and fashion value chains, making it of interest to practitioners and scientists in sustainability science, environmental economics, and business, management and innovation. Further, it offers a valuable source of information for industrial and mechanical engineering researchers, and for students in the areas of textile engineering, fashion, or the apparel and clothing industry. *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 *Advanced Functional Textiles and Polymers Fabrication, Processing and Applications* [John Wiley & Sons](#) This book on advanced functional textiles and polymers will offer a comprehensive view of cutting-edge research in newly discovered areas such as flame retardant textiles, antimicrobial textiles, insect repellent textiles, aroma textiles, medical-textiles, smart textiles, and nano-textiles etc. The second part the book

provides innovative fabrication strategies, unique methodologies and overview of latest novel agents employed in the research and development of functional polymers. **Protective Textiles from Natural Resources** [Woodhead Publishing](#) **Protective Textiles from Natural Resources** provides systematic coverage of the fundamentals, production methods, processing techniques, characterization techniques, properties and applications of natural textile products for protective purposes. The subject of this book is an important kind of technical textile designed to protect the wearer from injuries, illness and death. They offer enhanced protection against phenomena including heat, cold, flame, chemical, biological, nuclear agents, radiation, disaster and even ballistics. As no single type of clothing can be adequate for all kinds of protection, extensive research is carried out to develop protective clothing for specialized civilian and military applications. The latest research on the use of natural fibres in PPE is also covered, which could make a significant contribution to the fight against the spread of COVID-19. This comprehensive guide explores a wide variety of themes from material processing and design to finished products, through protection against specific hazards to specific applications, including all significant new developments on natural materials for protective textiles. Explains the latest technologies related to fibre extraction from natural sources, chemical treatments, weave constructions, fabric finishes and coatings. Includes the latest research on natural fibers in personal protective equipment (PPE) to protect wearers from bacterial and viral contamination. Explains the state of the art in testing methods and standards for protective clothing. **Understanding and Improving the Durability of Textiles** [Elsevier](#) The ability of a fabric to resist wear is an essential aspect of its performance. **Understanding and improving the durability of textiles** provides a comprehensive guide to the factors affecting the durability of a range of different textiles. Part one addresses the different factors that affect textile durability, including the influence of fabric construction and fibre type, as well as properties affecting strength and dimensional stability. Colour fastness and the effects of light are discussed, along with methods for testing and improving wrinkle-resistance and textile durability. Part two goes on to explore the durability of particular types of textile including antimicrobial textiles, protective clothing, historic textiles, silk and geotextiles. With its distinguished editor and international team of expert contributors, **Understanding and improving the durability of textiles** is an indispensable book for textile scientists, technologists, engineers and those designing, testing and manufacturing textiles. It also provides a comprehensive guide to textile durability for researchers and academics of all levels in this sector. Provides a comprehensive guide to the factors affecting the durability of a range of different textiles Discusses colour fastness and the effects of light, and methods for testing and improving wrinkle-resistance and textile durability Explores the durability of particular types of textile **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 **Structure and Properties of High-Performance Fibers** [Woodhead Publishing](#) **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 **High Performance Textiles and Their Applications** [Elsevier](#) 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 **Effects of Functional Textile Finishes on Comfort and Protection of Consumers** **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

Flame Retardants for Textile Materials [CRC Press](#) This book focuses on flame retardants (FR) for textile materials. It discusses basics of flame retardancy and flammability and covers various types of flame retardants and materials, including natural FRs, halogen, phosphorous, and nanomaterial-based FRs. This book also discusses methods of applications of FRs and discusses FRs and the environment. Covers a variety of interdisciplinary applications in the textile industry Emphasizes environmental aspects Reports on a large number of FR compounds studied globally Discusses in detail recent developments in halogen-free eco-friendly flame retardants Extensively describes basic aspects of flame retardancy and their measurements Aimed at the practitioner and textile engineering professional this work aims to ensure development of safe textile materials for various uses, including apparel, protective wear, floor coverings, upholstery, drapery, and others. **Nanomaterials in the Wet Processing of Textiles** [John Wiley & Sons](#) Nanotechnology has attracted attention of textile and polymer scientists and has been playing extraordinary role over the past few decades in the functional finishing of different textile materials. Nanoparticles due to their diverse functions have not only imparted flame retardant, UV-blocking, water repellent, self-cleaning, and antimicrobial properties to the textiles, but also have greater affinity for fabrics leading to an increase in durability of the functions. This book emphasizes recent approaches and strategies that are currently at operation to functionalize both natural and synthetic textile materials using diverse nanoparticles and their composites with polymers. The book concludes by paying attention towards removal of toxic chemicals using state-of-the-art nano-adsorbents. **Main Topics** 1. Textile dyeing using metallic nanoparticles 2. Metal oxide nanoparticles for multifunctional finishing 3. New approaches to produce UV protective textiles 4. Polymeric nanocomposites for antimicrobial finishing 5. Self-cleaning of textiles using advanced nanoparticles 6. Silver nanoparticles in dyeing and finishing applications 7. Zinc Oxide - prospects in textile industry 8. Titanium dioxide: Next generation photo-catalysts 9. Textile effluent using chitosan nanocomposites 10. Recent advances in remediation of textile effluents using nano-catalysts

Manikins for Textile Evaluation [Woodhead Publishing](#) Manikins for Textile Evaluation is a key resource for all those engaged in textile and apparel development and production, and for academics engaged in research into textile science and technology. Creating garments that work with the human form, both stationary and in motion, is a complex task that requires extensive testing and evaluation. Manikins allow for performance testing of textiles in a safe, controlled, and appropriate environment, and are a key element in developing new textile products. Everyday apparel needs to be assessed for comfort, sizing and fit, and ergonomics, while technical and protective garments require extensive safety and performance testing. Manikins therefore range from simple representations of the human body to complex designs that simulate body temperature, sweating, and motion. Manikins are safe for use in hazardous testing environments, such as fire and flame protection, where wearer trials would be impossible. This book provides extensive coverage of manikin-based evaluation of protective, heat and flame resistant, medical, and automotive textile applications. The role of manikins in the development of day-to-day garments is also discussed, including fit, comfort, and ergonomics. The book is a key resource for all those engaged in textile and apparel development and production, and for academics engaged in research into textile science and technology. Delivers theoretical and practical guidance on evaluation using manikins that is of benefit to anyone developing textile products Offers a range of perspectives on high-performance textiles from an international team of authors with diverse expertise in academic research, and textile development and manufacture Provides systematic and comprehensive coverage of the topic from fabric construction, through product development, to the range of current and potential applications that exploit high-performance textile technology

Handbook of Technical Textiles **Technical Textile Processes** [Woodhead Publishing](#) The second edition of **Handbook of Technical Textiles, Volume 1: Technical Textile Processes** provides readers with a comprehensive understanding of the latest advancements in technical textiles. With revised and updated coverage, including several new chapters, this volume reviews recent developments and technologies in the field, beginning with an overview of the technical textiles industry that includes coverage of technical fibers and yarns, weaving, spinning, knitting, and nonwoven production. Subsequent sections include discussions on finishing, coating, and the coloration of technical textiles. Provides a comprehensive handbook for all aspects of technical textiles Presents updated, detailed coverage of processes, fabric structure, and applications An ideal resource for those interested in high-performance textiles, textile processes, textile processing, and textile applications Contains contributions from many of the original, recognized experts from the first edition who update their respective chapters

Improving Comfort in Clothing [Elsevier](#) Wear comfort has been listed as the most important property of clothing demanded by users and consumers according to recent studies. A fundamental understanding of human comfort and a knowledge of how to design textiles and garments to maximise comfort for the wearer is therefore essential in the clothing industry. **Improving comfort in clothing** reviews the latest developments in the manufacturing of comfortable apparel and discusses methods of improving it in various articles of clothing. The book begins by outlining the fundamentals of human comfort in clothing, from the human perception of comfort in apparel and factors which affect it such as the properties of fibres and fabrics, to laboratory testing, analysing and predicting of the comfort properties of textiles. Part two discusses methods of improving comfort in apparel, from controlling thermal comfort and managing moisture, to enhancing body movement comfort in various

garments. Part three reviews methods of improving comfort whilst maintaining function in specific types of clothing such as protective garments, sports wear and cold weather clothing. The international team of contributors to *Improving comfort in clothing* has produced a unique overview of numerous aspects of clothing comfort, provides an excellent resource for researchers and designers in the clothing industry. It will also be beneficial for academics researching wear comfort. Reviews the latest developments in the manufacturing of comfortable apparel and discusses methods of improving fit in various articles of clothing. An overview of how to design textiles and garments to maximise comfort begins with factors affecting comfort and properties of fibres and fabrics that contribute to human comfort. Improvements in thermal and tactile comfort and moisture management are explored featuring developments in textile surfaces. *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. *Textiles and Clothing Environmental Concerns and Solutions* [John Wiley & Sons](#) Greater emphasis needs to be placed on research into eco-friendly processes particularly suited for the textile industry. With this goal in mind, all environmental aspects relating to the textile and clothing industry are discussed in this book. Included in the 11 informative chapters herein are topics covering the correlation between the environment and the processing and utilization of textiles and clothing. Chapter 1 discusses the direct impact that the textile industry has on the environment. The hazardous environmental consequences that synthetic dyes used to color textiles have on the environment are highlighted in Chapter 2. Greener alternatives to dyeing are discussed in Chapters 3 through 5, and eco-friendly ways of finishing textiles are discussed in Chapters 6 and 7. Finally, solutions to address the environmental hazards associated with the textile industry are presented in Chapters 8 through 11. *Activated Carbon Fiber and Textiles* [Woodhead Publishing](#) *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. *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. *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 *Waterproof and Water Repellent Textiles and Clothing* [Woodhead Publishing](#) *Waterproof and Water Repellent Textiles and Clothing* provides systematic coverage of the key types of finishes and high performance materials, from conventional wax and silicone, through controversial, but widely used fluoropolymers and advanced techniques, such as atmospheric plasma deposition and sol-gel technology. The book is an essential resource for all those engaged in garment development, production and finishing, and for academics engaged in research into apparel technology and textile science. Rapid innovation in this field is driving new performance demands in many areas, including the sporting and military sectors. However, another innovation driver is the regulatory framework in the USA, Europe and globally, addressing both health concerns (e.g. with PFOS / PFOA) and environmental impacts (e.g. C8 fluorocarbon finishes). Both of these aspects are fully covered, along with the replacement materials / technologies currently available and under development. In addition, oleophobic and multifunctional coatings are discussed, as are aspects of performance, testing and applications in sportswear, protective clothing, and footwear. Introduces innovative materials and technologies, exploring their current and potential use across different sectors Provides expert guidance on the health and environmental aspects of key waterproof materials and coatings and their associated regulations Demystifies testing processes and design principles *Process Control in Textile Manufacturing* [Elsevier](#) 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 *Assessing the Environmental Impact of Textiles and the Clothing Supply Chain* [Elsevier](#) The textile industry impacts the environment in a number of ways, including its use of resources, its impact on global warming, and the amount of pollution and waste it generates. *Assessing the Environmental Impact of Textiles and the Clothing Supply Chain* reviews methods used to calculate this environmental impact, including product carbon footprints (PCFs), ecological footprints (EFs), and life cycle assessment (LCA). The first chapters provide an introduction to the textile supply chain and its environmental impact, and an overview of the methods used to measure this impact. The book goes on to consider different environmental impacts of the industry, including greenhouse gas emissions, the water and energy footprints of the industry, and depletion of resources, as well as the use of LCA to assess the overall environmental impact of the textile industry. It then deals with the practice of measuring these impacts before forming a conclusion about the environmental impact of the industry. *Assessing the Environmental Impact of Textiles and the Clothing Supply Chain* provides a standard reference for R&D managers in the textile industry and academic researchers in textile science. Reviews the main methods used to calculate the textile industry's use of resources, its impact on global warming and the pollution and waste it generates Reviews the key methods, their principles and how they can be applied in practice to measure and reduce the environmental impact of textile products Includes the following calculation methods: product carbon footprints (PCFs), ecological footprints (EFs) and life cycle assessment (LCA) *Handbook of Life Cycle Assessment (LCA) of Textiles and Clothing* [Woodhead Publishing](#) Life cycle assessment (LCA) is used to evaluate the environmental impacts of textile products, from raw material extraction, through fibre processing, textile manufacture, distribution and use, to disposal or recycling. LCA is an important tool for the research and development process, product and process design, and labelling of textiles and clothing. *Handbook of Life Cycle Assessment (LCA) of Textiles and Clothing* systematically covers the LCA process with comprehensive examples and case studies. Part one of the book covers key indicators and processes in LCA, from carbon and ecological footprints to disposal, re-use and recycling. Part two then discusses a broad range of LCA applications in the textiles and clothing industry. Covers the LCA process and its key indicators, including carbon and ecological footprints, disposal, re-use and recycling Examines the key developments of LCA in the textile and clothing industries Provides a wide range of case studies and examples of LCA applications in the textile and clothing industries *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 The Global Textile and Clothing Industry Technological Advances and Future Challenges [Elsevier](#) 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