

Handbook Of Textile Fibres Woodhead Publishing Series In Textiles

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J. W. S. Hearle 2001-10-09 Texturing is increasingly important in textile production, not only in yarns for weaving and knitting fashion products, but also for carpets, furnishing fabrics and a variety of technical textiles. This book covers all the major techniques including twist-texturing, jet-screen texturing, false-twist process, BCF processes and air-jet texturing in detail. Combining a comprehensive review of the physics and chemistry of texturing with a thorough, illustrated description of current practice, this book is invaluable for yarn and fabric manufacturers, textile scientists and students on textile science and technology courses.

Physical Testing of Textiles B P Saville 1999-01-08 This book examines the physical testing of textiles in the form of fibre, yarn and fabric, the emphasis throughout being on standard and reproducible tests. After an introductory explanation of sampling and measurement, the author explores the effects of moisture on textiles, then goes on to discuss fibre dimension, yarn tests for linear density, twist, evenness and hairiness, tensile strength, and dimensional stability and serviceability. Also covered are aspects of comfort and fabric handle, colour fastness and quality assurance. The book's comprehensive coverage of the physical properties of textiles makes it an essential reference for managers in the textiles industry concerned with quality assurance, garment and fabric technologists, and students of textile science and engineering.

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

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

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

electronic textiles for military personnel

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

Handbook of Weaving Sabit Adanur 2020-03-05 A mixture of science and art, weaving is nearly as old as human history. Despite the many technological advances in the field, however, it is still virtually impossible to control each individual fiber in a woven structure. To help you meet this and other weaving challenges, Handbook of Weaving covers every step of the process clearly and systemati

Handbook of Textile Fibre Structure Stephen Eichhorn 2009-10-19 Due to their complexity and diversity, understanding the structure of textile fibres is of key importance. This authoritative two-volume collection provides a comprehensive review of the structure of an extensive range of textile fibres. Volume 1 begins with an introductory set of chapters on fibre structure and methods to characterise fibres. The second part of the book covers the structure of manufactured polymer fibres such as polyester, polyamides, polyolefin, elastomeric and aramid fibres as well as high-modulus, high-tenacity polymer fibres. Chapters discuss fibre formation during processing and how this affects fibre structure and mechanical properties. A companion volume reviews natural, regenerated, inorganic and specialist fibres. Edited by leading authorities on the subject and with a team of international authors, the two volumes of the Handbook of textile fibre structure is an essential reference for textile technologists, fibre scientists, textile engineers and those in academia. The first title of a authoritative two-volume collection that provides a comprehensive review of the structure of a range of textile fibres Provides an overview of the development of fibre structure and methods to characterise fibres Examines the structure of both traditional and new

fibres and natural and manufactured fibres

Smart Fibres, Fabrics and Clothing Xiaoming Tao 2001-10-04 This important book provides a guide to the fundamentals and latest developments in smart technology for textiles and clothing. The contributors represent a distinguished international panel of experts and the book covers many aspects of cutting edge research and development. Smart fibres, fabrics and clothing starts with a review of the background to smart technology and goes on to cover a wide range of the material science and fibre science aspects of the technology including: Electrically active polymeric materials and the applications of nonionic polymer gel and elastomers for artificial muscles; Thermally sensitive fibres and fabrics; Cross-linked polyol fibrous substrates stimuli-responsive interpenetrating polymer network hydrogel; Permeation control through stimuli-responsive polymer membranes; optical fibre sensors, hollow fibre membranes for gas separation; integrating fibre-formed components into textile structures; Wearable electronic and photonic technologies; Adaptive and responsive textile structures (ARTS); Biomedical applications including the applications of scaffolds in tissue engineering It is essential reading for academics in textile and materials science departments, researchers, designers and engineers in the textiles and clothing product design field. Product managers and senior executives within textile and clothing manufacturing will also find the latest insights into technological developments in the field valuable and fascinating.

Handbook of Nonwovens S. J. Russell 2022-06-03 Handbook of Nonwovens, Second Edition updates and expands its popular interdisciplinary treatment of the properties, processing, and applications of nonwovens. Initial chapters review the development of the industry and the different classes of nonwoven material. The book then discusses methods of manufacture such as dry-laid, wet-laid, and polymer-laid web formation. Other techniques analyzed include mechanical, thermal,

and chemical bonding, as well as chemical and mechanical finishing systems. The book concludes by assessing the characterization, testing, and modeling of nonwoven materials. Covering an unmatched range of materials with a variety of compositions and manufacturing routes, this remains the indispensable reference to nonwovens for designers, engineers, materials scientists, and researchers, particularly those interested in the manufacturing of automotive, aerospace, and medical products. Nonwovens are a unique class of textile material formed from fibers that are bonded together through various means to form a coherent structure. The range of properties they can embody make them an important part of a range of innovative products and solutions, which continues to attract interest from industry as well as academia. Describes in detail the manufacturing processes of a range of nonwoven materials Provides detailed coverage of the mechanical and thermal properties of non-woven fabrics Includes extensive updates throughout on the characterization and testing of nonwovens Explains how to model nonwoven structures

Handbook of Footwear Design and Manufacture A. Luximon 2021-02-12 Handbook of Footwear Design and Manufacture, Second Edition, is a fully updated, expanded guide on the theories, processes, methodologies and technologies surrounding the footwear supply chain. Topics discussed include engineering design methodology, reducing manufacturing waste, footwear advertisement, emerging imaging technology, advice on the optimization of manufacturing processes for productivity, and summaries of the latest advances from researchers around the globe. This updated edition also includes coverage of sizing and grading based on different footwear styles and methods, AI based personalization and customization, emerging models for online footwear shopping (involving data mining), and new methods for foot data analysis and representation. Covers many exciting new developments, such as AR/VR, additive manufacturing, customization of footwear, new last design methods, and green footwear Addresses the entire

footwear design and manufacture supply chain Explains new methods for foot data analysis and representation

Handbook of Medical Textiles V Bartels 2011-08-19 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

Synthetic Fibres J E McIntyre 2004-10-29 Publisher description: This book examines fibers generated entirely from chemicals. Authors consider nylon, polyester, acrylic, and polyolefin fiber, which have a wide range of applications including clothing, soft furnishing, flooring, and geo-

textiles. In addition to covering physical, chemical, and structural properties, world markets, and future trends, *Synthetic Fibres* discusses chemical intermediates, fiber spinning and orientation technology, additives, polymerization, dyeing, texturing, and other production techniques. This comprehensive and accessible book is ideal for industrial and academic textile technologists, chemical and synthetic fiber suppliers, and yarn and fabric manufacturers.

Sustainable Fibres and Textiles Subramanian Senthilkannan Muthu 2017-05-29 *Sustainable Fibres and Textiles* provides a whole-lifecycle approach to the subject of sustainable textiles, from fiber production, through manufacturing and low-energy care and recycling. The scientific, industrial, regulatory and social aspects of this lifecycle are explored by an expert author team who bring global perspectives to this important subject. The first part of the book provides detailed coverage of the sustainable production of textiles, with chapters devoted to each of the main fiber types, including new biosynthetic fibers, such as textiles produced from Polylactic Acid (PLA). The second part examines sustainable production methods, focusing on low carbon production technologies and sustainable, low-pollution methods of processing and dyeing fabrics. The final sections explore the benefits of textiles designed to enable low-energy fabric care via both finishes used to treat the fabric and better care labelling. Re-use and recycling options are also covered, as are ethical aspects, such as fair trade fabrics. Presents an integrated understanding of sustainability through the whole supply-chain – from agriculture, through manufacturing and fabric care, to recycling Teachers users how to make optimal choices of fiber and manufacturing technologies to achieve the sustainable production of high-quality apparel and other textile products Provides a wider understanding of emerging regulatory frameworks that will shape the future of sustainable textiles

Handbook of Technical Textiles A. Richard Horrocks 2015-12-01 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

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

for yarn manufacturing Shows how problems can arise and how to deal with them Includes invaluable technical data, calculations, worked examples and case studies

Handbook of Fire Resistant Textiles F. Selcen Kilinc 2013-05-15 Given its importance to consumer safety, fire resistant textiles are one of the fastest growing sectors in industrial textiles. Handbook of fire resistant textiles provides a comprehensive review of the considerable advances that have occurred in the field of fire resistant textiles in recent years. It draws together scientific and technical expertise from around the world to produce an important source of current knowledge on fire resistant textiles and their use for protection in hostile environments. Part one provides an overview of fire resistant textiles. Chapters discuss burning and combustion mechanisms of textile fibers, chemical modification of natural and synthetic fibers to improve flame retardancy, multi-component flame resistant coating techniques for textiles, care and maintenance of fire resistant textiles, along with the safety, health and environmental aspects of flame retardants. Part two covers different types of fire resistant fibers and fabrics, including flame retardant cotton, wool, ceramic fibers and blends, composites and nonwovens. Part three reviews standards, regulations, and characterization of fire resistant textiles. Part four includes case studies of major applications of fire resistant textiles. The Handbook of fire resistant textiles is an invaluable resource for a broad spectrum of professionals in the textiles and apparel industries, including textile and garment manufacturers, engineers, researchers, designers, developers and buyers. Provides a comprehensive review of the considerable advances that have occurred in the field of fire resistant textiles in recent years Discusses burning and combustion mechanisms of textile fibers and chemical modification of natural and synthetic fibers to improve flame retardancy Covers different types of fire resistant fibers and fabrics, including flame retardant cotton, wool, ceramic fibers and

blends, composites and nonwovens

Woven Textile Structure B K Behera 2010-03-01 Understanding and predicting the structure and properties of woven textiles is important for achieving specific performance characteristics in various woven applications. Woven textiles are used in a range of products such as apparel, technical and industrial textiles. Woven textile structure: Theory and applications provides comprehensive coverage of the structure, behaviour, modeling and design of woven fabrics and their relevance to the textile industry. The first group of chapters review the fundamental principles of woven fabric structures. Part two discusses the mechanics of woven fabrics, topics include shrinkage in woven fabrics, yarn behaviour in woven fabrics and bending behaviour of woven fabrics. Part three presents a selection of chapters on design engineering of woven fabrics, themes such as textile product design methods and modelling for woven fabric design are covered. A final group of chapters is dedicated to addressing practical applications of woven fabrics. Woven textile structure: Theory and applications is essential reading for designers, engineers and technicians involved in the design, manufacture and use of woven textiles and garments. It will also be beneficial to academics and students. Provides comprehensive coverage of the fundamentals of woven fabric structure including geometrical modeling Examines mechanisms of woven fabric structure featuring shrinkage, buckling, bending and creasing behaviour of textiles Illustrates mathematical modeling and building predictive models for textile product design incorporating validation and testing

Handbook of Natural Fibres Ryszard M Kozłowski 2012-10-19 Growing awareness of environmental issues has led to increasing demand for goods produced from natural products, including natural fibres. The two-volume Handbook of natural fibres is an indispensable tool in understanding the diverse properties and applications of these important materials. Volume 1:

Types, properties and factors affecting breeding and cultivation is an essential guide to a wide range of natural fibres, and highlights key techniques for their improvement. Part one reviews key types and fundamental properties of natural textile fibres. The production, identification and testing of a range of cotton, bast, silk and wool fibres are discussed, alongside bioengineered natural textile fibres. Part two goes on to explore the improvement of natural fibre properties and production through breeding and cultivation, beginning with a discussion of fibrous flax and cotton. Improved natural fibre production through the prevention of fungal growth is explored, along with the use of genetic engineering and biotechnology to enhance desirable characteristics. Finally, the wider impact of natural textile production is discussed, using wild silk enterprise programs as an example. With its distinguished editor and international team of expert contributors, the two volumes of the Handbook of natural fibres are essential texts for professionals and academics in textile science and technology. Provides an essential guide to a wide range of natural fibres and highlights key techniques for their improvement Reviews key types and fundamental properties of natural textile fibres, addressing the production, identification and testing of a range of cotton, bast, silk and wool fibres Explores the improvement of natural fibre properties and production through breeding and cultivation, beginning with a discussion of fibrous flax and cotton

Handbook of Natural Fibres: Types, Properties and Factors Affecting Breeding and Cultivation
Ryszard M. Koz Owski 2017-11-13 Growing awareness of environmental issues has led to increasing demand for goods produced from natural products, including natural fibres. The two-volume Handbook of natural fibres is an indispensable tool in understanding the diverse properties and applications of these important materials. Volume 1: Types, properties and factors affecting breeding and cultivation is an essential guide to a wide range of natural fibres, and highlights key techniques for their improvement. Part one reviews key types and fundamental properties of

natural textile fibres. The production, identification and testing of a range of cotton, bast, silk and wool fibres are discussed, alongside bioengineered natural textile fibres. Part two goes on to explore the improvement of natural fibre properties and production through breeding and cultivation, beginning with a discussion of fibrous flax and cotton. Improved natural fibre production through the prevention of fungal growth is explored, along with the use of genetic engineering and biotechnology to enhance desirable characteristics. Finally, the wider impact of natural textile production is discussed, using wild silk enterprise programs as an example. With its distinguished editor and international team of expert contributors, the two volumes of the Handbook of natural fibres are essential texts for professionals and academics in textile science and technology. Provides an essential guide to a wide range of natural fibres and highlights key techniques for their improvement Reviews key types and fundamental properties of natural textile fibres, addressing the production, identification and testing of a range of cotton, bast, silk and wool fibres Explores the improvement of natural fibre properties and production through breeding and cultivation, beginning with a discussion of fibrous flax and cotton

Handbook of Fiber Chemistry, Third Edition Menachem Lewin 2006-11-15 The Handbook of Fiber Chemistry, Third Edition provides complete coverage of scientific and technological principles for all major natural and synthetic fibers. Incorporating new scientific techniques, instruments, characterization, and processing methods, the book features important technological advances from the past decade, particularly in fiber production and novel applications. It contains the latest data and insight into the chemistry and structural properties made possible by these advances. Authored by leading experts in the field of fiber science, most chapters in this third edition of a bestseller are either new or extensively updated. Chapters on synthetic fibers detail their formation from monomers, while those on natural fibers cover extraction and purification methods. Each

chapter encompasses definitions, morphology, and fine structure; properties, testing, processing methods, and equipment; and the conversion into marketable products. Taking into account the recent expansion and diversification of markets for various fibers, this book also offers a solid foundation in the principles used for developing new fibers, including biologically and electronically active fibers. The Handbook of Fiber Chemistry, Third Edition offers a better understanding of the structure–property relationships of fibers and fiber-related phenomena. It is an ideal volume for scientists, technologists, and engineers working to develop novel and innovative products and technologies using natural and synthetic fibers.

Woven Textiles Kim Gandhi 2019-11-01 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 M Clark 2011-10-25 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 2 deals with major applications of dyes and is divided into two parts. Part one covers textile applications, with chapters dealing with the dyeing of wool, synthetic and cellulosic fibres, and textile fibre blends. In part two, industrial applications of dyes are examined, with topics including dyes used in food and in the cosmetics industry. 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. Provides a detailed review of the latest techniques and equipment used in the dyeing industry Industrial applications of dyes are examined, with topics including dyes used in food and in the cosmetics industry Is appropriate for a variety of different readers including designers, colour technologists, product developers and those in academia

Sustainable Textiles Richard Blackburn 2009-10-19 Environmental issues are playing an increasingly important role in the textile industry, both from the point of view of government regulation and consumer expectations. Sustainable textiles reviews ways of achieving more sustainable materials and technologies as well as improving recycling in the industry. The first part of the book discusses ways of improving sustainability at various points in the supply chain. Chapters discuss how sustainability can be integrated into textile design, ensuring more

sustainable production of both natural and synthetic fibres, improving sustainability in processes such as dyeing as well as more environmentally-friendly technologies including enzyme and plasma technologies. The second part of the book reviews consumer perceptions of recycled textiles, eco-labelling, organic textiles and the use of recycled materials in textile products. With a distinguished editor and an impressive range of international contributors, Sustainable textiles is an important reference for the textile industry and those researching this important topic. Reviews government regulations and consumer expectations about environmental impact on the textiles industry Discusses ways of achieving more sustainable materials and technologies as well as textiles recycling Examines how sustainability can be integrated into textile design, production and processes

Handbook of Textile Fibre Structure Stephen Eichhorn 2009-10-26 Due to their complexity and diversity, understanding the structure of textile fibres is of key importance. This authoritative two-volume collection provides a comprehensive review of the structure of an extensive range of textile fibres. Volume 2 begins by reviewing natural fibres such as cellulosic, cotton, protein, wool and silk fibres. Part two considers regenerated cellulosic, protein, alginate, chitin and chitosan fibres. The final part of the book discusses inorganic fibres such as glass, carbon and ceramic fibres as well as specialist fibres such as thermally and chemically-resistant fibres, optical and hollow fibres. Chapters review how fibre structure contributes to key mechanical properties. A companion volume reviews the structure of manufactured polymer fibres. Edited by leading authorities on the subject and with a team of international authors, the two volumes of the Handbook of textile fibre structure is an essential reference for textile technologists, fibre scientists, textile engineers and those in academia. Discusses how fibre structure contributes to key mechanical properties Reviews natural fibres such as cellulosic, cotton and silk fibres and considers various regenerated

fibres Examines inorganic fibres including glass and carbon as well as specialist fibres such as chemically-resistant and optical fibres

Regenerated Cellulose Fibres C Woodings 2001-04-30 This is a comprehensive work by industrial and academic specialists proving up-to-date information on the chemistry, physics, process technology, applications and markets for man-made cellulosic fibres. It covers the properties and applications of viscose rayon, cupprammonium rayon and the new solvent-spun fibres as well as considering their relationships with the natural cellulose such as cotton and the synthetic polymer fibres such as polyester. This overview of the only truly, naturally recyclable fibres and the latest manufacturing techniques that are being developed to produce them will be of interest to professionals in textile production, research and development, manufacturing chemists and textile technologists. The nonwovens and paper industries that use cellulose as a basic ingredient of their products will also find it valuable as will medical textiles producers and geotextiles engineers.

Handbook of Sustainable Textile Production Marion I Tobler-Rohr 2011-06-27 Textile products are produced, distributed, sold and used worldwide. A quantitative assessment of sustainability in the textile manufacturing chain is therefore extremely important. The Handbook of sustainable textile production is a compilation of technical, economical, and environmental data from the various processes in this chain. This authoritative reference work provides a detailed study of the sustainable development of textiles. The book opens with an introduction to the topic. Chapters define the principles of sustainability and its use in legislation and industry before going on to investigate the impact of textiles throughout the supply chain, starting with the raw fibre through to fabric production, consumption and disposal. Textile process technology and methods for specifying quality and functions in textile products in order to reduce textile waste and improve sustainability are also examined. A series of Life Cycle Assessments (LCAs) carried out in the

European textile industry are investigated. These studies comprise a range of processes from cotton growing, spinning and weaving to the recycling of textiles. The book concludes with a discussion on sustainable textiles from a product development and marketing perspective. With an internationally recognised expert author, the Handbook of sustainable textile production is a valuable reference tool for academics and students as well as for companies across the textile supply chain concerned with developing a sustainable environment, from fibre manufactures and designers to regulatory bodies. A detailed, quantitative assessment of the sustainable development of textiles Provides a useful compilation of technical, economical, and environmental data from various processes in the textile manufacturing chain Chapters define the principles of sustainability and its use in legislation and industry, textile process technology, the impact of textiles throughout the supply chain, raw fibre through to fabric production, consumption and disposal

Handbook of Life Cycle Assessment (LCA) of Textiles and Clothing Subramanian Senthilkannan Muthu 2015-07-25 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

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

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

Structure and Mechanics of Textile Fibre Assemblies Peter Schwartz 2019-08-15 Structure and Mechanics of Textile Fibre Assemblies, Second Edition, offers detailed information on all aspects of textile structure and mechanics. This new edition is updated to include the latest technology and techniques, as well as fiber assembly for major application areas. Chapters discuss the mechanics of materials and key mechanical concepts, such as stress, strain, bending and shear, but also examine structure and mechanics in-depth, including fabric type, covering yarns, woven fabrics, knitted fabrics, nonwovens, tufted fabrics, textile composites, laminated and coated textile fabrics,

and braided structures. Finally, structure and mechanics are approached from the viewpoint of key applications areas. This book will be an essential source of information for scientists, technologists, engineers, designers, manufacturers and R&D managers in the textile industry, as well as academics and researchers in textiles and fiber science. Provides methodical coverage of all essential fabric types, including yarns, woven fabrics, knitted fabrics, nonwovens, tufted fabrics, textile composites, laminated and coated textile fabrics, and braided structures Enables the reader to understand the mechanical properties and structural parameters of fabric at a highly detailed level Expanded update includes an analysis of fiber assemblies for key technical areas, such as protective fabrics and medical textiles

Cotton S. Gordon 2006-12-22 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

Wool W S Simpson 2002-05-09 In this book leading experts within the industry come together to give the first comprehensive treatments of the science and technology of wool to be published in over 20 years. The wool industry has been through a period of substantial change, with a major overhaul of trading methods, exciting innovations in wool-scouring and wool processing methods, and the development of modern technology reflecting a strong emphasis on environmental concerns and energy conservation. Research into wool science has continued to grow, and the technologist now has a better understanding of both the chemical and the physical properties of wool. Modern instruments can determine the structural differences between several types of wool proteins and how they interact, and this knowledge is leading to a deeper understanding of what can be done to create better products and more effective processes. Wool: Science and technology is an essential reference resource for anyone involved in the worldwide wool industry whether as processor, manufacturer, or user for the garment and carpets trades. First new comprehensive treatment of wool for over 20 years Covers all aspects of processing, treatment and manufacture Contributions from distinguished experts worldwide

Handbook of Textile Design J Wilson 2001-09-21 Designers in the textile industry have a wide range of roles and responsibilities and are frequently required to make design decisions throughout the manufacturing process. This very practical handbook provides a comprehensive overview of the role of the textile designer within the textile industry. It deals with the all aspects of the design process from the beginning – from how to go about attracting clients through range planning and development to presentation. It firmly locates the work of the textile designer within

the wider context of the global textile and clothing industries and considers the process of design for both freelance and in-house designers. Commercial considerations are also covered, together with trend forecasting and the factors influencing purchasing decisions. Based on the author's experience as a textile designer in industry and as a lecturer at UMIST, Manchester, UK, this book covers the entire textile design process from briefing through initial ideas, research and design development, to finished fabrics being sold to garment manufacturers and to retail. The Handbook of textile design is an invaluable reference for students of textile design as well as buyers and merchandisers of textile products, and anyone requiring an understanding of the textile design process. The range and diversity of textile design techniques available to the designer The professional practice of running a textile design studio How design work is carried out from the initial brief all the way through to invoicing the client

Fibre Structure J. W. S. Hearle 2013-09-03 Fibre Structure is a 19-chapter text that emerged from lectures presented at the Manchester College of Science and Technology. The interest of fiber studies lies to some extent in the important part textile materials play in general living and in industrial products and operations. The first chapters deal with the chemistry of fiber-forming polymers, followed by considerable chapters on the controversial subject of the fine structure of fibers. The remaining chapters describe the special features of all the important fibers, including glass and asbestos. Textile scientists, researchers, and manufacturers will find this book invaluable.

High-Performance Fibres J. W. S. Hearle 2001-10-26 This important new handbook provides comprehensive coverage of how high performance fibres are designed and manufactured and covers their capabilities and applications. The high-modulus, high-tenacity (HM-HT) fibres fall naturally into three groups – polymer fibres such as aramids and polyethylene fibres; carbon fibres

such as Kevlar; and inorganic fibres based on glass and ceramic fibres. The book shows how high performance fibres are being increasingly used for a wide range of applications including geotextiles and geomembranes and for construction and civil engineering projects as well as in specialist fibres within composite materials where their ability to fulfil demanding roles makes them an effective choice for the engineer and materials scientist. Provides a comprehensive overview of how high performance fibres are designed and manufactured and covers their capabilities and applications Explains how high performance fibres are being increasingly used for a wide range of applications, including geotextiles and geomembranes and construction and civil engineering projects

Handbook of Tensile Properties of Textile and Technical Fibres A. R. Bunsell 2009-10-19 Fibres usually experience tensile loads whether they are used for apparel or technical structures. Their form, which is long and fine, makes them some of the strongest materials available as well as very flexible. This book provides a concise and authoritative overview of tensile behaviour of a wide range of both natural and synthetic fibres used both in textiles and high performance materials. After preliminary chapters that introduce the reader to tensile properties, failure and testing of fibres, the book is split into two parts. Part one examines tensile properties and failure of natural fibres, such as cotton, hemp, wool and silk. Part two discusses the tensile properties and failure of synthetic fibres ranging from polyamide, polyester and polyethylene fibres to carbon fibres. Many chapters also provide a general background to the fibre, including the manufacture, microstructure, factors that affect tensile properties as well as methods to improve tensile failure. With its distinguished editor and array of international contributors, Handbook of tensile properties of textile and technical fibres is an important reference for fibre scientists, textile technologists and engineers, as well as those in academia. Provides an overview of tensile behaviour of a wide

range of both natural and synthetic fibres Examines tensile characteristics, tensile failure of textiles fibres and factors that affect tensile properties Discusses microstructures and each type of fibre from manufacture to finished product

Handbook of Textile and Industrial Dyeing M Clark 2011-10-25 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

Warp Knitted Fabrics Construction Yordan Kyosev 2019-07-30 The aim of this book is to provide the background of the warp knitting patterning with a large amount of simulated 3D images of the

structures, corresponding to the modern available tools for this. The warp knitted structures can have very complex architectures and very limited understanding exists on how they are built. The pattern book will allow

Handbook of Fibre Rope Technology H A McKenna 2004-04-22 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