

## Performance evaluation of multifunctional fibrous materials for specialty products.

R. Fangueiro\*, A. Franzo\*, M. Henriques\*\*, R. Oliveira\*\*, F. Soutinho\*,  
J. Peixoto\*, M. de Araújo\*

\*Department of Textile Engineering, University of Minho  
Campus de Azurém, 4800 Guimarães, PORTUGAL  
Tel. +351 253 510 280 Fax: +351 253 510 293  
[rfang@det.uminho.pt](mailto:rfang@det.uminho.pt)

\*\* Department of Biological Engineering  
Campus de Gualtar, 4710 Braga, Portugal  
Tel. +351 253 604400 Fax: +351 253 678 293

The development of functional fibres is contributing to establish new frontiers for the application of fibrous materials. The use of this type of fibres is converting common products into high performance goods, with a large technological content, being able to respond to the most adverse situations.

In textile material science the approach to developing functional materials can be divided into two areas, the development of functional fibres to be used in the fabrication of the textile structures and the development of functional finishings to be applied to or embedded in the textile structure.

In each case the objective is to develop specific properties, which will enable these materials to perform better a particular task in the final product.

This paper describes a part of the work that is being done at University of Minho on the performance evaluation of multifunctional textiles produced with special fibres. The aim is to understand the performance of functional fibers available in the market in order to combine them and develop multifunctional products for different purposes, mainly for health-care, such as dermatological socks. The functional fibers selected and being tested within this study include Trevira Bioactive, Amicor Pure, Seacell Active, Outlast, Modal Sun, Dri-release, etc. The fibers have been tested alone and in combination among them in order to evaluate the influence of one function over the other. Multifunctional weft-knitted samples have been produced and evaluated. The performance tests on bioactive fibers have been carried out in the Department of Biological Engineering while the tests related to comfort and well-being have been done at the Department of Textile Engineering of University of Minho.

This research work is being undertaken in co-operation with the company *António Almeida & Filhos - Têxteis S.A.*