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## NATURAL TEXTILE FIBRES

### NEW

#### Handbook of natural fibres

**Volume 1: Types, properties and factors affecting breeding and cultivation**

Edited by R Kozłowski, Institute of Natural Fibres (INF), Poland

Woodhead Publishing Series in Textiles No. 118

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 cotton, bast, silk, wool and 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 in natural fibres.

#### CONTENTS

Introduction to natural textile fibres. Part 1 Fundamentals: Types of fibre, properties, identification and testing: Cotton fibres; Bast fibres: Jute; Bast fibres: Ramie; Bast fibres: Flax; Bast fibres: Hemp cultivation and production; Silk fibres; Wool fibres; Mohair, cashmere and other animal hair fibres; Bioengineered natural textile fibres; Identification of natural textile fibres; Testing of natural textile fibres. Part 2 Improving natural fibre production through breeding and cultivation: Developments in fibrous flax breeding and cultivation; Cotton breeding and agro-technology; Fibre flax cultivation in sustainable agriculture; Prevention of fungal growth in natural fibres; Genetic engineering and biotechnology of natural textile fiber plants; Wild silk: Wild silk enterprise programs to alleviate poverty and protect habitats.

Published in association with The Textile Institute

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Approx. £175.00/US\$300.00/€210.00  
www.woodheadpublishing.com/9781845696979

#### Handbook of worsted wool and blended suiting process

R S Tomar, Raymond Ltd, India

#### CONTENTS

Introduction to different fibres; Fibre to fabric; Weaves and colour effects; Finishes; Fabric defects; Testing procedures.

A Woodhead Publishing India title

152 pages 234 x 156mm (6 x 9) hardback 2010  
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£85.00/US\$145.00/€100.00  
www.woodheadpublishing.com/9781845699543

### NEW

#### Handbook of natural fibres

**Volume 2: Processing and applications**

Edited by R Kozłowski, Institute of Natural Fibres (INF), Poland

Woodhead Publishing Series in Textiles No. 119

*Volume 2: Processing and applications* focuses on key processing techniques for the improvement and broader application of natural fibres. Part one reviews processing techniques for natural fibres. Part two goes on to investigate applications of natural fibres, before a final discussion of enhancing consumer demand for natural textile fibres.

#### CONTENTS

Part 1 Processing techniques for natural fibres: Silk production and the future of natural silk manufacture; Improving the flame retardancy of natural fibres; Improving the properties of natural fibres by chemical treatments; Ultraviolet-blocking properties of natural fibres; Enzymatic treatment of natural fibres; Electrokinetic properties of natural fibres. Part 2 Applications of natural fibres and case studies: Natural fibres for automotive applications; Natural fibre composites (NFCs) for construction and automotive industries; Natural fibres for geotextiles; The use of flax and hemp for textile applications; The application of flax and hemp seeds in food, animal feed and cosmetics production; Natural fibres for paper and packaging; Environmental textiles from jute and coir; Antimicrobial natural fibres; Biomimetics and textile materials; Enhancing consumer demand for natural textile fibres.

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#### Advances in wool technology

Edited by N A G Johnson and I Russell, CSIRO Textile and Fibre Technology, Australia

Woodhead Publishing Series in Textiles No. 72

#### CONTENTS

Part 1 Advances in wool fibre and fabric production: Improvement of wool quality through genetic engineering; The objective measurement of wool fibre quality; Wool as a natural renewable fibre; Advances in wool spinning technology; Advances in wool weaving and knitting; Advances in the manufacture of nonwoven wool; Wool finishing and the development of novel finishes; The coloration of wool. Part 2 New wool products and applications: Improving the whiteness and photostability of wool; Enhancing wool products using nanotechnology; Wool performance apparel for sport; High-performance wool blends; Intelligent wool apparel; Application of wool keratins ranging from industrial materials to medical devices.

Published in association with The Textile Institute

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### Cotton

#### Science and technology

Edited by S Gordon, CSIRO Textile and Fibre Technology, Australia and Y L Hsieh, University of California, USA

Woodhead Publishing Series in Textiles No. 59

'...provides a comprehensive analysis of the key scientific and technological advances.'

Melliand International



#### CONTENTS

Part 1 The structure and properties of cotton: Chemical structure and properties of cotton; Physical structure and properties of cotton; Cotton fibre quality. Part 2 Production processes for cotton: The genetic modification of cotton; The production of organic cotton; The harvesting and ginning of cotton; The opening, blending, cleaning and carding of cotton; Cotton spinning technology; Cotton knitting technology; Cotton weaving technology; Dyeing cotton and cotton products. Part 3 Quality and other issues: Testing cotton yarns and fabrics; Controlling costs in cotton production; Health and safety issues in cotton production; Recycling of cotton; Nonwoven technology for cotton.

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### Bast and other plant fibres

Edited by R R Franck, Consultant, UK

Woodhead Publishing Series in Textiles No. 39

'The book will be an essential reference for those interested in bast and other plant fibres.'

Journal of Industrial Hemp

#### CONTENTS

Jute; Flax; Hemp; Ramie; Sisal and Henequen; Coir; Abaca; Pineapple, Curaua; Craua (Caroa), Macambira; Nettle; Sunn Hemp; Mauritius hemp and Figue; Bast and leaf fibre composite materials; List of fibre producing plants.

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### Hyaluronan

**Proceedings of an international meeting, September 2000, North East Wales Institute, UK**

Edited by J F Kennedy, University of Birmingham, G O Phillips, Phillips Hydrocolloid Research Ltd, P A Williams, North East Wales Institute of Higher Education, UK and Guest editor V C Hascall, Lerner Research Institute, USA

2 volumes (vol 1: 600 pages, vol 2: 552 pages) 244 x 172mm (6 1/2 x 9 1/2) hardback 2002  
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## Wool

### Science and technology

Edited by W S Simpson and G Crawshaw


Woodhead Publishing Series in Textiles No. 25

#### CONTENTS

Wool production and fibre marketing; Wool scouring, carbonising and effluent treatment; Fibre morphology; Physical properties of wool; Wool chemistry; Mechanical processing for yarn production; Chemical processes for enhanced appearance and performance; Practical wool dyeing; Manufacture of wool products; Carpets, felts and nonwoven fabrics; Finishing; Overview of global dynamics in the wool textile industry.

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## Cellulosic pulps, fibres and materials


### Cellucon '98 proceedings

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#### CONTENTS

New sources, structure and properties of cellulose; Application of enzymes to pulp, fibres and cellulose; Pulp production and processing; Structure and properties of fibres; Paper fibre production and properties; Wood, fibre and cellulosic materials.

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## Silk, mohair, cashmere and other luxury fibres

Edited by R R Franck, Consultant, UK

Woodhead Publishing Series in Textiles No. 19

*'The great appeal of this book is that it provides valuable information to those with a professional, or even occasional, interest in the fiber industry.'*


Wild Fibers Magazine

#### CONTENTS

Silk; Mohair; Cashmere, camel hair and other hair fibres. Appendices: International trade rules for raw silk and other products of silk; Spider silk; Composition of mohair fibres and of amino acids; Mohair yarn spinning and properties; Mohair fibre and fabric properties; Mohair dyeing and finishing; Mohair product list; Rules for the use of the mohair trade mark (label); Scotland and China and cashmere trade; Quality assessment of goat hair for textile use; Luxury flame retardant fabrics for aircraft applications.

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## Regenerated cellulose fibres

Edited by C Woodings, Consultant, UK


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#### CONTENTS

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## The chemistry and processing of wood and plant fibrous material

### Cellucon '94 proceedings

Edited by J F Kennedy, University of Birmingham, G O Phillips, Phillips Hydrocolloid Research Ltd and P A Williams, North East Wales Institute of Higher Education, UK

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## Cellulose and cellulose derivatives


### Cellucon '93 proceedings: Physico-chemical aspects and industrial applications

Edited by J F Kennedy, University of Birmingham, G O Phillips, Phillips Hydrocolloid Research Ltd, P A Williams, North East Wales Institute of Higher Education, UK and J L Piculell, University of Lund, Sweden

#### CONTENTS

Biosynthesis and biodegradation of cellulose; Structure and reactivity of cellulose; Derivatives of cellulose and their properties; Association thickening and gelation of celluloses etc.; Applications of celluloses; Wood, pulp and fibres.

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## Handbook of textile fibres

### Volume 1: Natural fibres


J Gordon Cook

Woodhead Publishing Series in Textiles No. 4

#### CONTENTS

Fibres for clothes; Natural fibres of vegetable origin: The bast fibres: Flax; Jute; Hemp; Sunn; Kenaf; Urena; Ramie; Nettle; The leaf fibres: Sisal; Henequen; Abaca (manila); Other leaf fibres; The seed and fruit fibres; Cotton; Miscellaneous seed and fruit fibres; Natural fibres of animal origin: Wool; Mohair; Camel hair; Cashmere; Persian goat hair; Llama; Alpaca; Huarizo; Vicuna; Guanaco; Fur fibres; Silk; Natural fibres of mineral origin: Asbestos; Directory of natural fibres.

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## SYNTHETIC FIBRES

### Polyolefin fibres

#### Industrial and medical applications

Edited by S C O Ugbole, University of Massachusetts, USA

Woodhead Publishing Series in Textiles No. 82

*'...an exceptional resource for all those who research or develop polyolefins, as well as those who work with polyolefin fibres in other professional settings.'*


International Textile and Apparel Association

#### CONTENTS

Part 1 Properties and applications of polyolefin fibres: Types of polyolefin fibres; The structural and chemical properties of polyolefin fibres; The structural mechanics of polyolefin fibrous materials and nanocomposites; Automotive components composed of polyolefins; The use of polyolefins in industrial and medical applications; Advances in polyolefin-based fibers for hygienic and medical applications. Part 2 Improving the functionality of polyolefins: Production methods for polyolefin fibres; Enhancing hygiene/antimicrobial properties of polyolefins; Improving the use of polyolefins in nonwovens; Testing and quality control of polyolefins; Polyolefin nanocomposite fibres and films; Improving the colouration/dyeability of polyolefin fibres.

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### Polyesters and polyamides

Edited by B L Deopura, R Alagirusamy, M Joshi and B Gupta, Indian Institute of Technology, India

Woodhead Publishing Series in Textiles No. 71

*'Each chapter contains a detailed reference list and there is an excellent index.'*

*'This book is a major contribution to the literature on polyester and polyamide fibres and provides an authoritative account of the production methods, ways of improving their functionality and their wide range of applications.'*


International Dyer

#### CONTENTS

Part 1 Polyester and polyamide fundamentals: Polyester resins; Polyamide fibres; Manufacture of polyester fibres; Manufacture of polyamide fibres; Poly (lactic acid) fibres (PLA); Environmental impact of polyester and polyamide textiles. Part 2 Improving functionality of polyesters and polyamides: Specialty fibres from polyester and polyamides; Property enhancement through blending; Weaving technology for manufacturing high performance fabrics; Advances in coloration of polyester textiles; Flame retardant polyester and polyamide textiles; Advances in functional finishes for polyester and polyamide textiles; The impact of nanotechnology on polyester and polyamides. Part 3 Applications of fibrous polyesters and polyamides: Polyester fibre-apparel applications; Medical applications; Sports applications; Automotive applications; Applications of polyesters and polyamides in civil engineering.

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## New millennium fibers

T Hongu, NEDO Working Group for Nano-fiber Technology Survey, M Takigami, Japan Atomic Energy Research Institute, Japan and G O Phillips, Phillips Hydrocolloid Research Ltd, UK



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*'This is an essential book for those concerned with research and development in the fibre science and technology, industrial design and marketing.'*

Textile Month


This book reflects the ongoing interest in the production of sophisticated specialist textiles. These hi-tech fibers will have huge relevance as the 21st century progresses.

### CONTENTS

Searching the root of fibers; The new frontier fibers? Superfibers; Carbon fiber expands toward twenty-first century; High-function fiber; Frontier of health and comfort fiber; Polymer fibers for health and nutrition; Fibers in medical applications; Developments in nano-fiber for the new millennium.

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## Synthetic fibres

### Nylon, polyester, acrylic, polyolefin

Edited by J E McIntyre, Professor Emeritus of Textile Industries, University of Leeds, UK

Woodhead Publishing Series in Textiles No. 36

*'This book is confidently recommended as essential reading for all those involved with research and development, production and processing of synthetic fibres.'*

Textile Month


Synthetics have a wide range of applications, including, among others, clothing, soft furnishing, flooring and geotextiles. This book deals with fibres generated entirely from chemicals, including nylon, polyester, acrylic and polyolefin, their chemical structures, polymerisation techniques and fibre production.

### CONTENTS

Historical introduction; Nylon fibres; Polyester fibres; Acrylic fibres; Polyolefin fibres.

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## New fibers Second edition

T Hongu, Institute of Techno Strategy, Japan and G O Phillips, Phillips Hydrocolloid Research Ltd, UK

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*'The special feature of this book is not only in giving an understanding and account of known possibilities, but also in describing the invention of new fibers and fibrous materials with unexpected and interesting properties and applications.'*


Journal of The Textile Institute

### CONTENTS

Birth of new fibers; The super fiber with new performance; High touch fibers; Biomimetic chemistry and fibers; Biopolymer frontiers; Progression of high-tech fibers; New high-tech fibers and Shin-Gosen; Cellulosic man-made fibers; Fibers for the next millennium.

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## Man-made fibres and their processing

### Volume 6

W Klein

This book covers man-made fibres as a group, as well as their manufacture and properties, fibre characteristics and their effects on spinning, and processing in the short-staple mill, as well as subsidiary problems in the spinning mill, finishes, blending, and the storage of man-made fibres are also discussed.

A Textile Institute publication

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## Handbook of textile fibres

### Volume 2: Man-made fibres

J Gordon Cook

Woodhead Publishing Series in Textiles No. 5

This book offers a comprehensive survey of the man-made fibres, including rayons and other natural polymer fibres, and the true synthetic fibres which have made such rapid progress in modern times.

### CONTENTS

Fundamentals of fibre structure; Natural polymer fibres: Cellulose fibres; Rayons; Cellulose ester fibres; Protein fibres; Miscellaneous natural polymer fibres; Synthetic fibres: Polyamide fibres; Polyester fibres; Polyvinyl derivative fibres; Polyolefin fibres; Polyurethane fibres; Miscellaneous synthetic fibres.

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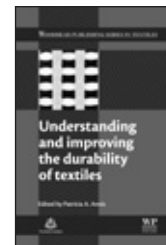
## FIBRE/FABRIC PROPERTIES AND TESTING

NEW

## Understanding and improving the durability of textiles

Edited by P Annis, University of Georgia, USA

Woodhead Publishing Series in Textiles No. 132



The ability of a fabric to resist wear is an essential aspect of its performance.


*Understanding and improving the durability of textiles* provides a comprehensive guide to the factors affecting the durability of a range of different textiles. Part one addresses the different factors that affect textile durability, including the influence of fabric construction and fibre type, as well as properties affecting strength and dimensional stability. Colour fastness and the effects of light are discussed, along with methods for testing and improving wrinkle-resistance and textile durability. Part two goes on to explore the durability of particular types of textile including antimicrobial textiles, protective clothing, historic textiles, silk and geotextiles.

### CONTENTS

Part 1 Aspects of textile durability: The influence of fabric construction and fibre type on textile durability: woven, knitted and nonwoven fabrics; Strength properties of fabrics: understanding, testing and enhancing fabric strength; Dimensional stability of fabrics: resistance to shrinkage and other dimensional changes; Durable press treatments to improve the durability and wrinkle-resistance of cotton and other fabrics; Colour fastness of fabrics: mechanisms and testing; Effects of light exposure on textile durability; Testing textile durability. Part 2 Durability of particular types of textile: Durable antimicrobial textiles: types, finishes and applications; Durability of protective clothing; Durability of historic textiles; Silk durability and degradation; Durable geotextiles.

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**NEW****Simulation in textile technology****Theory and applications**

Edited by D Veit, RWTH Aachen University, Germany

Woodhead Publishing Series in Textiles No. 136

*Simulation in textile technology* provides a comprehensive review of the key principles, applications and benefits of modelling for textile production. After an introduction to modelling and simulation, the book goes on to review the principles and applications of the main types of model. It first discusses neural networks and their applications before exploring evolutionary methods and fuzzy logic. It then considers computational fluid dynamics and finite element modelling. The modelling of fibrous structures and yarns are covered in the following chapters, along with wound packages, woven, braided and knitted structures. The book concludes by reviewing the simulation of textile processes and machinery.

**CONTENTS**

Introduction to modelling and simulation in textile technology; Neural networks and their application to textile technology; Evolutionary methods and their application to textile technology; Fuzzy logic and its application to textile technology; Computational fluid dynamics (CFD) and its application to textile technology; The finite element method (FEM) and its application to textile technology; Simulation of fibrous structures and yarns; Simulation of wound packages, woven, braided and knitted structures; Simulation of textile machinery.

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**Modelling and predicting textile behaviour**

Edited by X Chen, University of Manchester, UK

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Part 1 Modelling the structure and behaviour of textiles: Structural hierarchy in textile materials: an overview; Fundamental modelling of textile fibrous structures; Yarn modelling; Modelling the structures and properties of woven fabrics; Modelling of nonwoven materials; Modelling and visualization of knitted fabrics. Part 2 Case studies: Modelling of fluid flow and filtration through woven fabrics; Modelling, simulation and control of textile dyeing; Modelling colour properties for textiles; 3D modelling, simulation and visualisation techniques for drape textiles and garments; Recognition, differentiation and classification of regular repeating patterns in textiles; Modelling of 3D cellular textile composites for protection against trauma impact; Development and application of expert systems in the textile industry.

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**NEW****Theory of structure and mechanics of fibrous assemblies**

B Neckár, Technical University of Liberec, Czech Republic and D Das, Indian Institute of Technology Delhi, India

This book discusses a system of theoretically derived inherent laws of fibrous assemblies. It includes original results of theoretical research carried out on fibrous assemblies. The topics of this book include fiber and pore characteristics in fibrous assemblies, fiber packing density and fiber orientation in fibrous assemblies, tensile behavior of fiber bundles and multiaxial systems, fiber-to-fiber contacts and compression behavior of fibrous assemblies. The chapters of this book are started with definitions, terminologies and fundamental relations.

**CONTENTS**

Basic properties of single fibers and fibrous assemblies; Pores in fibrous assemblies; Arrangement of fibers - fiber orientation; Fiber-to-fiber contacts; Compression behavior of fibrous assemblies; Mechanics of parallel fiber bundles; Mechanics of non-parallel fiber bundles.

*A Woodhead Publishing India title*

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**Handbook of tensile properties of textile and technical fibres**

Edited by A R Bunsell, Ecole des Mines de Paris, France

Woodhead Publishing Series in Textiles No. 91

**CONTENTS**

Introduction to fibre tensile properties and failure; Tensile testing of textile fibres. Part 1 Tensile properties and failure of natural fibres: Tensile properties of cotton fibres; Tensile properties of hemp and agave americana fibres; Tensile failure of wool; Types, structure and mechanical properties of silk; Structure and behaviour of collagen fibres. Part 2 Tensile properties and failure of synthetic fibres: Manufacturing, properties and tensile failure of nylon fibres; The chemistry, manufacture and tensile behaviour of polyester fibres; Tensile properties of polypropylene fibres; Tensile fatigue of thermoplastic fibres; Liquid crystalline organic fibres and their mechanical behaviour; The manufacture, properties and applications of high strength, high modulus polyethylene fibers; Tensile failure of polyacrylonitrile fibres; Structure and properties of glass fibres; Tensile failure of carbon fibres; The mechanical behaviour of small diameter silicon carbide fibres; The structure and tensile properties of continuous oxide fibers.

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**Handbook of textile fibre structure**  
**Volume 1: Fundamentals and manufactured polymer fibres**

Edited by S Eichhorn, University of Manchester, J W S Hearle, formerly University of Manchester, UK, M Jaffe, New Jersey Institute of Technology, USA and T Kikutani, Tokyo Institute of Technology, Japan

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Edited by S Eichhorn, University of Manchester, J W S Hearle, formerly University of Manchester, UK, M Jaffe, New Jersey Institute of Technology, USA and T Kikutani, Tokyo Institute of Technology, Japan

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D K Wilson

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J O Ukponmwan, A Mukhopadhyay and K N Chatterjee

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## Specialist yarn and fabric structures

Developments and applications

Edited by R H Gong,  
University of Manchester, UK

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This book reviews specialist yarn and fabric structures. Written by an international team of contributors, the text discusses the different types of specialist yarn structures such as hybrid yarns, fancy yarns and rope structures. Fabrics made from specialist weave structures are also discussed. The final part of the book explores multicomponent structures such as pile fabrics, jacquard woven fabrics and flocked fabrics.

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## Hybrid yarns and textile preforming for thermoplastic composites

Textile Progress Vol. 38 No. 4

R Alagirusamy, IIT, India, R Fanguero,  
University of Minho, Portugal, V Ogale and N  
Padaki, IIT, India

This issue of *Textile Progress* reviews developments in polymer composites which are increasingly gaining importance as substitute materials for metals in the aerospace, automotive, marine, sporting goods and electronic industries.

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Types of hybrid yarns; Characterization of hybrid yarns; Textile performing; Manufacture of thermoplastic composites with hybrid yarns and textile preforms; Compaction and consolidation of hybrid yarns; Hybrid yarn structure - composite property relations; Potential application areas for thermoplastic composites; Trends in thermoplastic composite applications.

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P R Lord, Professor Emeritus, NCSU, USA

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## Fancy yarns

### Their manufacture and application

R H Gong and R M Wright, UMIST, UK

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
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## Yarn hairiness: A further update

### Textile Progress Vol. 31 No. 4

A Barella and A M Manich

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A Basu

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## FABRIC TECHNOLOGIES

### NEW

## Applications of neural networks in textiles

M Senthilkumar, PSG College of Technology, India

*Applications of neural networks in textiles* addresses the fundamentals of Artificial Neural Networks (ANN) such as neurons, layers in the network, learning algorithm, training patterns, classification of neural networks and their applications. The book also discusses the applications and benefits of ANN in various aspects of textile manufacturing processes, such as spinning, weaving, chemical processing, polymer processing, apparel manufacturing, technical textiles and effluent treatment.


#### CONTENTS

Artificial neural networks (ANN); Neural network applications; Use of ANN in spinning; Chemical processing; Polymer processing; Apparel industry; Technical textiles; Effluent treatment; Challenges encountered by ANN applications in textiles; Future trends.

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### NEW

## Innovative jacquard textile design using digital technologies

F Ng, Hong Kong Polytechnic University and J Zhou, Zhejiang Sci-Tech University, China

Woodhead Publishing Series in Textiles No. 145

Jacquard weaving machines are capable of producing particularly intricate weave designs. Traditional design techniques for jacquard fabrics are highly skilled, labour-intensive and depend on a degree of trial and error. This book reviews the application of digital textiles both to speed up the process and increase the range and complexity of jacquard textile designs, including the use of colour as well as novel simulative effects in fabric design.


#### CONTENTS

Introduction to jacquard textile design; The development of jacquard fabrics and jacquard textile design methods; Principles and methods of digital jacquard design; Compound structure design of jacquard textiles; Full colour compound structure design of jacquard textiles; Novel simulative effects in jacquard textile design; Design of figured shot-effect and figured double-face effect jacquard textiles; Future trends in digital jacquard textile design.

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## NEW

### Mechanisms of flat weaving technology

V Choogin, Kherson National Technical University, Ukraine, P Bandara, University of Leeds, UK and E Chepelyuk, Kherson National Technical University, Ukraine

Woodhead Publishing Series in Textiles No. 144

In order to create woven fabrics the engineer must choose the appropriate type of weaving machine to produce the specific woven fabric structure required. It is also essential to understand the functioning of all mechanisms of the chosen weaving machine type such as conditions of tension on the warp. This book discusses each stage of the weaving cycle and the associated mechanisms involved. Topics include mechanisms for warp release, shedding, weft supply and picking, fabric formation and take up.

#### CONTENTS


Classification and mechanisms of weaving machines; Weaving machine mechanisms for warp release and tension control; Warp shedding operations in weaving; The supply of weft on weaving machines; Weft insertion in weaving operations; Mechanisms of woven fabric formation; Mechanisms of woven fabric take up; Safety devices on weaving machines; Weaving machine drives; Weaving machine parameters for specific woven fabric structures; Control of woven fabric quality; Appendix: Glossary of weaving terms.

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## NEW

### Industrial practices in weaving preparation

M K Singh, GCTI Kanpur, India

*Industrial practices in weaving preparation* covers the basic concepts of winding, warping and sizing processes. It includes critical comparisons between various industrial concepts, practices and processes of winding, warping and sizing. Weaving preparatory machine manufacturers have registered remarkable developments and innovations in this field and this book covers all the latest developments in this area.

#### CONTENTS


Introduction to weaving preparatory; Winding; Warping; Sizing; Drawing-in.

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## NEW

### Textiles and fashion

Materials, design and technologies

Edited by R Sinclair, The Sinclair Consultancy, UK

Woodhead Publishing Series in Textiles No. 126

This textbook is intended for those studying A-levels, diplomas or undergraduate programs that focus on textiles and fashion. It provides a clear and systematic approach to the fundamentals of topics such as textile fibres, fabric manufacture, textile dyeing, apparel design and manufacture. Developments such as environmental and sustainability, smart textiles and the integration of technology into the textile and fashion industry are also discussed. Case studies are incorporated to demonstrate practical aspects of the topic. Each chapter includes a summary to emphasise the key points and a comprehensive self-review section for the student.


#### CONTENTS

Part 1 Fibre types: Understanding textile fibres and their properties; Natural fibres: vegetable fibres; Natural fibres: animal fibres and silk; Synthetic fibres: regenerated cellulose fibres; Synthetic fibres: polyester, aramid and polyamide fibres; Synthetic fibres: polyolefin, elastomeric and acrylic fibres; Synthetic fibres: non-polymer fibres. Part 2 Manufacturing textiles: Fibre to yarn: an introduction; Fibre to yarn: staple yarn spinning; Fibre to yarn: filament yarn spinning; Yarn to fabric: an introduction; Yarn to fabric: weaving; Yarn to fabric: knitting; Yarn to fabric: nonwoven fabrics; Yarn to fabric: specialist fabric structures; Yarn to fabric: intelligent textiles; Fabric finishing: an introduction; Fabric finishing: joining fabrics and fastenings; Fabric finishing: textile wet processing; Fabric finishing: dyeing and colouring; Fabric finishing: printing textiles; Applications of textile products; Sustainable textile production. Part 3 Developing textile products: the case of apparel: Fashion and culture; Design techniques for apparel; Computer assisted design (CAD) and computer-assisted manufacture (CAM) of apparel and other textile products; Garment manufacture; Adding functionality to garments; The marketing of fashion; Care of apparel products.

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## NEW

### Process control and yarn quality in spinning

G Thilagavathi and T Karthik, PSG College of Technology, India

*Process control and yarn quality in spinning* outlines the concepts of raw material selection, control of various process parameters to optimise the process conditions, and analysis and interpretation of various types of test reports to find out the source of fault. Chapters also discuss count and strength variation, yarn evenness and imperfections, and control of productivity. Real time examples and case studies are also presented.

#### CONTENTS


Scope for process and quality control in spinning; Statistical techniques in quality control; Cotton fibre selection and bale management; Yarn realization and waste control; Control of neps and fibre rupture; Count and strength variation; Yarn evenness and imperfections; Analysis of yarn faults and package defects; Control of productivity; Examples and case studies.

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## NEW

### Processing of knitted fabrics

P Senthilkumar, PSG College of Technology, India

*Processing of knitted fabrics* covers the entire spectrum of preparatory processes, colouration and finishing of cotton, wool, synthetic and blended knits. This book provides comprehensive information about quality control in processing of knits and testing of processed knit fabrics. It also covers processing of knitted apparels, including preparatory processes, colouration and finishing.

#### CONTENTS


Preparatory processes; Colouration of knits; Finishing of knits; Quality control in processing of knits; Testing of processed knit fabric; Processing of knitted apparels.

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**NEW****Process control in textile manufacturing**


Edited by A Majumdar, A Das, R Alagirusamy and V K Kothari, Indian Institute of Technology, India

Woodhead Publishing Series in Textiles No. 131

*Process control in textile manufacturing* provides a vital overview of process control across the entire process of textile manufacture, ranging from yarn manufacture through to textile applications. Part one introduces key issues associated with process control and principles of control systems in textile manufacturing, before part two goes on to consider control in fibre production and yarn manufacture. Finally, part three explores process control in the manufacture, colouration and finishing of knitted, woven, nonwoven, dyed and printed textiles, with additional focus on process control in apparel manufacturing.

**CONTENTS**

Part 1 General issues: Basics of process control in textile manufacturing; Basic principles of control systems in textile manufacturing; Testing and statistical quality control in textile manufacturing. Part 2 Process control in fibre production and yarn manufacture: Process and quality control in cultivating natural textile fibres; Process control in the manufacturing of synthetic textile fibres; Process control in blowroom and carding operations; Process control in drawing, combing and speed frame operations; Process control in ring and rotor spinning; Maintenance of yarn spinning machines. Part 3 Process control in fabric manufacture, colouration and finishing: Process control in knitting; Process control in weaving; Process control in nonwoven production; Process control in dyeing of textiles; Process control in printing of textiles; Process control in finishing of textiles; Process control in apparel manufacturing.


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**NEW****Woven cloth preparation and production planning**

J Hayavadana, Osmania University, India

*Woven cloth preparation and production planning* is a comprehensive review of various types of weaves and their production in the weaving process. This book discusses the weaving preparation and the type of yarns used in warp and weft directions and explains the need and use of special yarns, such as fancy yarns and yarns prepared on modern spinning systems. It is the first time both elementary and advanced fabric design is dealt with in an in-depth analysis. The book also includes general subjects like ornamentation of plain cloth, fabric engineering and fabric structure.

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**NEW****Woven textiles****Principles, technologies and applications**

Edited by K Gandhi, Consultant, UK


Woodhead Publishing Series in Textiles No. 125

*Woven textiles: Principles, developments and applications* provides an essential overview of the manufacture, structure and application of these important textiles. Part one explores key preparatory techniques and the fundamentals of weaving technology. The characteristics of woven structures are then discussed in greater depth in part two. Part three focuses on the application of woven textiles to a wide range of technologies.

**CONTENTS**

Part 1 Yarns and weaving technology: Types and properties of fibres and yarns used in weaving; Yarn preparation for weaving: winding; Yarn preparation for weaving: warping; Yarn preparation for weaving: sizing; The fundamentals of weaving technology. Part 2 Woven structures: Woven structures and their characteristics; Computer assisted design (CAD) systems for woven textile design; Modelling the structure of woven fabrics; 3D woven structures and methods of manufacture. Part 3 Applications of woven textiles: Woven textiles for automotive interiors and other transport applications; Woven apparel fabrics; Woven fabrics for geotextiles; Hollow woven fabrics; Woven textiles for medical applications.

Published in association with The Textile Institute

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**Fundamentals and advances in knitting technology**


S C Ray, Institute of Jute Technology, India

This book looks at the history of knitting and how the process has evolved to the present. Chapters discuss the principles involved in different types of knitting machines and the different types of loops and knitted structures.

**CONTENTS**

Knitting at a glance; Classification of knitting; Weft knitting elements and loop formation; General terms in weft knitting; Basic weft-knitted structures; Some special terms and techniques; Circular weft knitting machine and mechanism; Design and design elements; Flat bed knitting; Some aspects of weft-knitting science; Quality aspects in knitting; Warp knitting machines and knitting elements; Principles of loop formation in warp knitting; Wrap-knitted stitches and structures; Double needle bar warp knitting machine; Some aspects of warp knitting science; Developments in knitting; Yarn and its selection for knitting; Application of electronics in knitting; Yarn tension in knitting and its measurement; Mechanics of loop formation in weft knitting; Mechanics and mechanism of warp loop formation; Knitting related calculations; Production of spacer fabrics in knitting; Scope of knitting in garment manufacturing; Analyses and testing of knitted fabrics; Scope of knitting in the manufacture of medical textiles; Concept of green business in knitting and knitwear industries.

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**Advances in knitting technology**

Edited by K F Au, Hong Kong Polytechnic University, Hong Kong

Woodhead Publishing Series in Textiles No. 89




This book is an important text for designers, engineers and technicians involved in the manufacture and use of knitted textiles and garments. The first set of chapters begins with a review of the fundamental principles of knitting, including types of knitting and properties achieved. Part two of the book reviews the major technological advances in knitting such as advances in weft knitting and knitted fabric composites. Part three discusses technical knitted applications such as medical textiles.

**CONTENTS**

Part 1 Introduction: Fundamentals of knitting: Types and suitability of yarns for knitting; The physical properties of weft knitted structures; Modelling of knitting. Part 2 Advances in knitting: Intelligent yarn delivery systems in weft knitting; Advances in warp knitted fabric production; Weft knitted structures for industrial applications; Advances in circular knitting; Knitted fabric composites; Quality control in the knitting process and common knitting faults. Part 3 Case studies: Advanced knitted products: Women's apparel; Knitted underwear; Knitted structures for sound absorption; Weft knitted structures for moisture management.

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**Training and development of technical staff in the textile industry**


B Purushothama, Textile Consultant, India

There are a number of books and articles available dealing with technology and management separately, but explaining how these techniques could be used in the daily life of a supervisor is very few. *Training and development of technical staff in the textile industry* explains various aspects of management related to working on the shop floor by supervisory staff. This book is a practical guide for firms looking to develop their supervisory staff.

**CONTENTS**

Technical staff development; Technical staff - the middle management; Policy deployment and middle management; Job description; Leadership and self development; Individuals and teams; Decision-making process; Communication and supervisor; Costing and cost of quality; Problem solving and change management; Supervisors and customer orientation; Quality management and assurance; Practical competency and underpinning knowledge; Control points and check points; Normal problems and nonconformities.

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## Computer technology for textiles and apparel

Edited by J Hu, Hong Kong Polytechnic University, Hong Kong

Woodhead Publishing Series in Textiles No. 121



This book reflects the significant advances that have been made in computer technologies, covering a wide range of topics from modelling to electronic textiles and apparel. Part one provides a review of different computer-based technologies suitable for textile materials. Chapters include computer technology for yarn structure, fabric defects and garment structure. Part two discusses modelling and simulation of fibres and textiles, including the modelling of yarn and garments. Part three concludes with a review of computer-based technologies specific to apparel, ranging from 3D body scanning to electronic textiles.

### CONTENTS

Part 1 Computer-based technology for textile materials: Digital technology for yarn structure and appearance analysis; Digital-based technology for fabric structure analysis; Computer vision-based fabric defect analysis and measurement. Part 2 Modelling and simulation of textiles and garments: Key techniques for 3D garment design; Modelling and simulation of fibrous yarn materials; Digital technology and modelling for fabric structures; Modelling ballistic impact on textile materials; Modelling and simulation techniques for garments. Part 3 Computer-based technology for apparel: Human interaction with computers and its use in the textile apparel industry; 3D body scanning: generation Y body perception and virtual visualization; Computer technology from a textile designer's perspective; Digital printing technology for textiles and apparel; Approaches to teaching computer-aided design (CAD) to fashion and textiles students; Three-dimensional (3D) technologies for apparel and textile design; Integrated digital processes for design and development of apparel.

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## Applications of nonwovens in technical textiles

Edited by R Chapman, Consultant, UK

Woodhead Publishing Series in Textiles No. 102

### CONTENTS

Part 1 Fundamental principles of nonwovens: The formation of dry, wet, spun-laid and other types of nonwovens; The influence of fibre and fabric properties on nonwoven performance; Biodegradable materials for nonwovens. Part 2 Nonwoven applications: Flame retardant nonwovens; Nonwoven personal hygiene materials and products; Nonwovens for consumer and industrial wipes; Nonwovens in specialist and consumer apparel; Nonwoven textiles for residential and commercial interiors; The use of nonwovens as filtration materials; Nonwoven textiles in automotive interiors.

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## Soft computing in textile engineering

Edited by A Majumdar, Indian Institute of Technology, India

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### CONTENTS

Part 1 Introduction to soft computing: Introduction to soft computing techniques: artificial neural networks, fuzzy logic and genetic algorithm; Artificial neural networks in materials modeling; Fundamentals of soft models in textiles. Part 2 Soft computing in yarn manufacturing: Artificial neural network in yarn property modeling; Performance evaluation and enhancement of artificial neural network in prediction modeling; Yarn engineering using artificial neural network; Adaptive neuro-fuzzy systems in yarn modeling. Part 3 Soft computing in fabric manufacturing: Woven fabric engineering by mathematical modeling and soft computing methods; Soft computing applications in knitting technology; Modelling nonwovens using artificial neural networks. Part 4 Soft computing for textile properties and applications: Garment modelling by fuzzy logic; Soft computing applications for sewing machines; Artificial neural network modeling for prediction of thermal transmission properties of woven fabrics. Part 5 Soft computing in textile quality evaluation: Fuzzy decision making and its applications in cotton fibre grading; Silk cocoon grading by fuzzy expert systems; Artificial neural network applications in textile composites; Modelling the fabric tearing process; Textile quality evaluation by image processing and soft computing techniques.

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## Woven textile structure Theory and applications

B K Behera and P K Hari, Indian Institute of Technology, India

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### CONTENTS

Part 1 Fundamentals of woven fabric structure: The basics of woven fabric structure; Geometrical modeling of woven fabric structure; Using a geometric model to predict woven fabric properties; Woven fabric properties after structural modifications. Part 2 Mechanics of woven fabric structure: Shrinkage in woven fabrics; Yarn behaviour in woven fabrics; Tensile behaviour of woven fabrics; Buckling behaviour of woven fabrics; Bending behaviour of woven fabrics; Creasing in woven fabrics; Shear behaviour of woven fabrics; Compression behaviour of woven fabrics; Friction and other aspects of the surface behaviour of woven fabrics. Part 3 Design engineering of woven fabrics: Textile product design methods; Modeling for textile product design: Building predictive models for textile product design; Modeling for woven fabric design. Part 4 Practical applications: Assessing the comfort of woven fabrics: fabric hand; Assessing the comfort of woven fabrics: thermal properties; Modeling woven fabric drape; Modeling woven fabric behaviour during the making-up of garments; Modeling three-dimensional (3D) woven fabric structures; Application of woven fabrics.

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## 3-D fibrous assemblies

Properties, applications and modelling of three-dimensional textile structures

J Hu, Hong Kong Polytechnic University, Hong Kong



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### CONTENTS

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## Nanofibers and nanotechnology in textiles

Edited by P Brown and K Stevens, Clemson University, USA

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### CONTENTS

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## Handbook of nonwovens

Edited by S Russell,  
University of Leeds, UK

Woodhead Publishing Series  
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### CONTENTS

Development of the nonwovens industry; Dry-laid web formation; Wet-laid formation; Polymer-laid web formation; Mechanical bonding; Thermal bonding; Chemical bonding; Chemical and mechanical finishing; Characterisation, testing and modelling of nonwoven fabrics.

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## Innovation in linen manufacture

Textile Progress Vol. 37 No. 3

M A Hann, University of Leeds, UK

### CONTENTS

Flax fibre and its cultivation; Fibre extraction; Yarn formation and winding; Fabric formation; Bleaching; The dyeing of linen; The printing of linen fabrics; The finishing of linen and linen blends; Commercial considerations; Summary of the major developments of the past few decades.

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## Air-jet weft insertion

Textile Progress Vol. 29 No. 4

L Vangheluwe

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## Weaving

Technology and operations

A Ormerod and W S Sondhelm

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For any fabric structure, the ability to understand how to join fabrics together and maintain the integrity of the join is critical. After an introductory chapter on types of fabric and their joining properties, the first part of this important book reviews stitching and sewing technologies and factors affecting seam performance. The second part of the book discusses adhesive bonding of textiles, whilst a third group of chapters covers techniques such as ultrasonic, laser and radio frequency welding as well as heat sealing. A final group of chapters looks at applications. This book is an important reference for textile technologists, fibre scientists, textile engineers and those in academia.

### CONTENTS

Types of fabric and their joining requirements. Part 1 Sewing technology: The mechanics of stitching; The sewing of textiles; Mechanisms of sewing machines; Problems relating to sewing; The quality and performance of sewn seams; Intelligent sewing systems for garment automation and robotics. Part 2 Adhesive bonding of textiles: Adhesive bonding of textiles: Principles, types of adhesive and methods of use; Adhesives bonding of textiles: Applications; Bonding requirements in coating and laminating of textiles. Part 3 Welding technologies: The use of heat sealing, hot air and hot wedge to join textile materials; Ultrasonic and dielectric welding of textiles; Laser seaming of fabrics; Properties and performance of welded or bonded seams. Part 4 Applications of joining textiles: The appearance of seams in non-iron shirts; Seams in car seat coverings: properties and performance; Joining of wearable electronic components; Joining of technical textiles with stringent seam demands; Nonwoven materials and joining techniques; Epilogue: Joining textiles.

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## NEW

### Advances in the dyeing and finishing of technical textiles

Edited by M Gulrajani, Indian Institute of Technology, India

Woodhead Publishing Series in Textiles No. 138

Dyeing and finishing techniques can play a critical role in the functionality of technical and other textiles. This important book reviews major advances in this field. Part one reviews advances in dyes and colourants such as chromic materials, optical effects pigments, antimicrobial and water-repellent dyes. Part two reviews advances in finishing techniques such as mechanical and enzymatic techniques, softening treatments, surfactants, printing, coating and lamination.

#### CONTENTS


Part 1 Advances in dyes and colourants: Chromic materials for technical textiles applications; Optical effect pigments for technical textiles applications; UV-absorbent, anti-microbial, water-repellent and other types of functional dye for technical textiles applications; Microencapsulated colourants for technical textile applications; Regulations relating to the use of textile dyes. Part 2 Advances in finishing techniques: Mechanical finishing techniques for technical textiles; Softening treatments for technical textiles; The use of enzymatic techniques in the finishing of technical textiles; The use of surfactants in the finishing of technical textiles; Inkjet printing of technical textiles; Functional finishes to improve the comfort and protection of apparel; The use of nanotechnology in the finishing of technical textiles; Coating and lamination techniques for technical textiles; Speciality polymers for the finishing of technical textiles.

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## NEW

### Textile finishing

R Chakrabarti, SSM College of Engineering, India

*Textile finishing* includes chapters on scouring and bleaching, mercerising, mechanical finishing, resin finishing, and flame proof and retardant finishes, as well as anti-microbial finishes, soil release finishes, antistatic finishes, and finishing machines.

This book will be useful for UG and PG Textile Students and also for spinning industrialists looking to increase their knowledge on process and quality aspects in spinning.

#### CONTENTS


Finishing of textile; Scouring and bleaching; Mercerising; Mechanical finishing; Resin finishing; Flame proof and flame retardant finishes; Anti-microbial finishes; Soil release finishes; Antistatic finishes; Miscellaneous finishes; Finishing machines.

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### Chemical processing of textile materials

R Veerapathran, Indian Institute of Fashion Technology, India

*Chemical processing of textile materials* discusses in detail the complete processes in chemical processing and all preparatory processes, including dyeing, printing and finishing of textile materials. Attention is also paid to fabric care in garment dyeing.

#### CONTENTS


Process involved in chemical processing; Preparatory process; Dyeing of textile materials; Printing; Finishing; Garment dyeing; Fabric care.

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## NEW

### Guide to wet textile processing machines

J N Shah, M S University of Baroda, India.

*Guide to wet textile processing machines* provides a complete guide to the fundamentals of wet processing machines and offers information on various types of machines required for wet processing. The book includes technical, as well as working, principles of various machines used in textile wet processing and provides guidance to industrial persons looking to update their knowledge of machines. This book accommodates recommendations and recent developments in the area of wet processing machines.

#### CONTENTS


Fundamentals of textile wet processing machines; Yarn preparatory machines; Machines for preparation of fabric - woven; Machines for preparation of fabric- nonwovens; Machines for garment processing; Technical aspect and selection criteria for machine used at various stages; Working principle of all machines included; Comparative aspect with reference to advantages and limitation; Recent developments in era of wet processing machines; Manufacturers in India and abroad; Guidelines for processors for selection of machine.

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## NEW

### Colour design

Theories and applications

Edited by J Best, Colour Management Consultant, UK

Woodhead Publishing Series in Textiles No. 128



This important book summarises the wealth of recent research on colour and its use in design. The first part of the book reviews research on colour and its perception and a second group of chapters surveys ways of measuring and describing colour. The third part of the book discusses the role of colour in design, dyeing and printing, before the final section covers applications of colour in areas as diverse as fashion, interior design, art and food. *Colour design: Theories and applications* is suitable for a wide range of readers including designers, colour technologists, colour quality inspectors, product developers and anyone who uses colour in their work. It is also intended for academics and students studying colour and design.

#### CONTENTS


Part 1 Colour and colour perception: What is colour? Variability in normal and defective colour vision: consequences for occupational environments; Colour illusions and the human visual system; Colour psychology: the emotional effects of colour perception; Understanding colour perception and preference; Predicting responses to colour. Part 2 Measuring and describing colour: International standards for colour; Colour description and communication; Colour naming for colour communication; Colour specification and visual approval methods for textiles; Colour management and approval methods in lithographic printing. Part 3 Colour, design and coloration: The history of colour theory in art, design and science; Enhancing design using colour; Understanding and forecasting colour trends in design; Colour symmetry: the systematic colouration of patterns and tilings; The history of dyes and pigments: from natural dyes to high performance pigments; Dye types and application methods; Colour printing techniques. Part 4 Colour and design in particular applications: Colour trends and selection in fashion design; Colour in interior design; Colour in food; Choosing effective colours for websites; Evolution and colour change in works of art.

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**NEW**

## Industrial cutting of textile materials

I Vilumsone-Nemes,  
Consultant, Latvia

Woodhead Publishing Series  
in Textiles No. 127



A cutting room is a separate area in a clothing manufacturer where garment components are cut out. The accuracy and efficiency of cutting room operations is critical to all subsequent operations and to final garment quality. Drawing on the author's extensive experience, *Industrial cutting of textile materials* summarises good practice in cutting room operations. The author reviews initial steps such as unloading, sorting and quality control of materials. She then discusses subsequent operations from lay planning and marker making, through manual and automated spreading and cutting, to fusing of cut components and final work operations such as sorting cut components for sewing. The book also discusses marker making, spreading and cutting of more intricate fabrics such as striped fabrics and fabrics with check, motif and border patterns, narrow lace and pile fabrics.

### CONTENTS

Introduction to cutting room operations in garment manufacture; Initial preparation and quality control of textile materials in textile cutting operations; Lay planning and marker making in textile cutting operations; Principles and methods of textile spreading; Manual spreading of textile materials; Automated spreading of textile materials; The manual textile cutting process; Manual cutting equipment in textile cutting operations; Automated cutting of textile materials; Placement of equipment in the textile cutting room; Fusing of cut textile components; Final work operations in the cutting process for textiles; Manual marker making, spreading and cutting of striped fabrics; Manual marker making, spreading and cutting of materials with check patterns; Manual marker making, spreading and cutting of fabrics with motif patterns; Manual marker making, spreading and cutting of fabrics with border patterns; Manual marker making, spreading and cutting of narrow lace; Spreading and cutting of fabrics with pile; Problems in spreading and cutting of intricate fabrics and methods to prevent them.

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## Handbook of textile and industrial dyeing

### Volume 1: Principles, processes and types of dyes

Edited by M Clark, University  
of Leeds, UK

Woodhead Publishing Series  
in Textiles No. 116



Dyeing is one of the most effective and popular methods for colouring textiles and other materials. This two volume collection provides comprehensive coverage of all aspects of textile dyeing. Volume 1 discusses general principles, pre-treatment, chemistry, dye fastness, modelling and machinery. The second part of the book focuses on different types of dyes and processes. Topics range from natural and acidic dyes to environmentally friendly dyes. The book is aimed at a variety of different readers including designers, colour technologists, product developers and those in academia.

### CONTENTS

Part 1 General aspects of dyeing: Fundamental principles of dyeing; Structure and properties of textile materials; Pre-treatment and preparation of textile materials prior to dyeing; Chemistry of dyeing; Thermodynamics and kinetics of dyeing and dyebath monitoring systems; An overview of dye fastness testing; Molecular modeling and predicting dye properties; Methods and machinery for the dyeing process. Part 2 Dye types and processes: The chemistry of reactive dyes and their application processes; Disperse dyes; Natural dyes; Direct dyes; Metal complex dyes; Sulphur dyes; Acid dyes; Environmentally-friendly dyes and dyeing processes; Fluorescent dyes; Near-infrared dyes; Azoic dyeing.

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## Handbook of textile and industrial dyeing

### Volume 2: Applications of dyes

Edited by M Clark, University of Leeds, UK

Woodhead Publishing Series in Textiles No. 117

Volume 2 provides a review of how dyes are used in different applications. The first part of the book discusses dyes used for textiles such as wool and synthetic fibres. Part two explores the use of dyes for non-textile applications, including dyes for the food, cosmetics and medical industries. The book is appropriate for a variety of different readers including designers, colour technologists, product developers and those in academia.

### CONTENTS

Part 1 Textile applications: The coloration of wool; Dyeing of synthetic fibres; Dyeing of cellulosic fibres; Dyeing of textile fibre blends. Part 2 Industrial applications: Colourants and dyes for the cosmetics industry; Dyes for the medical industry; Automotive dyes and pigments; Food colourants.

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## Advances in textile biotechnology

Edited by V Nierstrasz, Ghent  
University, Belgium and A  
Cavaco-Paulo, University of  
Minho, Portugal

Woodhead Publishing Series  
in Textiles No. 107

### CONTENTS

Part 1 Technologies involved in textile biotechnology: Design and engineering of novel enzymes for textile applications; Developments in processes and equipment for enzymatic textile treatments; Smart textiles and biomaterials containing enzymes or enzyme substrates. Part 2 Modification of particular fibres through the use of biotechnology: Enzymatic hydrolysis and modification of core polymer fibres for textile and other applications; Enzymatic modification of polyacrylonitrile and cellulose acetate fibres for textile and other applications; Enzymatic treatment versus conventional chemical processing of cotton; Engineering of plants for improved fibre qualities; Enzymatic treatment of wool and silk fibres; Functionalisation of wool and silk fibres using non-proteolytic enzymes; Developments in recombinant silk and other elastic protein fibres for textile and other applications; Enzymatic functionalization of cellulosic fibres for textile and other applications: xyloglucan as a molecular anchor; Developments in the processing of chitin, chitosan and bacterial cellulose; Hydrolysis of regenerated cellulose fibres for textile and other applications.

Published in association with The Textile Institute

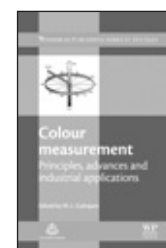
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## Colour measurement

### Principles, advances and industrial applications

Edited by M L Gulrajani,  
Indian Institute of  
Technology, India

Woodhead Publishing Series  
in Textiles No. 103



The measurement of colour is important in many commercial operations such as the textile, paint and food industries. *Colour measurement* discusses colour measurement theories, the latest technological and scientific developments in measuring colour and the applications of colour measurement.

### CONTENTS

Part 1 Theories, principles and methods of measuring colour: Colour vision: theories and principles; Scales for communicating colour; Expressing colours numerically; Visual and instrumental evaluation of whiteness and yellowness; Use of artificial neural networks (ANNs) in colour measurement; Camera based colour measurement; Colour shade sorting; Determining and improving the accuracy of colour measurement; Colour measurement and fastness assessment. Part 2 Colour measurement and its applications: Colour measurement methods for textiles; Grading of cotton by colour measurement; Colour measurement of paint films and coatings; Colour measurement of food; Colourimetric evaluation of tooth colour; Hair colour measurement.

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## Smart textile coatings and laminates

Edited by W C Smith,  
Industrial Textile Associates,  
USA

Woodhead Publishing Series  
in Textiles No. 90

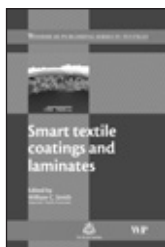
### CONTENTS

Part 1 Fundamentals of textile coatings and laminates: Overview of textile coating and lamination; Coating and laminating processes and techniques for textiles; Base fabrics and their interaction in coated fabrics; Testing heat and mass transfer through membranes and coatings for textiles. Part 2 Smart and intelligent coatings and laminates for textiles: Microencapsulation technology for coating and lamination of textiles; Conductive coatings for textiles; Intelligent breathable coatings and laminates for textile applications; Shape memory polymers in coatings and laminates for textiles; Phase change materials and their application in coatings and laminates for textiles; Nanotechnology-based advanced coatings and functional finishes for textiles; Smart flame retardant textile coatings and laminates.

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## Fundamentals and practices in colouration of textiles

J N Chakraborty, National  
Institute of Technology,  
Jalandhar, India

### CONTENTS

Introduction to dyeing of textiles; Colouring materials; Dye-Fibre interaction; Dyeing with direct dye; Dyeing with sulphur dye; Dyeing with reactive dye; Dyeing with reactive H-E dye; Dyeing with indigo; Dyeing with solubilised vat dye; Dyeing with insoluble azoic colour; Dyeing with mineral colour; Dyeing with oxidation black; Dyeing with phthalocyanine dye; Dyeing with acid dye; Dyeing with metal-complex dye; Dyeing with basic dye; Dyeing with disperse dye; Colouration with pigments; Dyeing of silk; Dyeing of polyester; Dyeing of nylon; Dyeing of acrylic; Influence of fibre and dye structures in dyeing; Processing of micro-fibre; Dyeing of blend; Dyeing in super-critical carbon dioxide; Garment dyeing; Assessment of fastness of dyeings; Identification of dye class on cellulosics; Dyeing machineries; Waste-water problem in textile industry.

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## Surface modification of textiles

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## Plasma technologies for textiles

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### CONTENTS

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University, Hong Kong

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Published in association with The Textile Institute

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## Chemical finishing of textiles

W D Schindler, University of Applied Sciences  
Hof, Germany and P J Hauser, NCSU, USA

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### CONTENTS

Introduction to chemical finishing; Chemical finishing processes; Softening finishes; Hand building finishes; Easy-care and durable press finishes of cellulosics; Repellent finishes; Soil release finishes; Flame retardant finishes; Non-slip finishes; Antistatic finishes; Antipilling finishes; Elastomeric finishes; Finishes to improve colour fastness; Ultraviolet protection finishes; Antimicrobial finishes; Insect resist and mite protection finishes; Finishing with enzymes; bio-finishes for cellulose; Novel finishes; Actual and future trends in chemical finishing.

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## Textile processing with enzymes

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### CONTENTS

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D Heywood

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Second Edition

Edited by L W C Miles

### CONTENTS

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## Dictionary of textile finishing

Deutsch/English, English/German

H-K Rouette

Woodhead Publishing Series in Textiles No. 26

In the *Dictionary of textile finishing* the textile engineer will find the correct technical terms for 16,000 keywords within their field of activity in the German language and vice versa.

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W Fung, Collins and Aikman Automotive Fabrics, UK


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## Colorants and auxiliaries

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Edited by J Shore

### CONTENTS

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A D Broadbent

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## Reactive dyes for textile fibres

A Hunter and M Renfrew

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## Blends dyeing

J Shore

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## Colour physics for industry

2nd Edition

Edited by R McDonald

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## Engineering in textile coloration

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## New product development in textiles

### Innovation and production

Edited by L Horne, University of Manitoba, Canada

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## Textile design

### Principles, advances and applications

Edited by A Briggs-Goode and K Townsend, Nottingham Trent University, UK

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Y El Mogahzy, Auburn University, USA



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E G Gilligan, Formerly International Wool Secretariat, now known as the Woolmark Company, UK

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Y Li, L Yao and K W Yeung, Hong Kong Polytechnic University, Hong Kong

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## Structural design of woven fabrics

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A M Seyam

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### Handbook of sustainable textile production

M I Tobler-Rohr, Euresearch, Switzerland

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#### CONTENTS

Sustainable development (SD) as a goal in production, marketing and trade; The supply chain of textiles; Product specification function and textile process technology; Life cycle assessment (LCA) and ecological key figures (EKF); Product development and marketing; Management and communication.

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#### Life cycle and environmental impact

Edited by R S Blackburn, University of Leeds, UK

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## Water recycling in textile wet processing

J K Skelly

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**NEW****Smart textiles for protection**

Edited by R Chapman, Consultant, UK

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Smart textiles are materials and structures that sense and react to environmental conditions or stimuli, such as those from chemical, thermal and electrical sources. Integration of smart textiles into protective textiles is creating products with higher levels of protection in hazardous situations. Part one of this book reviews smart materials and technologies such as surface treatments, nanofibres, sensors and actuators. Part two discusses their application in such areas as fire, ballistic and chemical protection as well as protection of more vulnerable groups such as older people.

**CONTENTS**

Part 1 Smart materials and technologies: Smart textiles for protection: an overview; Types of smart textile materials for protection; Smart surface treatments for textiles for protection; The use of nanofibres in smart protective clothing; Smart barrier membranes for protective clothing; Sensors, actuators and computing systems for smart textiles for protection; Biomimetic approaches to the design of smart textiles for protection. Part 2 Applications of smart textiles for protection: Smart protective textiles for older people; Smart high performance textiles for protection in construction and geotechnical applications; Smart textiles for protection of armoured vehicles; Protective clothing for firefighters and first responders; Advances in chemical protective clothing.

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**Military textiles**

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**CONTENTS**

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**NEW****Advances in military textiles and personal equipment**

Edited by E Sparks, Cranfield University, UK

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*Advances in military textiles and personal equipment* summarises key research on the design, manufacture and applications of military textiles. Part one explores anthropometric methods, psychological, colour and camouflage issues related to the successful design of military textiles. Materials and design issues in military helmets, footwear and hand wear are also reviewed. Part two goes on to consider applications of particular types of military clothing and equipment, including optimisation of body armour design, high performance ballistic protection using polymer nanocomposite technology as well as advances in materials and modelling of chemical, biological, radiological and nuclear protective clothing. Finally, *Advances in military textiles and personal equipment* looks specifically at designing load carriage and advanced hydration systems for military personnel.

**CONTENTS**

Part 1 Design issues in military clothing and equipment: Key issues in body armour: Threats, materials and design; Assessing military equipment requirements and capability: the Australian experience; Anthropometric methods for the successful design of military clothing and equipment; Psychological issues in military uniform design; Colour and camouflage design issues in military clothing; Materials and design issues for military helmets; Design issues in military footwear and hand wear. Part 2 Applications to particular types of military clothing and equipment: Customization of a lightweight bullet proof vest for the female form; Optimisation of body armour design parameters: Vulnerability and survivability assessment; High performance ballistic protection using polymer nanocomposites; Modelling the comfort and protection qualities of chemical, biological, radiological and nuclear (CBRN) protective clothing; Advances in materials for chemical, biological, radiological and nuclear (CBRN) protective clothing; Designing load carriage systems for military personnel; Advanced hydration systems for soldiers: the example of the US army.

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**NEW****Functional nanofibers and their applications**

Edited by Q Wei, Jiangnan University, China

Woodhead Publishing Series in Textiles No. 134



*Functional nanofibers and their applications* summarises key trends in the processing and applications of these exciting materials. Part one reviews core-shell, aligned, porous and gradient nanofibers. The processing and application of composite functional nanofibers, carbon and polymer nanofiber reinforcements in polymer matrix composites, and inorganic functional nanofibers are then explored in detail, before part one concludes with a consideration of surface functionalization. A wide variety of functional nanofiber applications are then reviewed in part two. Following consideration of their use in filtration, drug delivery and tissue engineering applications, the role of functional nanofibers in lithium-ion batteries, sensor applications, protective clothing, food processing and water purification is explored. Discussion of their use in sound absorption, electromagnetic wave attenuation and biomedical and microelectronic applications follows, before a final discussion of future trends.

**CONTENTS**

Part 1 Types and processing: Nanofibers: principles and manufacture; Types and processing of structured functional nanofibers: core-shell, aligned, porous and gradient nanofibers; Processing of composite functional nanofibers; Carbon and polymer nanofiber reinforcements in polymer matrix composites: processing and applications; Inorganic functional nanofibers: processing and applications; Surface functionalization of polymer nanofibers. Part 2 Applications: Functional nanofibers for filtration applications; Functional nanofibers for drug delivery applications; Functional nanofibers for tissue engineering applications; Functional nanofibers in lithium-ion batteries; Functional nanofibers in sensor applications; Functional nanofibers in clothing for protection against chemical and biological hazards; Functional nanofibers in food processing; Functional nanofibers in sound absorption, electromagnetic wave attenuation and biomedical applications; Functional nanofibers for water purification; Functional nanofibers in microelectronics applications; Future trends in the processing of functional nanofibers.

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## Fibrous and composite materials for civil engineering applications

Edited by R Figueiro,  
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The use of fibrous materials in civil engineering, both as structural reinforcement and in non-structural applications such as geotextiles, is an important development. *Fibrous and composite materials for civil engineering applications* analyses types and properties of textiles and their use in knitted, woven and fabric structures as well as their applications in such areas as the reinforcement of concrete and as insulation materials.

### CONTENTS

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## Textiles, polymers and composites for buildings

Edited by G Pohl, Leichtbau Institut, Germany

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S Das, CSTRI

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## Advances in fire retardant materials

Edited by A R Horrocks and  
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## Geosynthetics in civil engineering

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## Application of textiles in rubber


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## Textiles in automotive engineering

W Fung, Collins and Aikman Automotive Fabrics and J M Hardcastle, Consultant, UK

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## Handbook of technical textiles


Edited by A R Horrocks and S C Anand, University of Bolton, UK

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## Automotive textiles

Textile Progress Vol. 29 Nos. 1/2

S Mukhopadhyay and J F Partridge

*A Textile Institute publication*

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## Barrier fabrics for protection against aerosols

Textile Progress Vol. 26 No. 1

S M Maini, S P Hersh and P A Tucker

*A Textile Institute publication*

44 pages 242 x 169mm (6 1/2 x 9 1/2) paperback 1995  
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## INTELLIGENT AND MEDICAL TEXTILES

**NEW**

## Advances in shape memory polymers

Edited by J Hu, Hong Kong Polytechnic Institute, Hong Kong


### Woodhead Publishing Series in Textiles No. 146

Shape memory polymers (SMPs) have the ability to change shape in response to an external stimulus. This makes them promising smart materials for textiles and other applications. Building on the author's earlier, pioneering, work in this field, this book summarises key recent research in this important area. It covers the various types of SMP, how they respond to temperature, moisture and other stimuli, methods of manufacture and applications in such areas as textile finishes for smart, self-cleaning textiles.

### CONTENTS

Introduction to shape memory polymers (SMPs); Tm type SMPs; Tg type SMPs; High performance MOCA SMPs; Supramolecular SMPs; Supramolecular SMPs containing pyridine; Thermally-induced shape memory properties of supramolecular SMPs containing pyridine; Moisture-sensitive shape memory properties of supramolecular SMPs containing pyridine; SMPs with novel functions: electro-active, magnetically-active, light-responsive and phase change materials; Shape memory finishing treatments for smart textiles; Manufacture of Tg and Tm shape memory polyurethane fibers; Future developments in SMPs.

*Published in association with The Textile Institute*

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## Medical and healthcare textiles


Edited by S C Anand, University of Bolton, J F Kennedy, Chembiotech Ltd, M Mirafteft and S Rajendran, University of Bolton, UK

### Woodhead Publishing Series in Textiles No. 75

### CONTENTS

Part 1 Infection control and barrier materials. Part 2 Healthcare and hygiene products. Part 3 Wound care materials. Part 4 Bandaging and pressure garments. Part 5 Implantable materials. Part 6 Medical devices. Part 7 Smart materials and technologies. Part 8 Industry standards and regulations.

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**NEW****Biotextiles as medical implants**

Edited by M W King, B S Gupta, North Carolina State University, USA and R Guidoin, Laval University Quebec, Canada

Woodhead Publishing Series in Textiles No. 113


Textiles play a vital role in the manufacture of various medical implants including the replacement of diseased or non-functioning parts of the body. This book provides an invaluable single source of information on the main types of textile materials and products used for medical implants. The first series of chapters provide the reader with an overview of biotextile structures, the types of textiles used for medical implants and processing issues. The second group of chapters focus on the different types of biotextile implants, including sutures and cardiovascular implants.

**CONTENTS**

Part 1 Technologies: Biotextile fibres, yarn and fabric production; Nanofibers for biotextile applications; Surface modification of textiles; Sterilisation techniques for biotextiles; Regulation of biotextiles for medical use; Assessing the effectiveness of biotextiles as medical implants. Part 2 Applications: Drug delivery systems using biotextiles; Surgical sutures; Embolic protection devices; Septal defect repair; Anterior cruciate ligament prostheses; Percutaneous heart valves; Cartilage; Neural tissues.

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**Medical textiles and biomaterials for healthcare**


Edited by S C Anand, University of Bolton, J F Kennedy, Chembiotech Ltd, UK, M Mirafat and S Rajendran, University of Bolton

Woodhead Publishing Series in Textiles No. 48

**CONTENTS**

Basic biomaterials; Healthcare and hygiene products; Infection control and barrier materials; Bandaging and pressure garments; Woundcare materials; Implantable devices; Medical devices; Smart technologies.

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**Medical textiles****Proceedings of the 2nd International Conference, 24th & 25th August 1999, Bolton Institute, UK**

Edited by S C Anand, University of Bolton, UK

Woodhead Publishing Series in Textiles No. 17

Published in association with *The Textile Institute*

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**NEW****Healthcare and hygiene textiles and products**

G Thilagavathi, M Parthiban and S Viju, PSG College of Technology, India


Healthcare and hygiene textiles and products remains one of the most dynamic areas in textile technology research. An increasingly intimate combination of textile technology and medical sciences has made healthcare and hygiene textiles an emerging multidisciplinary field with tremendous potential. With issues such as rising population and increased concern over the hygienic environment and infection prevention, the need to understand and improve hygiene and healthcare products has become increasingly important. *Healthcare and hygiene textiles and products* outlines the complexity of applications and developments in the manufacture of various hygiene and healthcare textile products, such as wound dressings; scaffolds for tissue management; medical gowns; bed linens; wipes and sanitary products; and implants, including the replacement of diseased or non-functioning parts of the body. Design specification, application and evaluation of nonwoven products in the area of healthcare and hygiene textiles are also addressed in this book.

**CONTENTS**

Healthcare and hygiene textile products; Value added functional finishing and barrier materials; Bandaging and shapewear garments; Wound dressing; Biomaterials; Intelligent textiles for medical application.

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**Biologically inspired textiles**

Edited by A Abbott and M Ellison, Clemson University, USA


Woodhead Publishing Series in Textiles No. 77

**CONTENTS**

Part 1 Biomimetic principles, production and properties: Recombinant DNA methods applied to the production of protein-based fibers as biomaterials; Purification of protein solutions; Spinning of fibers from protein solutions; Biomimetic principles of spider silk for high-performance fibers; A Biomimetic approach to the production of sustainable structural composites using plant fibers. Part 2 Biomimetic applications in textiles: Biomimetic principles in clothing technology; Self-cleaning textiles using the lotus effect; Analysing the thermal properties of animal furs for the production of artificial furs; The role of plant stems in providing biomimetic solutions for innovative textiles in composites; Bionic developments based on textile materials for technical applications.

Published in association with *The Textile Institute*

244 pages 234 x 156mm (6 x 9) hardback 2008  
ISBN: 978 1 84569 247 6 E-ISBN: 978 1 84569 508 8

 £130.00/US\$220.00/€155.00  
www.woodheadpublishing.com/9781845692476

**Handbook of medical textiles**

Edited by V Bartels, Bartels Scientific Consulting GmbH, Germany

Woodhead Publishing Series in Textiles No. 100


With a rising population and the increasing range of textiles for medical products, the need to understand and improve medical textiles is becoming increasingly important. This invaluable reference provides a broad overview of the different types of medical textiles, as well as focusing on specialised topics. Part one discusses the types and properties of medical textiles from reusable textiles to fabrics with cosmetic effects. Part two focuses on how textiles interact with skin. Part three provides the latest developments in textiles for hygiene and infection control and part four concludes by providing a range of applications and case studies.

**CONTENTS**

Part 1 Types and properties of medical textiles: Modern textiles and biomaterials for healthcare; Hi-tech textiles for interactive wound therapies; Reusable medical textiles; Nonwoven materials and technologies for medical applications; Textiles for implants and regenerative medicine; Textiles with cosmetic effects; Drug-releasing textiles; Medical textiles and thermal comfort. Part 2 Textiles and the skin: Contact sensations of medical textiles on the skin; Mechanical skin irritations due to textiles; Allergies caused by textiles; Biofunctional textiles based on cellulose and their approaches for therapy and prevention of atopic eczema. Part 3 Textiles for hygiene: Infection prevention and control and the role of medical textiles; Absorbent products for personal health care and hygiene; Bio-functional textiles; Hospital laundries and their role in medical textiles; Odour control of medical textiles. Part 4 Medical textile case studies and applications: Textiles for medical filters; Textiles for patient heat preservation during operations; Evaluation of occupational clothing for surgeons: achieving comfort and avoiding physiological stress through suitable gowns; Superabsorbents and their medical applications; Nanofibrous textiles in medical applications.

Published in association with *The Textile Institute*

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**Advanced textiles for wound care**

Edited by S Rajendran, University of Bolton, UK

Woodhead Publishing Series in Textiles No. 85

'...a detailed and thorough look into this exciting application of textiles.'


International Textile and Apparel Association

**CONTENTS**

Part 1 The use of textiles in particular aspects of wound care: Wound management and dressings; Testing dressings and wound management materials; Textile materials and structures for wound care products; Interactive dressings and their role in moist wound management; Bioactive dressings to promote wound healing; Advanced textiles for wound compression; Antimicrobial textiles dressings in managing wound infection; Novel textiles in managing burns and other chronic wounds. Part 2 Types of advanced textile for wound care: Drug delivery dressings; The use of 'smart' textiles for wound care; Composite dressings for wound care; Textile-based scaffolds for tissue engineering.

Published in association with *The Textile Institute*

360 pages 234 x 156mm (6 x 9) hardback 2009  
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www.woodheadpublishing.com/9781845692711

## Textiles for hygiene and infection control

Edited by B J McCarthy,  
TechniTex Faraday Limited,  
UK

Woodhead Publishing Series  
in Textiles No. 108



With issues such as a rising population and increasing concerns surrounding the environment and infection prevention, the need to understand and improve hygiene and healthcare products has become increasingly important. This book begins with an insight into the types of fibres used and explores how hygiene and infection control textiles are designed and produced. Concluding chapters discuss a range of applications.

### CONTENTS

Part 1 Design and production techniques for hygiene textiles: The design of novel hygiene textile products; Nanotechnology and its applications in medical hygiene textiles; Use of knitted spacer fabrics for hygiene applications; Innovative and sustainable packaging strategies for hygiene products; Biodegradable hygiene products. Part 2 Design and production techniques for infection-control textiles: Micro-organisms, infection and the role of textiles; Creating barrier textiles through plasma processing; Disposable and reusable medical textiles; Ensuring fabrics survive sterilisation. Part 3 Product types: Washable textile-based absorbent products for incontinence; Biological containment suits used in microbiological high containment facilities and by emergency responders; Coated textiles for skin infections; Antimicrobial treatments of textiles for hygiene and infection control applications: an industrial perspective.

*Published in association with The Textile Institute*

240 pages 234 x 156mm (6 x 9) hardback 2011  
ISBN: 978 1 84569 636 8 E-ISBN: 978 0 85709 370 7  
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## Smart textiles for medicine and healthcare

Materials, systems and applications

Edited by L Van Langenhove,  
University of Ghent, Belgium

Woodhead Publishing Series  
in Textiles No. 63

### CONTENTS

Part 1 Types of smart medical textile: Trends in smart medical textiles; Smart woundcare materials; Textile-based drug release systems; Application of phase-change and shape-memory materials in medical textiles; The use of electronics in medical textiles; Textile sensors for health care; Smart dyes for medical and other textiles. Part 2 Smart medical textiles for particular types of patient: Intelligent garments for prehospital emergency care; Smart medical textiles for monitoring pregnancy; Smart textiles for monitoring children in hospital; Wearable textiles for rehabilitation of disabled patients; Wearable assistants for mobile health monitoring; Smart medical textiles for monitoring patients with heart conditions.

*Published in association with The Textile Institute*

336 pages 234 x 156mm (6 x 9) hardback 2007  
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£155.00/US\$265.00/€185.00  
www.woodheadpublishing.com/9781845690274

## Functional textiles for improved performance, protection and health

Edited by N Pan and G Sun,  
University of California Davis,  
USA



Woodhead Publishing Series in Textiles No. 120

The textile industry is increasingly based on on-going innovation and development of higher performance products. This book explores the opportunities available to produce textiles with different functions that improve the performance, protection and medical aspects of the product. Part one reviews different types of functional textiles that can improve performance and protection for the wearer. Chapters include ultraviolet protection of clothing and flame retardant textiles. Part two addresses functions and new materials that provide health benefits or protection. These topics range from superhydrophobic materials, textile chemicals and their interaction with skin and novel pesticide protective clothing.

### CONTENTS

Part 1 Functional textiles and clothing for improved performance and protection: Improved textile functionality through surface modifications; Antistatic and conductive textiles; Ultraviolet protection of clothing; 3D body imaging and fit for functional textiles; Flame retardant functional textiles; Functional shape memory textiles; Thermo-regulating textiles with phase change materials; Infrared functional textiles; Functional smart textiles using stimuli-sensitive polymers; Development and design of performance swimwear; Key elements of protection for military textiles; Developments in clothing protection technology. Part 2 Functional textiles for improved medical and health purposes: New developments in functional medical textiles and their mechanism of action; Improving superhydrophobic coatings for textiles through chemical modifications; Improving superhydrophobic textile materials; Antibacterial textile materials for medical applications; Antibacterial colorants for textiles; Pyrethroid-laden textiles for protection from biting insects; Improving the functionality of clothing through novel pesticide protection; Biomechanics in skin-clothing interactions; Transdermal permeation of textile dyes and chemicals.

*Published in association with The Textile Institute*

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## Intelligent textiles and clothing

Edited by H Mattila, Tampere  
University of Technology,  
Finland

Woodhead Publishing Series  
in Textiles No. 54

*Published in association with  
The Textile Institute*



528 pages 234 x 156mm (6 x 9) hardback 2006  
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## Shape memory polymers and textiles

J Hu, Hong Kong Polytechnic  
University, Hong Kong

Woodhead Publishing Series  
in Textiles No. 65



*'It will be of great interest for textile engineers and designers, who like to introduce innovative material technologies.'*

**Materials Today**

### CONTENTS

Preparation of shape memory polymers; Characterization technique for shape memory polymer; Structure and properties of shape memory polyurethane ionomer; Water vapor permeability of shape memory polyurethane; Characterization of shape memory properties in polymers; Structure modeling of shape memory polymers; Environmental sensitive polymer gel and its application in textiles field; Evaluation of shape memory fabrics; Shape memory textiles.

*Published in association with The Textile Institute*

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## Wearable electronics and photonics

Edited by X M Tao, Hong Kong Polytechnic  
University, Hong Kong

Woodhead Publishing Series in Textiles No. 46

### CONTENTS

Electrostatically generated nanofibres for wearable electronics; Electroceramic fibres and composites for intelligent apparel applications; Electroactive fabrics and wearable man-machine interfaces; Electromechanical properties of conductive fibres, yarns and fabrics; Integration of fibre optic sensors and sensing networks into textile structures; Wearable photonics based on integrative polymeric photonic fibres; Communication apparel, optical fibre fabric display; Wearable computing systems - electronic textiles; Data transfer for smart clothing: requirements and potential technologies; Interaction design in smart textiles clothing and applications.

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## Smart fibres, fabrics and clothing Fundamentals and applications

Edited by X M Tao, Hong Kong Polytechnic  
University, Hong Kong

Woodhead Publishing Series in Textiles No. 20

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## CLOTHING

## NEW

**Anthropometry, apparel sizing and design**

Edited by D Gupta, Indian Institute of Technology, India and N Zakaria, Universiti Teknologi Mara (UiTM), Malaysia


Woodhead Publishing Series in Textiles No. 148

One of the greatest challenges for the apparel industry is to produce garments that fit customers properly. Anthropometry refers to the study of body dimensions such as size, weight and shape. Anthropometric data is critical in determining sizing systems for clothes and their design. This book reviews recent research in anthropometry, sizing systems and their applications to the design of clothing.

**CONTENTS**

Introduction to garment sizing and design. Part 1 Anthropometric methods and analysis: Principles of anthropometry for the clothing industry; Anthropometric methods: body measurement devices and techniques; Analysing anthropometric data: tools and techniques for identifying key body dimensions; Analysing anthropometric data: tools and techniques for segmentation and classification in developing clothing sizing systems. Part 2 Clothing sizing systems: International sizing surveys for clothing design; The development of sizing systems for clothing; International clothing sizing systems and classification; Clothing size designation and labelling. Part 3 Sizing and clothing design: Static human body modelling and clothing design; Body motion modelling, clothing design and fit; Clothing pattern drafting and design; Manikins for clothing size fit and analysis.

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## NEW

**Clothing manufacture management**

A systematic approach to planning, scheduling and control

J Gersak, University of Maribor, Slovenia


Woodhead Publishing Series in Textiles No. 147

This book reviews the development of new systems for rapid development and manufacture of garment collections. Chapters review developments in international garment classification and sizing systems, techniques for developing an overall garment collection, garment design and pattern preparation, garment production and testing.

**CONTENTS**

Clothing classification systems; Clothing sizing systems; Key management issues in developing a garment collection; Planning and organisation of clothing production; Planning of clothing design, pattern making and cutting; Planning sewing, assembly and other aspects of clothing manufacturing; Clothing production management: scheduling, monitoring and cost control; The use of textile material testing in clothing production.

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## NEW

**Optimizing decision making in clothing manufacture using artificial intelligence (AI)**

From production to fashion retail

W K Wong, Z X Guo and S Y S Leung, Hong Kong Polytechnic University, China


Woodhead Publishing Series in Textiles No. 143

There has been growing interest in the use of artificial intelligence (AI) to plan and optimize apparel production. This pioneering book reviews how AI can be used to optimise the apparel supply chain, from production order, cut order and marker planning through to fabric spreading and cutting, sewing and assembly, sales forecasting and cross-selling.

**CONTENTS**

Understanding key decision points in the apparel supply chain; Fundamentals of artificial intelligence (AI) techniques for textiles applications; Selecting the location of apparel manufacturing plants using AI; Optimization of production order planning and scheduling in apparel production using AI; Optimization of cut order planning in apparel production using AI; Optimizing marker planning in apparel production using AI; Optimization of fabric spreading and cutting schedules in apparel production using AI; Optimizing apparel sewing and assembly operations using AI; Sales forecasting for apparel production and fashion retailing using AI; Intelligent apparel cross-selling using radio frequency identification (RFID) technology for fashion retailing.

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## NEW

**Handbook of footwear design and manufacture**

Edited by A Luximon, Hong Kong Polytechnic University, China


Woodhead Publishing Series in Textiles No. 141

The application of textiles in footwear is an active area of research, the understanding of which can improve design as well as the marketability of a product. This important book reviews key research in this field. Part one discusses foot anatomy and its implications for footwear design. Parts two and three look at design issues from foot and footwear drawing templates to shoe last design and footwear manufacture. The final part of the book includes the design of particular types of footwear.

**CONTENTS**

Part 1 Fundamentals of footwear anatomy: The anatomy of the human foot; Foot development in childhood and adolescence; Food models and measurements; Foot problems and their implications for design. Part 2 Footwear design: Shoe design: an overview; Foot sketch templates; Footwear drawing templates; Characterising footwear fit and comfort. Part 3 From design to manufacture: Design and manufacture of shoe lasts; Sizing and grading of shoe lasts; Shoe last design templates; Shoe last design for mass customised footwear; Textile materials for footwear; Shoe manufacturing techniques; Advertising and markets; The environmental impact of footwear manufacture. Part 4 Applications: Footwear for cold weather applications; Textiles for protective military footwear; Orthopaedic insoles; Geriatric footwear.

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## NEW

**Ergonomics in the garment industry**

G Colovic, The College of Textile Design, Serbia

*Ergonomics in the garment industry* imparts knowledge on ergonomics and safety at work in the garment manufacturing industry. Chapters discuss ergonomics development; divisions of ergonomics; ergonomic conditions of work; ergonomic principles; and ergonomic design of the workplace.

**CONTENTS**

Ergonomics development; Divisions of ergonomics; Ergonomic conditions of work; Ergonomic principles; Ergonomic design of workplace.

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## NEW

### Textile-led design for the active ageing population

Edited by J McCann, University of Wales and D Bryson, University of Derby, UK

Woodhead Publishing Series in Textiles No. 142

'Active ageing' involves enhancing opportunities for participation, health and security amongst the older population. This increasingly important and relatively neglected group of consumers has complex needs. This important book summarises the wealth of recent research on attitudes to clothing amongst the active ageing population, how their aspirations can be investigated and appropriate apparel designed to meet their needs. Design and manufacturing issues include ways of accommodating physiological changes with age and the use of wearable electronics to enhance health and well-being.

#### CONTENTS

Part 1 Understanding the active ageing population: The changing image of the active ageing population; The effect of technological change; Clothing and identity in the active ageing population; Gender, age and image in apparel choice; Attitudes to apparel amongst the baby boomer generation. Part 2 Understanding and researching apparel needs: Quantitative methods; Anatomical and physiological changes; Clothing and thermoregulation; 3D scanning techniques; The role of colour in textiles; Barriers to the adoption of wearable electronics. Part 3 Design techniques: Identifying design requirements; Co-design techniques; Inclusive design techniques. Part 4 From design to apparel: Textile fibres; Fabric selection; Designing base layers; Smart technology; Communicating new products.

Published in association with The Textile Institute

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## NEW

### Functional textiles and clothing

G Thilagavathi, M Parthiban and S Viju, PSG College of technology

*Functional textiles and clothing* examines the concepts of clothing design and development and looks at material and structural requirements and finishing. Further chapters discuss clothing fit and specific functional clothing. Examples and case studies of a textile-based approach for improving properties and functionality of different types of clothing are discussed.

#### CONTENTS

Introduction; Scope for process and quality control in spinning; Statistical techniques in quality control; Cotton fibre selection and bale management; Yarn realization and waste control; Control of neps and fibre rupture; Count and strength variation; Yarn evenness and imperfections; Analysis of yarn faults and package defects; Control of productivity.

A Woodhead Publishing India title

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## NEW

### Product safety and restricted substances in apparel

S Das, Li & Fung India Private Limited, India

Consumer awareness of the purchasing of safe and eco-friendly apparel products is on the rise. Knowledge of the restricted substances helps the industry navigate often complex product safety and chemical management requirements in order to address consumer preferences in the apparel supply chain. There is no doubt that risk analysis of the product at appropriate stage eliminates the possibilities of existence of restricted substances by adopting a right safety compliance policy. Thus, different safety aspects of apparel and its related requirements shall be covered in *Product safety and restricted substances in apparel*. Potential sources of restricted substances, chemicals of concern, and the scope of implementation for a proper testing program will also be discussed. Different standards to comply with legal regulations associated with the chemical management of restricted substances will be included in this book.

#### CONTENTS

Safety aspects of different apparel products; Product performance requirements in safety aspects of apparel; Review of restricted substances in apparel; Test methods to evaluate restricted substances in apparel; Global regulatory requirements of harmful substances in apparel; Conclusions.

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## NEW

### Statistics for textile and apparel management

J Hayavadana, Osmania University, India

*Statistics for textile and apparel management* deals with the fundamental principles of statistical methods and their applications in textile production. This may be in fibre, yarn or fabric manufacture and across any of the allied processes such as dyeing, printing and finishing. This book is an ideal reference for textile technologists and students.

#### CONTENTS

Introduction to statistics; Treatment of data and construction of frequency distribution; Measures of central tendency; Measure of dispersion; Theoretical distributions; Correlation; Linear regression; Time series; Control charts; Tests of significance; Analysis of variance.

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## NEW

### Pattern cutting for clothing using CAD

How to use Lectra Modaris pattern cutting software

M Stott, Consultant, UK

Woodhead Publishing Series in Textiles No. 137

Lectra's Modaris pattern cutting software is a key tool in clothing pattern production. Using a practical approach and clear examples throughout, *Pattern cutting for clothing using CAD* is an essential guide for all users of Lectra Modaris. Beginning with an overview of the role of patterns in clothing manufacture, the key documents and tools of the trade are discussed before the keyboard, mouse and screen layout in Lectra Modaris are introduced. Title blocks and all aspects of digitising a clothing pattern on are examined in clear, concise steps, followed by a thorough guide to the Lectra Modaris toolbox and the upper and lower tool bar menus.

#### CONTENTS

The role of patterns in clothing manufacture: Generating and communicating information; Introduction to the keyboard, mouse and screen layout in Lectra Modaris pattern cutting software; Title blocks in Lectra Modaris pattern cutting software; Digitising a clothing pattern on Lectra Modaris pattern cutting software; Plotting using Justprint in Lectra Modaris pattern cutting software; A guide to the toolbox in Lectra Modaris pattern cutting software: F1-F3; A guide to the toolbox in Lectra Modaris pattern cutting software: F4-F8; The upper tool bar in Lectra Modaris pattern cutting software; The lower tool bar menus and keyboard commands in Lectra Modaris pattern cutting software; Converting files using the Lectra Modaris interoperability function; Creating size ranges in Lectra Modaris pattern cutting software; The importance of measurements and size charts for clothing pattern cutting; How do I? The functions and menus that you need to know in Lectra Modaris indexed by the required action.

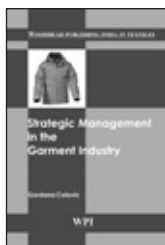
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## NEW Strategic management in the garment industry

G Colovic, The College of Textile Design, Technology and Management, Serbia



Strategy implementation in the garment industry requires a special kind of expertise. Formulating a strategy requires an entrepreneurial focus and emphasizes the ability to conceptualize, analyze and weigh, whereas applying strategy has a primarily managing focus. All fashion companies must, regardless of their current situation, develop a long-term strategy. There is not a single strategy that would be optimal for all companies, because each of them must determine a strategy in accordance with its objectives, capabilities, resources and market position. *Strategic management in the garment industry* illustrates advances in business strategy in the garment industry for current and future managers, students of textile technology and engineers.

### CONTENTS

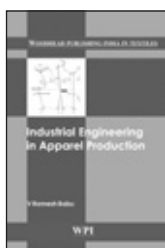
Strategic management; Garment industry; Strategic marketing in garment industry; Strategic management in garment industry; Strategic methods; Organizational behaviour.

*A Woodhead Publishing India title*

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## Industrial engineering in apparel production

V Ramesh Babu, Sona College of Technology



This book focuses on the industrial engineering aspects in apparel production. Garment fashion technology students, researchers and textile engineers will find this book useful.

### CONTENTS

Concepts of production and productivity; Role of apparel engineering; Method analysis; Motion economy; Apparel production systems and factory layout; Work measurement; Application of IE techniques in garment industry; Line balancing; Scientific method of training; Industrial engineering in apparel quality control.

*A Woodhead Publishing India title*

200 pages 234 x 156mm (6 x 9) hardback 2011  
ISBN: 978 0 85709 107 9 E-ISBN: 978 0 85709 554 1  
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## Improving comfort in clothing

Edited by G Song, University of Alberta, Canada

Woodhead Publishing Series in Textiles No. 106



Wear comfort is one of the most important properties of clothing demanded by consumers. Part one of this book reviews the fundamental principles of comfort. A second group of chapters examine the measurement and assessment of comfort, including both laboratory measurement and consumer perceptions of comfort. Subsequent topics analyse how to improve the physical aspects of comfort in textiles and apparel. The final part of the book offers a selection of case studies involving the incorporation of comfort into medical, military, firefighter and sportswear applications.

### CONTENTS

Part 1 Fundamentals of comfort and assessment: Factors affecting comfort: Human physiology and the role of clothing; Properties of fibres and fabrics that contribute to human comfort; Wool and garment comfort; How consumers perceive comfort in apparel; Laboratory measurement of thermo-physiological comfort; Testing, analyzing and predicting the comfort properties of textiles. Part 2 Improving comfort in apparel: Improving thermal comfort in apparel; Improving moisture management in apparel; Improving tactile comfort in fabrics and clothing; Garment pattern design and comfort; Improving body movement comfort in apparel. Part 3 Improving comfort in particular types of clothing: Evaluating the heat-stress and comfort of fire-fighter and emergency responder protective clothing; Improving comfort in military protective clothing; Balancing comfort and function in textiles worn by medical personnel; Improving comfort in sports and leisure wear; Cold weather clothing and comfort; Achieving comfort in intimate apparel.

*Published in association with The Textile Institute*

496 pages 234 x 156mm (6 x 9) hardback 2011  
ISBN: 978 1 84569 539 2 E-ISBN: 978 0 85709 064 5  
£150.00/US\$255.00/€180.00  
www.woodheadpublishing.com/9781845695392

## Management of technology systems in garment industry

G Colovic, The College of Textile Design, Technology and Management, Serbia



### CONTENTS

Technology; Technological system; Determining time of technological operations in clothing production; Ergonomic workplace; Analysis of the planning, layout and logistics in garment manufacturing; Production management.

*A Woodhead Publishing India title*

212 pages 234 x 156mm (6 x 9) hardback 2010  
ISBN: 978 0 85709 005 8 E-ISBN: 978 0 85709 404 9  
£95.00/US\$160.00/€115.00  
www.woodheadpublishing.com/9780857090058

## Computer technology for textiles and apparel

Edited by J Hu, Hong Kong Polytechnic University, Hong Kong

Woodhead Publishing Series in Textiles No. 121



Computer technology has transformed textiles from their design through to their manufacture. This book reflects the significant advances that have been made in computer technologies, covering a wide range of topics from modelling to electronic textiles and apparel. Part one provides a review of different computer-based technologies suitable for textile materials. Chapters include computer technology for yarn structure, fabric defects and garment structure. Part two discusses modelling and simulation of fibres and textiles, including the modelling of yarn and garments. Part three concludes with a review of computer-based technologies specific to apparel, ranging from 3D body scanning to electronic textiles.

### CONTENTS

Part 1 Computer-based technology for textile materials: Digital technology for yarn structure and appearance analysis; Digital-based technology for fabric structure analysis; Computer vision-based fabric defect analysis and measurement. Part 2 Modelling and simulation of textiles and garments: Key techniques for 3D garment design; Modelling and simulation of fibrous yarn materials; Digital technology and modelling for fabric structures; Modelling ballistic impact on textile materials; Modelling and simulation techniques for garments. Part 3 Computer-based technology for apparel: Human interaction with computers and its use in the textile apparel industry; 3D body scanning: generation Y body perception and virtual visualization; Computer technology from a textile designer's perspective; Digital printing technology for textiles and apparel; Approaches to teaching computer-aided design (CAD) to fashion and textiles students; Three-dimensional (3D) technologies for apparel and textile design; Integrated digital processes for design and development of apparel.

*Published in association with The Textile Institute*

392 pages 234 x 156mm (6 x 9) hardback 2011  
ISBN: 978 1 84569 729 7 E-ISBN: 978 0 85709 360 8  
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www.woodheadpublishing.com/9781845697297

## Science in clothing comfort

A Das and R Alagirusamy, Indian Institute of Technology, New Delhi, India

### CONTENTS

Introduction to clothing comfort; Psychology and comfort; Neurophysiological processes in clothing comfort; Tactile aspects of clothing comfort; Thermal transmission; Moisture transmission; Dynamic heat and mass transmission; Garment fit and comfort.

*A Woodhead Publishing India title*

250 pages 234 x 156mm (6 x 9) hardback 2010  
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## Textiles for cold weather apparel

Edited by J T Williams, De Montfort University, UK

Woodhead Publishing Series in Textiles No. 93



### CONTENTS

Part 1 Fundamentals of cold weather clothing comfort: Achieving comfort and thermoregulation in cold weather clothing. Part 2 Materials for cold weather clothing: Coated and laminated fabrics for cold weather apparel; Wool for cold weather clothing; Biomimetics and its impact on outdoor clothing. Part 3 Design considerations and ergonomics: Designing for ventilation; Adaptive systems for cold weather clothing. Part 4 Evaluation of cold weather apparel: Laboratory assessment of cold weather clothing; Evaluation of cold weather clothing using manikins; Human wear trials. Part 5 Applications: Protective clothing for cold workplace environments; Footwear for cold weather.

*Published in association with The Textile Institute*

432 pages 234 x 156mm (6 x 9) hardback 2009  
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£155.00/US\$265.00/€185.00  
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## Quality characterisation of apparel

S Das, Central Silk Board, India

### CONTENTS

Introduction; Quality protocols and performance standards of apparels and related accessories; Benchmarking of quality in apparel; Importance of flammability, care label and fibre content of apparel; Safety issues for different accessories in children garment; Case studies of safety review in children garment; Product recall in children garment; Role of different stakeholders in the quality of apparel.

*A Woodhead Publishing India title, Published in Association with The Textile Association of India*

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## Engineering apparel fabrics and garments

J Fan, Hong Kong Polytechnic University, Hong Kong and L Hunter, CSIR, South Africa

Woodhead Publishing Series in Textiles No. 96

### CONTENTS

Handle and making-up performance of fabrics and garments; Wrinkling of fabrics and garments; Pilling of fabrics and garments; Bagging of fabrics and garments; Fabric and garment drape; Appearance issues in garment processing; Durability of fabrics and garments; Physiological comfort of fabrics and garments; Psychological comfort of fabrics and garments; Flammability of fabrics and garments; Waterproofing and breathability of fabrics and garments; Ultraviolet protection of fabrics and garments; Laundry performance of fabrics and garments; Application of artificial intelligence in fabric and garment engineering.

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## Smart clothes and wearable technology

Edited by J McCann, University of Wales Newport and D Bryson, University of Derby, UK

Woodhead Publishing Series in Textiles No. 83

*Published in association with The Textile Institute*

484 pages 234 x 156mm (6 x 9) hardback 2009  
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## Advances in apparel production

Edited by C Fairhurst, Manchester Metropolitan University, UK

Woodhead Publishing Series in Textiles No. 69

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328 pages 234 x 156mm (6 x 9) hardback 2008  
ISBN: 978 1 84569 295 7 E-ISBN: 978 1 84569 446 3

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www.woodheadpublishing.com/9781845692957

## Sizing in clothing

Edited by S Ashdown, Cornell University, USA

Woodhead Publishing Series in Textiles No. 64

*'...an invaluable resource for anyone conducting research into sizing or the pattern.'*

*'This book must be commended for the insight it provides.'*

**Journal of Fashion Marketing and Management**

*Published in association with The Textile Institute*

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## Innovation and technology of women's intimate apparel

W Yu, J Fan, S-P Ng, Hong Kong Polytechnic University, Hong Kong and S Harlock, Media Innovations Ltd, UK

Woodhead Publishing Series in Textiles No. 55

*Published in association with The Textile Institute*

264 pages 234 x 156mm (6 x 9) hardback 2006  
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## Biomechanical engineering of textiles and clothing

Edited by Y Li and D X-Q Dai, Hong Kong Polytechnic University, Hong Kong

Woodhead Publishing Series in Textiles No. 52

*Published in association with The Textile Institute*

428 pages 234 x 156mm (6 x 9) hardback 2006  
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## Clothing biosensory engineering

Y Li and A S W Wong, Hong Kong Polytechnic University, Hong Kong

Woodhead Publishing Series in Textiles No. 51

*Published in association with The Textile Institute*

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## Clothing appearance and fit Science and technology

J Fan, W Yu, Hong Kong Polytechnic University, Hong Kong and L Hunter, CSIR, South Africa

Woodhead Publishing Series in Textiles No. 33

*Published in association with The Textile Institute*

260 pages 234 x 156mm (6 x 9) hardback 2004  
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## Apparel sizing and fit

Textile Progress Vol. 32 No. 1

B Le Pechoux and T K Ghosh

*A Textile Institute publication*

60 pages 242 x 169mm (6 1/2 x 9 1/2) paperback 2002  
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## Sewing threads

Textile Progress Vol. 30 Nos. 3/4

J O Ukponmwan, K N Chatterjee and A Mukhopadhyay

*A Textile Institute publication*

94 pages 242 x 169mm (6 1/2 x 9 1/2) paperback 2001  
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## Stitches and seams

R M Laing and J Webster

*A Textile Institute publication*

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