HANDBOOK OF TECHNICAL TEXTILES

Edited by

A R Horrocks and S C Anand

The Textile Institute

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To the past and present staff members, support staff and students in Textile Studies at Bolton Institute, for their friendship and support over the years.

Preface

Technical textiles are reported to be the fastest growing sector of the textile industrial sector and account for almost 19% (10 million tonnes) of the total world fibre consumption for all textile uses, totalling 53 tonnes in 1997. This figure is likely to increase to 14 million tonnes by the year 2005. Technical textiles are estimated to account for well over 40% of the total textile production in many developed countries and, at the year 2000, account for almost 20% of all textile manufacturing in China (Byrne 1997).

The current volume of the market worldwide for technical textiles is more than $60 billion. The average annual growth rate of technical textiles worldwide is expected to be around 3.8% for the period 2000 to 2005.

The uniqueness and challenge of technical textiles lies in the need to understand and apply the principles of textile science and technology to provide solutions, in the main to technological problems but also often to engineering problems as well. With the emphasis on measurable textile performance in a particular field of application, this requires the technologist to have not only an intricate knowledge of fibres and textile science and technology but also an understanding of the application and the scientists, technologists and engineers who service it. Thus the producer of geotextiles requires an intricate knowledge of the world of civil engineering, and the medical textile producer, the requirements of consultant, medical practitioner and nurse. This series attempts to provide a bridge between producer and end-user.

The main principles involved in the selection of raw materials and their conversion into yarns and fabrics followed by dyeing, finishing and coating of technical textiles are explored, followed by the raw materials, processing techniques, finishing, specifications, properties and special technical and commercial features of a wide range of specific areas of application.

Each of the chapters has been specially prepared and edited to cover current developments as well as future trends in both the principles of manufacture and the state-of-the-art constructional specifications, properties, test methods and standards of the major product areas and applications of technical textiles.

A team of internationally famous authors has contributed a great deal of time, effort and above all special and significant expertise and experience to the preparation of this handbook. The editors wish to extend their most sincere thanks to all the authors for their important contribution, patience and cooperation. This book once again confirms that enthusiasm and love of the subject are more important than the financial gains.

Special thanks are also given to Patricia Morrison of Woodhead Publishing Ltd, Cambridge for her consistent interest and effort in keeping this project warm for so long and her continued faith in the editors.

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