

Book Review

Performance Testing of Textiles: Methods, Technology and Applications, edited by Lijing Wang (Woodhead Publishing Series), 2016, Price \$ 235.00, pp.244.
[ISBN: 978-0-08-100570-5 (Print)]

The book comprising ten chapters covers testing and evaluation for a range of products such as military textiles, E-Textiles, acoustic applications, medical textiles and fibre reinforced textile composites. Comfort properties are covered in two chapters. Military clothing and their requirements in terms of thermal, physiological and comfort properties have received adequate attention followed by another chapter dealing with influence of fibre, yarn, fabric, and garment properties on the comfort characteristics of textiles. Test methods and related aspects such as comparison of test methods, breathability, stiffness, sorption index have been covered. Development of test methods have received good attention. Since two chapters deal with similar areas certain amount of repetition is noticed which perhaps was unavoidable. A proper sequence could have been the third chapter to precede the second chapter since it deals with fundamental issues of comfort and this followed by special reference to military textiles would have been appropriate. All the Chapters are contributed by well-known textile technologists.

Similarly, two chapters deal with E-Textiles. The chapter on wearable electronics covers technological aspects and various E-Textiles along with some testing aspects wherever relevant. The other chapter on E-Textiles highlights design and application of electronic textiles in addition to their advantages, limitations and safety aspects but the chapter makes only a passing reference to testing of these textiles. A more comprehensive literature search on testing aspects particularly of conducting fabrics would have given additional information to the readers. Relatively, recent

issues of journals such as Textile Research Journal or Journal of Applied Polymer Science in the last ten to twelve years have many useful publications on testing aspects of such fabrics. Some more information on Four probe and Two probe methods of testing of bulk conductivity of fabrics and AATCC-76 would have been advisable.

Testing and evaluation of acoustics and medical textiles are dealt with in detail. References of a large number of test standards and relevant literature are given in both the cases which is commendable. However, test method for virus filtration efficiency is missing.

The authors give detailed picture of EN/ISO standards for medical textiles. What is missing is similar treatment to American standards which are widely used. ASTM and AAMI are the two relevant organisations whose standards could have been covered. Readers would have been delighted to see a comparison of EN13795 with relevant AAMI or ASTM standards for surgical drapes and gowns for various properties. A comparison of such standards in Europe and US would give interesting information.

The chapter on fibre reinforced composites is interesting and informative. This chapter not only deals with characterisation techniques but also some case studies of composites manufacturing and their testing. Environmental textiles and necessary testing requirements for eco friendliness is adequately described in terms of azo dyes, Oekotest standards, REACH and GOTS. Fibre characterisation by thermal analysis using DSC, TGA, TMA are useful since knowledge of thermal behaviour of raw material is essential in developing performance textiles.

The most notable and interesting aspect of the book is the inclusion of a chapter on Design and Analysis of Textile Research. This chapter

although has nothing to do with testing per se but is of utmost importance to researchers, and conclusions of experiments on testing/evaluation have to be necessarily based on proper Design of Experiments. The chapter is a must read for researchers and those involved in developing performance textiles.

Performance textiles is a vast subject and the book obviously misses many other performance textiles which may be included in the next editions

of the book. All in all, the book is a good reference material for researchers, academics and application specialists in the field.

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