

Text Fibre Science And Technology

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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

Polymer Optical Fibres - Christian-Alexander Bunge 2016-08-25

Polymer Optical Fibres: Fibre Types, Materials, Fabrication, Characterization, and Applications explores polymer optical fibers, specifically their materials, fabrication, characterization, measurement techniques, and applications. Optical effects, including light propagation, degrading effects of attenuation, scattering, and dispersion, are explained. Other important parameters like mechanical strength, operating temperatures, and processability are also described. Polymer optical fibers (POF) have a number of advantages over glass fibers, such as low cost, flexibility, low weight, electromagnetic immunity, good bandwidth, simple installation, and mechanical stability. Provides systematic and comprehensive coverage of materials, fabrication, properties, measurement techniques, and applications of POF Focuses on industry needs in communication, illumination and sensors, the automotive industry, and medical and biotechnology Features input from leading experts in POF technology, with experience spanning optoelectronics, polymer, and textiles Explains optical effects, including light propagation, degrading effects of attenuation, scattering, and dispersion

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 [Advances in Silk Science and Technology](#) - Arindam Basu 2015-04-30

The remarkable properties of silk fibres have gained them a prominent place in the field of technical textiles. *Advances in Silk Science and Technology* explores recent developments in silk processing, properties and applications. Techniques for manufacturing spider silk are also discussed and the current and future applications of this fibre are reviewed. Part One focuses on the properties and processing of silk from both silkworms and spiders. It addresses recent advances in our understanding of the properties of silk and offers systematic coverage of the processing of silk from spinning through to finishing, as well as an analysis of quality testing for silk fibres, yarns and fabrics. Part Two then addresses important applications of silk from silkworms and spiders, and includes chapters on the use of silk in polymer matrix composites and in different kinds of biomaterial. The book concludes with a chapter on developments in the use of silk waste. Reviews the properties of silk from both silkworms and spiders Offers systematic coverage of the processing of silk from spinning through to finishing Cover a range of applications, including on the use of silk in polymer matrix composites and in different kinds of biomaterial

[Handbook of Fiber Science and Technology Volume 2](#) - Menachem Lewin 1993-01-18

This text provides up-to-date coverage of both recently developed and potentially available fibers, emphasizing new applications. Highlighting preparation, properties, practical industrial uses and future research directions for high technology, this volume examines optical fibres, aramid and polyimide fibres for heat resistant applications, ceramic fibres, fibres with thermal adaptability and electrically conducting polymers for fibres.

[Fundamentals of Fiber Science](#) - Xiangwu Zhang 2014-01-13

Connects fiber chemistry and structure to properties that can be designed and engineered Micro- and nanoscale, synthetic and natural polymer and non-polymer fibers explained with applications to industrial, electronic, biomedical and energy Information pertinent for fiber, textile, composite, polymer and materials specialists This volume provides the basic chemical and mathematical theory needed to understand and modify the connections among the structure, formation and properties of many different types of manmade and natural fibers. At a fundamental level it explains how polymeric and non-polymeric fibers are organized, how such fibers are formed, both synthetically and biologically, and how primary and secondary properties, from basic flow to thermal and electrical qualities, are derived from molecular and submolecular organization, thus establishing the quantitative and predictive relationships needed for fiber engineering. The book goes on to show how fiber chemistry and modes of processing for dozens of materials such as silks, ceramics, glass and carbon can be used to control functional optical, conductive, thermal and other properties. Its discussion ranges over microscale and nanoscale fibers (nanofibers), covering methods such as spinning and electrospinning, as well as biological fiber generation through self-assembly. Technologies in

this text apply to the analysis and design of fibers for industrial, electronic, optical, medical and energy storage applications.

Handbook of Fiber Science and Technology Volume 2 - Menachem Lewin 1993-01-18

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Handbook of Fiber Science and Technology Volume 2 - Menachem Lewin 1993-01-18

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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.

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.

Cotton Fiber Chemistry and Technology - Phillip J. Wakelyn 2006-12-15

Annual cotton production exceeds 25 million metric tons and accounts for more than 40 percent of the textile fiber consumed worldwide. A key textile fiber for over 5000 years, this complex carbohydrate is also one of the leading crops to benefit from genetic engineering. Cotton Fiber Chemistry and Technology offers a modern examination of cotton chemistry and physics, classification, production, and applications. The book incorporates new insight, technological developments, and other considerations. The book focuses on providing the most up-to-date information on cotton fiber chemistry and properties. Written by leading authorities in cotton chemistry and science, the book details fiber biosynthesis, structure, chemical composition and reactions, physical properties and includes information on biotech, organic, and colored cotton. The final chapters examine worldwide production, consumption, markets, and trends in the cotton

industry. They also address environmental, workplace, and consumer risks from exposure to processing chemicals and emissions. Tracing the conversion of cotton fibers from raw materials into marketable products, Cotton Fiber Chemistry and Technology offers a complete overview of the science, technology, and economic factors that impact cotton production and applications today.

Experiments in Textile and Fibre Chemistry - Christopher Earland 2013-10-22

Experiments in Textile and Fiber Chemistry focuses on selected experiments in the chemistry of fibrous polymers and ancillary materials designed primarily for undergraduate students in technical colleges, polytechnics, and universities. The book first reviews the determination of 'available' chlorine in sodium hypochlorite solution, hardness of water, and estimation of iron in water. The text also ponders on the determination of the saponification and iodine values of oils, use of the pH meter, and use of pH indicators and acid-base titrations. The publication examines the determination of the nitrogen content of organic substances by the Kjeldahl method; separation of amino acids by paper chromatography and paper electrophoresis; and thin layer chromatography. Identification of N-terminal amino acids by the 'Dansyl' method; supercontraction of wool; rendering wool resistant to acid dyeing; effect of breaking disulfide cross-links in wool; and the formation of lanthionine linkages in wool are discussed. The text is a valuable reference for textile and fiber experts interested in the chemistry of fibrous polymers and ancillary materials.

Handbook of Fiber Science and Technology Volume 2 - Menachem Lewin 1993-01-18

This text provides up-to-date coverage of both recently developed and potentially available fibers, emphasizing new applications. Highlighting preparation, properties, practical industrial uses and future research directions for high technology, this volume examines optical fibres, aramid and polyimide fibres for heat resistant applications, ceramic fibres, fibres with thermal adaptability and electrically conducting polymers for fibres.

Science and Technology of Fibers in Food Systems - Jorge Welti-Chanes 2020-04-15

This text provides comprehensive coverage of fibers used in food formulations, starting with the understanding of their basic chemical structure and how they are present and organized in the cell wall structure, their physicochemical and functional properties, their impact on the digestive process and their role and preventive action against various chronic diseases including colon cancer. The book focuses on traditional and new fiber rich sources, incorporating an integrated approach in terms of the technological and engineering processes used to obtain and incorporate them in traditional foods, plus their characterization, extraction and modification. The study of processing conditions including the chemical, physical and enzymatic processes of fiber extraction and modification are also covered, including traditional and emerging processing technologies, plus the application of fibers in the development of new products and processes. Science and Technology of Fibers in Food Systems integrates knowledge of fibers from their basic structural and property aspects and the applications of these ingredients to extraction process analysis, modification and feasibility for use at the industry level. The chapters incorporate the physiological aspects related to the consumption of fiber for prevention of serious diseases.

Journal of the Textile Institute - 2003

Natural Fibres: Advances in Science and Technology Towards Industrial Applications - Raul Fanguero 2016-02-10

This book collects selected high quality articles submitted to the 2nd International Conference on Natural Fibers (ICNF2015). A wide range of topics is covered related to various aspects of natural fibres such as agriculture, extraction and processing, surface modification and functionalization, advanced structures, nano fibres, composites and nanocomposites, design and product development, applications, market potential, and environmental impact. Divided into separate sections on these various topics, the book presents the latest high quality research work addressing different approaches and techniques to improve processing, performance, functionalities and cost-effectiveness of natural fibre and natural based products, in order to promote their applications in various advanced technical sectors. This book is a useful source of information for materials scientists, teachers and students from various disciplines as well as for R& D staff in industries using natural fibre based materials.

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 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 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

Handbook of Natural Fibres - Ryszard M. Kozłowski 2020-01-28

The Handbook of Natural Fibres, Second Edition, Volume One: Types, Properties and Factors Affecting Breeding and Cultivation covers every aspect of natural fibers, their breeding, cultivation, processing and applications. This volume features fundamental discussions of each fiber, covering different stages of breeding and cultivation. 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 natural fibers are covered in this book, including cotton, jute, kenaf, flax, hemp, sisal, ramie, curaua, pineapple, bamboo, coir, sheep wool, and more. Provides detailed instructions for how to carry out the latest scientific methods for identifying natural fibers Explains properties of natural fibers that will be of interest to readers in growth fields like biocomposites and nanofibers Includes a rare overview of emerging natural fibers and their uses, along with sources of further information

Advances in Yarn Spinning Technology - C A Lawrence 2010-09-27

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

Physical Properties of Textile Fibres - J. W. S. Hearle 2008-10-10

First published in 1962, and now in its fourth edition, Physical properties of textile fibres has become a classic, providing the standard reference on key aspects of fibre performance. The new edition has been substantially reorganised and revised to reflect new research. After introductory chapters on fibre structure, testing and sampling, the book reviews key fibre properties, their technical significance, factors affecting these properties and measurement issues. Each chapter covers both natural and synthetic fibres, including high-performance fibres. The book first reviews properties such as fineness, length and density. It then considers thermal properties and reaction to moisture. A further group of chapters then reviews tensile properties, thermo-mechanical responses, fibre breakage and fatigue. Finally, the book discusses dielectric properties, electrical resistance and static, optical properties and fibre friction. Written by one of the world's leading authorities, the fourth edition of Physical properties of textile fibres consolidates its reputation as a standard work both for those working in the textile industry and those teaching and studying textile science. A standard reference on key aspects of fibre performance An essential read and reference for textile technologists, fibre scientists, textile engineers and those in academia Provides substantial updated material on fibre structure and new test methods, data and theories regarding properties of textile fibres

Fundamentals and Practices in Colouration of Textiles - J N Chakraborty 2015-05-05

This is a comprehensive book that imparts technological skills about the colouration of textiles. It discusses academic as well as shop-floor aspects of colouration. It also covers eco-friendly enzymatic processing and differential coloured effects.

Handbook of Fiber Science and Technology Volume 2 - Menachem Lewin 1984-04-03

Continuing the outstanding coverage from Part A, the authoritative information in Functional Finishes, Part B makes your work with fibers and fabrics cost-effective ...offers practical guidance in finishing techniques-including flame retardancy, water and oil repellency, soil release, electroconductivity, and radiation ... and eases your continuing study of this expanding field with numerous, current references-with many original findings not previously cited. As new advances widen the scope of this field, each volume of Handbook of Fiber Science and Technology becomes an indispensable acquisition for researchers. Textile, fiber, polymer, organic, physical, and biological chemists; textile finishers and chemical manufacturers; R & D personnel in the polymer, fiber, chemical, and textile industries; plastics and chemical engineers; materials scientists; and wood and paper technologists will find them essential references. They are also superior sources of

supplementary reading for graduate and advanced undergraduate courses in polymer, fiber, and textile chemistry and technology; chemical processing of fibers, chemical technology and engineering, and polymer processing.

A Text Book of Fibre Science and Technology - S. P. Mishra (principal of Institute of Textile Technology.) 2000 Focussing On The Fundamentals Of Natural And Manmade Fibres, This Book Systematically Explains Fibre Extraction/Production, Structure, Properties And Uses. Recent Developments Like Different Aliphatic And Aromatic Polyamides, Polyimides, Novoloids, Polycarbonates, Carbon, High Performance Polyethylenes, Etc. Have Also Been Explained In A Simplified Manner. Diverse Applications Of Fibres Have Been Included To Illustrate Their Use And Utility. This Book Will Serve As A Basic Text For Both Diploma And Degree Students Of All Textile Disciplines. It Would Also Serve As A Useful Reference For Researchers And Professionals Engaged In This Area.

Textiles and Fashion - Rose Sinclair 2014-11-08

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

Computer Technology for Textiles and Apparel - Jinlian Hu 2011-07-14

Computer technology has transformed textiles from their design through to their manufacture and has contributed to significant advances in the textile industry. Computer technology for textiles and apparel provides an overview of these innovative developments for a wide range of applications, covering topics including structure and defect analysis, modelling and simulation, and apparel design. The book is divided into three parts. Part one provides a review of different computer-based technologies suitable for textile materials, and includes chapters on computer technology for yarn and fabric structure analysis, defect analysis and measurement. Chapters in part two discuss modelling and simulation principles of fibres, yarns, textiles and garments, while part three concludes with a review of computer-based technologies specific to apparel and apparel design, with themes ranging from 3D body scanning to the teaching of computer-aided design to fashion students. With its distinguished editor and international team of expert contributors, Computer technology for textiles and apparel is an invaluable tool for a wide range of people involved in the textile industry, from designers and manufacturers to fibre scientists and quality inspectors. Provides an overview of innovative developments in computer technology for a wide range of applications. Covers structure and defect analysis, modelling and simulation and apparel design. Themes range from 3D body scanning to the teaching of computer-aided design to fashion students.

Advanced Fiber Spinning Technology - T. Nakajima 1994-01-15

Some of the most interesting developments of the last few decades in the field of fiber production have been the result of intensive study in Japanese industry and research institutes. This book was originally published in Japanese by the Society of Fiber Science and Technology, Japan, in order to present a thorough scientific and technological review of advances in fiber production, and is now published in English. In addition to providing an extensive review of recent breakthroughs in fiber spinning technology, this popular book illustrates how R&D can pay off in terms of commercial success in the textiles marketplace.

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 Fiber Science and Technology: Volume 1 - Menachem Lewin 2018-10-08

Continuing the outstanding coverage from Part A, the authoritative information in Fundamentals and Preparation, Part B rounds out the first comprehensive treatise on chemical processing of textiles. A systematic, single-source treatment of key topics in the field, this state-of-the-art work introduces major savings in time and cost to your work with fibers and fabrics ... provides a foundation for projecting future developments. ... and guides you to useful further study with helpful, current references. As new advances expand the scope of this field, each volume of Handbook of Fiber Science and Technology becomes an indispensable acquisition for researchers. Textile, fiber, polymer, organic, physical, and biological chemists; textile finishers and chemical manufacturers; research and development personnel in the polymer, fiber, chemical, and textile industries; plastics and chemical engineers; materials scientists; and wood and paper technologists will find them essential references. They are eminent sources for supplementary reading in graduate and advanced undergraduate courses including polymer, fiber, and textile chemistry and technology; chemical processing of fibers; chemical engineering; and polymer processing.

Fibre Science And Technology - Premamoy Ghosh 2003

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.

Handbook of Fiber Chemistry, Second Edition, Revised and Expanded - Menachem Lewin 1998-02-26

"Offers comprehensive coverage of the most important natural and synthetic fibers used in consumer goods, agriculture, industry, medicine, and engineering. Second Edition provides entirely new coverage of topics such as vinyl fibers; mammalian fibers related to wool; cotton, jute, silk, and kenaf fibers; and acrylic fibers."

Advances in Wool Technology - N A G Johnson 2008-12-22

Advanced research into wool science and technology is leading to a better understanding of the properties of wool. Wool is increasingly being seen as a high performance fibre, with new modifications and applications. Advances in wool technology presents a comprehensive account of these developments and innovations. Part one includes advances that have occurred in the production and processing of wool. Topics range from the progress in wool spinning, weaving and colouration, to environmental supply chain management and to

the role of genetic engineering in improved wool production. Part two reviews new wool products and applications. Chapters include the production of brighter and whiter wool, high performance wool blends and wool for apparel. With its two distinguished editors and array of international contributors, this book is a valuable reference for producers, manufacturers, retailers and all those wishing to improve and understand developments in wool technology. It will also be suitable for researchers in industry or academia. Presents a comprehensive account of recent developments and innovation surrounding the high performance fibre
Examines advances in wool production and processing from wool spinning to genetic engineering in improved production
Considers environmental supply chain management

Atlas of Fibre Fracture and Damage to Textiles - J. W. S. Hearle 1998

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

Handbook of Fiber Science and Technology Volume 1 - Menachem Lewin 1984-06-01

High Performance Synthetic Fibers for Composites - National Research Council 1992-02-01

High performance synthetic fibers are key components of composite materials—a class of materials vital for U.S. military technology and for the civilian economy. This book addresses the major research and development opportunities for present and future structural composite applications and identifies steps that could be taken to accelerate the commercialization of this critical fiber technology in the United States. The book stresses the need for redesigning university curricula to reflect the interdisciplinary nature of fiber science and technology. It also urges much greater government and industry cooperation in support of academic instruction and research and development in fiber-related disciplines.

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

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 and Specialty Fibers - Japan The Society of Fiber Science and Techno 2016-08-16

This book reviews the key technologies and characteristics of the modern man-made specialty fibers mainly developed in Japan. Since the production of many low-cost man-made fibers shifted to China and other Asian countries, Japanese companies have focused on production of high-quality, high-performance super fibers as well as highly functionalized fibers so-called 'Shin-gosen'. Zylon™ and Dyneema™ manufactured by Toyobo, Technora™ produced by Teijin, and Vectran™ developed by Kuraray are those examples of super fibers. Carbon fibers Torayca™ from Toray have occupied the most advanced high-performance application area. Various types of polyester fibers having design-shaped cross-sections and special fiber morphologies and those showing specific physico-chemical properties have also been developed to acquire a high-value textile market of the world. This book describes how these high-tech fibers have been developed and what aspects are the most important in each fiber based on its structure-property relationship. Famous specialists both in industry and academia are responsible for the contents, explaining the design concepts and the special technologies for the production of these special fibers. For university teachers and students, this volume is an excellent textbook that elucidates the basic concepts of modern fibers. At the same time, researchers, both in academia and industry, will find a comprehensive overview of recent man-made fibers. This publication, presenting the most easily understandable general survey of specialty man-made fibers to date, is dedicated to the 70th-anniversary of the Society of Fiber Science and Technology, Japan.