

Read Book Coated And Laminated Textiles By Walter Fung

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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,

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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

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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

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protective fabrics and medical textiles
Smart coatings can produce coatings that
offer above and beyond the normal
functions of a coating, these range from
improving the performance of fabrics,
producing new forms of materials to
providing decoration. This book reviews a
variety of topics about textile coatings
and laminates and aims to provide a
stimulus for developing new and improved
textile products. The first part of the
book introduces the fundamentals of
textile coatings and laminates, addressing

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general areas such as coating and laminating processes and techniques, as well as base fabrics and their interaction in coated fabrics. Part two discusses different types of smart and intelligent coatings and laminates for textiles. Topics include microencapsulation technology, conductive coatings, breathable coatings and phase change materials and their application in textiles. With its highly distinguished editor and array of international contributors, Smart textile coatings and

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laminates is a valuable reference book for chemists, textile technologists, fibre scientists, textile engineers and all those wishing to improve and understand the developments in textile coating and laminating technology. It will also be suitable for researchers in industry or academia. Reviews a number of issues surrounding textile coatings and laminates Discusses the fundamentals of textile coatings and laminates addressing processes and techniques Examines types of smart and intelligent coatings and

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**laminates for textiles, including
microencapsulation technology, conductive
and breathable coatings**

**The manufacture and processing of textiles
is a complex and essential industry
requiring many diverse skills to ensure
profitability. New products are
continually being developed, and reflect
the energy and innovation of those working
in the field. This book focuses on the
technological aspects of the chemical
processing of textiles, and on the
modifications necessary for specific work**

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environments. Coverage ranges from fibre structure and its relationship to tensile properties, textile aesthetics, comfort physiology, and end-use performance, through to the effect of domestic processing by the consumer on the textile product. The industry is constantly under environmental pressure, and the book examines the nature of environmental control and the development of alternative technology to produce less environmental impact. In order to provide a balanced view of the current situation, authors

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have been drawn from academia, research institutes and industry to produce a text that will be useful to both industrial readers and university students. In conclusion I would like to thank the authors for their dedication and their contributions.

Automotive textiles represent one of the most valuable international markets for technical textiles. Textile advances in the automotive industry provides an in-depth review of the design and development of automotive textiles and the recent

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advances made in technical textiles for a variety of automotive applications. Part one discusses issues such as automotive textile requirements from a car producer's perspective, mapping the automotive textile supply chain, advances in textile fabrics including nonwoven fabrics, and recycling issues. Part two focuses on automotive interiors with chapters on performance and style of interior textiles, materials and design for car seats, and the reduction of interior noise in vehicles. Part three discusses the

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important safety applications of automotive textiles, including airbags and tyres. Part four concludes by assessing how textiles can be used in automotive bodywork. With its distinguished editor and a team of contributors from both academia and industry, this book is an essential reference for a broad spectrum of readers, ranging from scientists, designers, product development staff to company strategists. Provides an in-depth review of recent advances in the design and development of automotive textiles

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**Comprehensively examines the automotive
textile industry covering key
requirements, the supply chain, fabrics
and recycling Addresses important safety
considerations in automotive textiles
including airbags and tyres
Textile Advances in the Automotive
Industry
Fibres to Smart Textiles
Structure and Mechanics of Textile Fibre
Assemblies
Advances in the Dyeing and Finishing of
Technical Textiles**

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Plasma Technologies for Textiles

Materials are at the center of all technological advances; it is evident in considering the spectacular progress that has been made in fields as diverse as engineering, medicine, biology, etc. Materials science and technology must develop researches allowing the generation of new methods of protection to reduce fundamentally the losses of human life as well as the economic ones. The former are impossible of quantifying, while the latter are highly significant; thus, only those derived from corrosive processes in their different forms reach, in technologically

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developed countries, about 4% of the Gross National Product (GNP), while those derived from fire action range from 0.5 to 1.0% of the mentioned GNP. The book, in the different chapters, displays original systems of superficial protection and of low environmental impact to minimize the losses by corrosion and the fire action.

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,

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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

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applications Contains contributions from many of the original, recognized experts from the first edition who update their respective chapters

This book covers material challenges and technology innovation in coated and laminated textiles for aerostats and airships. Aerostats/airships are lighter-than-air (LTA) aircraft which are generally used in defence applications and face many harsh environmental conditions. For sustaining such conditions, there are special requirements for the material to be used in aerostats/airships which generally include a multi-layered coated/laminated

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textile using a textile fabric in base layer and different polymers for coating/lamination. Therefore, this book covers typical materials developed by different countries, challenges for developing material for aerostat/airship envelope and the future scope.

Features: Exclusive title on materials used for LTA envelopes. Discusses material challenges such as selection of suitable fibre, polymer, additive, coating/lamination techniques, joint type and sealing techniques. Includes typical materials developed by different companies and researchers worldwide. Clearly explains technical concepts using figures,

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schemes and tabulated data. Includes case studies on material developed for aerostats/airships by different countries including NASA, Lockheed Martin, JAXA, ADRDE and DRDO. This book is aimed at graduate students, researchers and professionals in textiles engineering and aerospace engineering.

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

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apparel and will stimulate ideas for future innovation and improved end performance. The first part of the book covers the fundamental scientific issues and types of materials suitable for cold weather clothing. Topics include how to achieve comfort and thermoregulation in cold weather clothing as well as the use of coated and laminated fabrics. It also discusses design and ergonomic aspects such as designing for ventilation. Part two discusses ways of evaluating cold weather clothing, including standards and legislation governing cold weather clothing and laboratory assessments. Part three concludes with

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applications including cold weather apparel for the military and footwear for cold weather conditions. With an array of international contributors, this book is a valuable reference for producers, manufacturers, retailers and all those wishing to improve and understand developments in cold weather apparel. Reviews the principles, materials and requirements of cold weather apparel Discusses design and ergonomic aspects including ventilation and insulation Examines methods used to evaluate cold weather clothing as well as standards and legislation in practice

Handbook of Technical Textiles

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Material Challenges and Technology

Smart Textiles and Their Applications

Rebate of the Duty on Woven Fabrics of Cotton and of Synthetic Filament Yarn for the Manufacture of Impregnated, Coated, Covered Or Laminated Textiles

Technical Textile Processes

Coating and laminating are methods of both improving and modifying the physical properties and appearance of fabric. They have also facilitated the development of entirely new products and have led to innovations in the area

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of 'smart' materials. Coating and lamination cuts across virtually every product group of the textile industry, including composites where the scope for future development is extremely wide. This book helps bridge the gap between the two disciplines of textile technology and polymer chemistry, both of which are necessary for success in this area of technical textiles, and it also touches on the related textile processes of fabric impregnation and

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foam finishing. The manufacturing processes of coated and laminated fabrics involve materials such as solvent- and water-based resins and adhesives, films, foams and hot melt adhesives. In an increasingly environmentally-conscious world, control and handling of potentially toxic materials are becoming very important tasks for plant managers. The author emphasises the factors influencing selection of materials and

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process machinery -- especially with reference to environmental issues including global warming. Product descriptions, production and test methods and standards are discussed in detail, and the book will be a valuable source of reference, embracing apparel, domestic, medical, military and industrial applications.

The main goal in preparing this book was to publish contemporary concepts, new discoveries and innovative ideas in

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the field of woven fabric engineering, predominantly for the technical applications, as well as in the field of production engineering and to stress some problems connected with the use of woven fabrics in composites. The advantage of the book Woven Fabric Engineering is its open access fully searchable by anyone anywhere, and in this way it provides the forum for dissemination and exchange of the latest scientific information on

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theoretical as well as applied areas of knowledge in the field of woven fabric engineering. It is strongly recommended for all those who are connected with woven fabrics, for industrial engineers, researchers and graduate students.

Understanding the techniques for joining fabrics together in a way that considers durability, strength, leak-tightness, comfort in wear and the aesthetics of the joints is critical to

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the production of successful, structurally secure fabric products. *Joining textiles: Principles and applications* is an authoritative guide to the key theories and methods used to join fabrics efficiently. Part one provides a clear overview of sewing technology. The mechanics of stitching, sewing and problems related to sewn textiles are discussed, along with mechanisms of sewing machines and intelligent sewing systems. Part two

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goes on to explore adhesive bonding of textiles, including principles, methods and applications, along with a review of bonding requirements in coating and laminating of textiles. Welding technologies are the focus of part three. Heat sealing, ultrasonic and dielectric textile welding are covered, as are laser seaming of fabrics and the properties and performance of welded or bonded seams. Finally, part four reviews applications of joining

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textiles such as seams in non-iron shirts and car seat coverings, joining of wearable electronic components and technical textiles, and the joining techniques involved in industrial and medical products including nonwoven materials. With its distinguished editors and international team of expert contributors, *Joining textiles* is an important reference work for textile product manufacturers, designers and technologists, fibre

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scientists, textile engineers and academics working in this area. Provides an authoritative guide to the key theories and methods used to efficiently join fabrics Discusses the mechanics of stitching and sewing and problems related to sewn textiles, alongside mechanisms of sewing machines, and intelligent sewing systems Explores adhesive bonding of textiles, including principles, methods and applications, along with a review

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of bonding requirements in coating and laminating of textiles

This book presents a comprehensive treatment of both functional and decorative textiles used in the automotive industry including seat covers, headliners, airbags, seat belts and tyres. Written in a clear, concise style it explains material properties and the way in which they influence manufacturing processes as well as providing practical production details.

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The subject treatment cuts across the disciplines of textile chemistry, fabric and plastics technology and production engineering. Environmental effects and recycling are also covered. It is aimed at the design and process engineer in industry as well as researchers in universities and colleges. Quality engineers will also benefit from the book's sections on identifying problems and material limitations.

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Accelerated Aging

Textiles in Automotive Engineering

Non-woven Fabrics

Waste Management in the Fashion and
Textile Industries

New Technologies in Protective Coatings

Coating and laminating are methods of both improving and modifying the physical properties and appearance of fabric. They have also facilitated the development of entirely new products and have led to innovations in the area of "smart" materials.

Coating and lamination cuts across virtually every

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product group of the textile industry, including composites, where the scope for future development is extremely wide. This book helps bridge the gap between the two disciplines of textile technology and polymer chemistry, both of which are necessary for success in this area of technical textiles, and it also touches on the related textile processes of fabric impregnation and foam finishing. The author emphasizes the factors influencing selection of materials and process machinery, especially with regard to environmental issues such as global warming. Product descriptions, production and test

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methods, and standards are discussed in detail. Coated and Laminated Textiles is a valuable source of reference that embraces apparel, medical, military, and industrial applications. Gore-Tex, chemical protective clothing, architectural fabrics, air bags Intensive research and development in coated-fabric materials and processes has led to new and improved products for a wide range of consumer, industrial, medical, and military applications. Coated Textiles: Principles and Applications provides the first comprehensive, up-to-da

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In recent times, polymer nanocomposites have attracted a great deal of scientific interest due to their unique advantages over conventional plastic materials, such as superior strength, modulus, thermal stability, thermal and electrical conductivity, and gas barrier. They are finding real and fast-growing applications in wide-ranging fields such as automotive, aerospace, electronics, packaging, and sports. This book focuses on the development of polymer nanocomposites as an advanced material for textile applications, such as fibers, coatings, and nanofibers. It compiles and details cutting-edge

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research in the science and nanotechnology of textiles with special reference to polymer nanocomposites in the form of invited chapters from scientists and subject experts from various institutes from all over the world. They include authors who are actively involved in the research and development of polymer nanocomposites with a wide range of functions—including antimicrobial, flame-retardant, gas barrier, shape memory, sensor, and energy-scavenging—as well as medical applications, such as tissue engineering and wound dressings, to create a new range of smart and intelligent textiles.

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Edited by Mangala Joshi, a prominent nanotechnology researcher at the premier Indian Institute of Technology, Delhi, India, this book will appeal to anyone involved in nanotechnology, nanocomposites, advanced materials, polymers, fibers and textiles, and technical textiles.

Coatings and laminates allow for the introduction of smart functionalities for textile products. They are suitable for a wide range of textile applications and can contribute to improving product performance. This pioneering book is a valuable reference and stimulus for developing and improving coated and

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laminated textile products. The first section of the book covers the fundamentals of coatings and laminates. Themes range from coating and laminating processing and production techniques to testing and quality assurance. The remainder of the book covers different types of smart coatings and laminates such as intelligent weatherproof coatings, phase change coatings, and nanotechnology based coatings.

Coated and Laminated Textiles for Aerostats and
Airships
Textiles in Sport

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Textiles for Sportswear
Woven Fabric Engineering
Electrospun Nanofibers

This volume contains select papers presented during the Functional Textiles and Clothing Conference 2018. The book covers the recent scientific developments, cutting edge technologies, innovations, trends, challenges and opportunities in the field of functional and smart textiles and clothing. The contents of this volume will be of interest to researchers, professional engineers, entrepreneurs, and market stakeholders interested in functional textiles and clothing.

The book "Frontiers and Textile Materials will deal with the

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important materials that can be utilized for value-addition and functionalization of textile materials. The topics covered in this book includes the materials like enzymes, polymers, etc. that are utilized for conventional textile processing and the advanced materials like nanoparticles which are expected to change the horizons of textiles. The futuristic techniques for textile processing like plasma are also discussed.

Coated and Laminated Textiles Elsevier

Fibres to Smart Textiles: Advances in Manufacturing, Technologies, and Applications offers comprehensive coverage of the fundamentals and advances in the textile and clothing manufacturing sectors. It describes the basics of fibres, yarns, and fabrics and their end use in the latest

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developments and applications in the field and addresses environmental impacts from textile processes and how to minimize them. This book serves as a single comprehensive source discussing textile fibres, yarn formation, filament formation techniques, woven fabric formation, knitting technologies, nonwoven manufacturing technologies, braiding technologies, and dyeing, printing, and finishing processes. Testing of textile materials, environmental impacts of textile processes and use of CAD and CAM in designing textile products are also included. The book also discusses applications including textile composites and biocomposites, technical textiles, smart textiles, and nanotextiles. With chapters authored by textile experts, this practical book offers guidance to professionals in textile and

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clothing manufacturing and shows how to avoid potential pitfalls in product development.

Frontiers of Textile Materials

Smart Textile Coatings and Laminates

Principles and Applications

Textiles for Cold Weather Apparel

Advances in Manufacturing, Technologies, and Applications

Plasma technologies present an environmentally-friendly and versatile way of treating textile materials in order to enhance a variety of properties such as wettability, liquid repellency, dyeability and coating adhesion. Recent advances made in commercially viable plasma systems have greatly increased the potential of using plasma technology in industrial textile finishing. This pioneering book provides an essential guide to

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both the technology and science related to plasmas and its practical applications in the textile industry. The first part of the book discusses the science and technology behind plasmas. Chapters give detailed and comprehensive descriptions on the characteristics of plasmas and methods of control and treatment in the processing of textiles. Both low pressure cold plasma and atmospheric pressure cold plasma processes are described as well as the diagnosis and control of plasma parameters in plasma generating reactors. A chapter is devoted to the use of plasma technology to achieve nanoscale treatment of textile surfaces. The second part of the book concentrates on specific applications of plasma technologies. Chapters cover treatments for water and oil repellency of textiles, engineering of biomedical textiles and woollen finishing techniques through the use of plasma

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technologies. Further chapters cover the modification of fibres for use in composites and the potential use of plasma technologies for the finishing of fabrics made of man made fibres. The final chapter in the book gives a comprehensive analysis of the surface chemical and physical characterisation of plasma treated fabrics. Written by a distinguished international team of experts, Plasma technologies for textiles is an invaluable reference for researchers, scientists and technologists alike. Summarises both the science and technology of plasma processing, and its practical applications Discusses how plasma technology improves textile properties such as wettability and liquid repelling An invaluable reference for researchers, scientists and technologists The technical developments in the sports clothing industry has resulted in the use of functional textiles for highly-specialised

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performances in different sports. Developments include thermal and functional properties and coated and laminated clothes. With bio- and smart materials providing such a strong focus in the textile industry generally, companies are going for 'value-added' textiles, such as in-built sensors which monitor performance. In-built wear comfort is a growing market trend and includes clothing which improves the skin's performance. Written by a distinguished editor and a team of authors from the cutting edge of textile research, Textiles in sport discusses high-performance, high-function and intelligent textiles for sportswear. Invaluable for a broad range of readers Discusses high-performance, high-function and intelligent textiles for sportswear Accelerated Aging: Photochemical and Thermal Aspects represents the culmination of more than 40 years of research by

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noted scientist Robert L. Feller. The book focuses on the long-term performance of materials such as wool, dyes, and organic compounds; their resistance to change when exposed to environmental factors such as oxygen, ozone, moisture, heat, and light; and their physical durability with handling and use over time. Processes of deterioration are discussed based on speeded-up laboratory studies designed to clarify the chemical reactions involved and their physical consequences.

Active Coatings for Smart Textiles presents the latest information on active materials and their application to textiles in the form of coatings and finishes for the purpose of improving performance and creating active functional effects. This important book provides detailed coverage of smart coating types, processes, and applications. After an introduction to the topic, Part One

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introduces various types of smart and active coatings, including memory polymer coatings, durable and self-cleaning coatings, and breathable coatings. Technologies and related processes for the application of coatings to textiles is the focus of Part Two, with chapters devoted to microencapsulation technology, plasma surface treatments, and nanotechnology-based treatments. The book ends with a section on applications of smart textiles with responsive coatings, which are increasingly finding commercial niches in sportswear, protective clothing, medical textiles, and architecture. Introduces various types of smart and active coatings for textiles Covers technologies and application processes for the coating and finishing of textiles Reviews commercial applications of such coatings, including in sportswear, protective clothing, medical textiles and architecture

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***Fabrication, Functionalisation and Applications
Functional Finishes for Textiles
Technical Textile Yarns***

Advances in Industrial Design

Serving as an all-in-one guide to the entire field of coatings technology, this encyclopedic reference covers a diverse range of topics—including basic concepts, coating types, materials, processes, testing and applications—summarizing both the latest developments and standard coatings methods. Take advantage of the

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insights and experience of over
The book provides an up-to-date account of
the various techniques of fabrication &
functionalization of electrospun
nanofibers as well as recent advancements.
An overview of the advanced applications
of such techniques in different areas is
also presented. Both experimental and
theoretical approaches related to
electrospun nanofibers are covered along
with a discussion on the inherent
properties of electrospun nanofibers.
Therefore, this book provides a unique

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resource not only to established researchers but also newcomers starting out in this field.

Non-woven Fabrics is differentiated text which covers overall stream from raw fibers to final products and includes features of manufacturing and finish process with specialized application end use. Application range of non-woven fabrics is extended to all the industrial fields needless to say apparel, such as ICT (information and communication technology), bio- and medicals,

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automobiles, architectures, construction and environmental. Every chapter is related to the important and convergent fields with the technical application purpose from downstream to upstream fields. Also, applicability of non-woven fabrics is introduced to be based on the structural analysis of dimensional concept and various non-woven fabrics as a state-of-art embedded convergent material are emphasized in all industry fields by using nanofibers and carbon fibers.

Waste Management in the Textiles Industry

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explores and explains the latest technologies and best practices for an integrated approach to the management and treatment of wastes generated in this industry. Provides a strong technological analysis of the manufacturing supply chain, including spinning, fabric production, finishing, garment manufacture, and the packaging of clothing Explains how textile technology perspectives feed into management decision-making about sustainability Addresses the industry's impact on air and water quality

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and landfill waste

Coatings Technology Handbook

*Improving Comfort, Performance and
Protection*

Chemistry of the Textiles Industry

*Active Ingredients from Aromatic and
Medicinal Plants*

Photochemical and Thermal Aspects

This book provides knowledge of the basic theory, spectral analysis methods, chemometrics, instrumentation, and applications of near-infrared (NIR) spectroscopy—not as a handbook but rather as a sourcebook of NIR spectroscopy. Thus, some emphasis is placed on the description of basic knowledge that is important in learning and

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using NIR spectroscopy. The book also deals with applications for a variety of research fields that are very useful for a wide range of readers from graduate students to scientists and engineers in both academia and industry. For readers who are novices in NIR spectroscopy, this book provides a good introduction, and for those who already are familiar with the field it affords an excellent means of strengthening their knowledge about NIR spectroscopy and keeping abreast of recent developments.

Recently, new compounds from medicinal plants were discovered, and they were used as anti-severe diseases. Therefore, this book covers interested research topics dealing with isolation, purification, and identification of active ingredients from wild and medicinal plants. This discovery will lead to an increase in the global pharmaceutical market as well as open such new gate for medicinal

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plant research. This book will add significant information to medical researchers and can be used for postgraduate students.

The use of distinctive colourants and finishes has a significant impact on the aesthetic appeal and functionality of technical textiles. Advances in the textile chemical industry facilitate production of diverse desirable properties, and are therefore of great interest in the production of textile products with enhanced performance characteristics. Drawing on key research, *Advances in the dyeing and finishing of technical textiles* details important advances in this field and outlines their development for a range of applications. Part one reviews advances in dyes and colourants, including chromic materials, optical effect pigments and microencapsulated colourants for technical textile applications. Other types of functional dyes considered include UV- absorbent, anti-microbial and water-

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repellent dyes. Regulations relating to the use of textile dyes are discussed before part two goes on to investigate such advances in finishing techniques as mechanical finishing, softening treatments and the use of enzymes. Surfactants, Inkjet printing of technical textiles and functional finishes to improve the comfort and protection of apparel are also explored. The use of nanotechnology in producing hydrophobic, super-hydrophobic and antimicrobial finishes is dealt with alongside coating and lamination techniques, before the book concludes with a discussion of speciality polymers for the finishing of technical textiles. With its distinguished editor and international team of expert contributors, *Advances in the dyeing and finishing of technical textiles* is a comprehensive guide for all those involved in the development, production and application of technical textiles, including textile chemists, colour

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technologists, colour quality inspectors, product developers and textile finishers. Discusses important advances in the textile chemical industry Considers developments in various dyes and colourants used in the industry, including water repellent, functional and anti-microbial dyes Chapters also examine advances in finishing techniques, the use of nanotechnology and speciality polymers in technical textiles

This book presents a global view of the development and applications of technical textiles with the description of materials, structures, properties, characterizations, functions and relevant production technologies, case studies, challenges, and opportunities. Technical textile is a transformative research area, dealing with the creation and studies of new generations of textiles that hoist many new scientific and technological challenges that have never been

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encountered before. The book emphasizes more on the principles of textile science and technology to provide solutions to several engineering problems. All chapter topics are exclusive and selectively chosen and designed, and they are extensively explored by different authors having specific knowledge in each area.

Polymers, Nanomaterials, Enzymes, and Advanced Modification
Techniques

Joining Textiles

Textiles for Advanced Applications

Advances and Developments in Polymer Nanocomposites

Fibers for Technical Textiles

Advanced Textile Engineering Materials is written to educate readers about the use of advanced materials in various textile applications. In the first part, the book

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addresses recent advances in chemical finishing, and also highlights environmental issues in textile sectors. In the second part, the book provides a compilation of innovative fabrication strategies frequently adopted for the mechanical finishing of textiles. The key topics are • Smart textiles • Functional modifications • Protective textiles • Conductive textiles • Coated/laminated textiles • Antimicrobial textiles • Environmental aspects in textiles • Textile materials in composites • 3-D woven preforms for composite reinforcement • Evolution of soft body armor

Smart Textiles and Their Applications outlines the fundamental principles of applied smart textiles, also reporting on recent trends and research developments. Scientific issues and proposed solutions are presented in a

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rigorous and constructive way that fully presents the various results, prototypes, and case-studies obtained from academic and industrial laboratories worldwide. After an introduction to smart textiles and their applications from the editor, Part One reviews smart textiles for medical purposes, including their use in health monitoring, treatment delivery, and assistive technologies. Part Two covers smart textiles for transportation and energy, with chapters covering smart textiles for the monitoring of structures and processes, as well as smart textiles for energy generation. The final section considers smart textiles for protection, security, and communication, and includes chapters covering electrochromic textile displays, textile antennas, and smart materials for personal protective

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equipment. Scientific issues and proposed solutions are presented in a rigorous and constructive way regarding various results, prototypes, and case-studies obtained from academic and industrial laboratories worldwide Useful for researchers and postgraduate students, and also for existing companies and start-ups that are developing products involving smart textiles Authored and edited by an international team who are experts in the field ensure comprehensive coverage and global relevance Textiles for Sportswear is an important book that systematically covers key trends in design and materials, the use of novel and smart fabrics, and a range of specific applications. The book begins by surveying the principles of textile applications in sport, including design, materials, and

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production technology. The uses of smart textiles in sportswear are then examined, from intelligent materials to wearable technology. Final sections of the text explore comfort in sportswear, sportswear for protection, and recent advances in sportswear technology that are currently being applied to particular sports. Reviews the principles of textile applications in sport, including design, materials and production technology Examines the uses of smart textiles in sportswear Discusses how recent advances in sportswear technology are being applied to particular sports This book addresses current research trends and practice in industrial design. Going beyond the traditional design focus, it explores a range of recent and emerging aspects concerning service design, human-computer interaction

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and user experience design, sustainable design, virtual and augmented reality, as well as inclusive/universal design, and design for all. A further focus is on apparel and fashion design: here, innovations, developments and challenges in the textile industry, including applications of material engineering, are taken into consideration. Papers on pleasurable and affective design, covering studies on emotional user experience, emotional interaction design and topics related to social networks, are also included. Based on the AHFE 2021 International Conferences on Design for Inclusion, Interdisciplinary Practice in Industrial Design, Affective and Pleasurable Design, Kansei Engineering, and Human Factors for Apparel and Textile Engineering, held virtually on 25–29 July 2021, from USA,

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this book provides, researchers and professionals in engineering, design, human factors and ergonomics, human computer interaction and materials science with extensive information on research trends, innovative methods and best practices, and is expected to foster collaborations between experts from different disciplines and sectors.

Nanotechnology in Textiles

Theory, Spectral Analysis, Instrumentation, and Applications
Coated Textiles

Coated and Laminated Textiles

Proceedings of the AHFE 2021 Virtual Conferences on
Design for Inclusion, Affective and Pleasurable Design,
Interdisciplinary Practice in Industrial Design, Kansei
Engineering, and Human Factors for Apparel and Textile

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Engineering, July 25-29, 2021, USA

This book discusses the properties of fibres used in manufacturing technical textiles, highlighting the importance of material selection in terms of cost, end-user requirements and properties. It also discusses the classification of technical textiles, and describes the details of each category, such as the properties, applications, advantages and drawbacks. As such, it is a valuable resource for all those interested in advanced textiles. Technical yarns are produced for the

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manufacture of technical textiles. As the range of technical textiles is rapidly increasing, an understanding of the range of yarns available and their properties is important, in order to be able to meet the requirements of the intended end-use. Part one of the book begins by reviewing the advances in yarn production. Topics examine the advances in textile yarn spinning, modification of textile yarn structures, yarn hairiness and its reduction and coatings for technical textile yarns. The second group of chapters describes the

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range of technical yarns, such as electro-conductive textile yarns, novel yarns and plasma treated yarns for biomedical applications. Technical sewing threads and biodegradable textile yarns are also discussed. Technical textile yarns provides essential reading for yarn and fabric manufacturers, textile scientists, technicians, engineers and technologists, covering a wide range of areas within textile applications. This book will also be an important information source for academics and students. Provides a

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**comprehensive overview of the variety of technical textile yarns available along with individual characteristics and production methods Documents advances in textile yarn spinning and texturising featuring compact, rotor and friction spinning
Assesses different types of technical yarns including plasma-treated yarns for biomedical applications and hybrid yarns for thermoplastic composites
Coating and lamination offer methods of improving and modifying the physical properties and appearance of fabrics and**

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also the development of entirely new products by combining the benefits of fabrics, polymers and films. This detailed book covers all aspects of coating and lamination within the textile industry including - compound ingredients, how to set and adhere to strictly controlled processing conditions, the accurate control of production variables, the safe handling of toxic materials and the ongoing research into future products which will facilitate recycling and disposal. This book is particularly useful in the insight it gives

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about the challenges and opportunities that these new treatments offer and is essential reading for technologists, chemists and production engineers working in this exciting field. Authoritative review of the latest developments in coating and lamination processes for textiles Focuses on the importance of setting and adhering to processing conditions Written by the author of the well-known Textiles in automotive engineering Functional finishes for textiles reviews the most important fabric finishes in the textile

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industry. It discusses finishes designed to improve the comfort and other properties of fabrics, as well as finishes which protect the fabric or the wearer. Each chapter reviews the role of a finish, the mechanisms and chemistry behind the finish, types of finish and their methods of application, application to particular textiles, testing and future trends. Describes finishes to improve comfort, performance, and protection of fabric or the wearer Examines the mechanisms and chemistry behind different types of finishes and their

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**methods of application, testing and future
trends Considers environmental issues
concerning functional finishes
Advanced Textile Engineering Materials
Functional Textiles and Clothing
Active Coatings for Smart Textiles
Near-Infrared Spectroscopy**