



Improved Performance through Functional Finishes

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ABSTRACT

Recent commercial developments in functional finishes for cotton are discussed. Moisture management, comfort and odor are highlighted as areas of interest to the consumer, and some available products are mentioned. Results from a study of antimicrobial finishes on cotton knit fabric are given. None of the products remained effective against the chosen Gram-negative bacteria after limited number of home laundering cycles (HLTDs). However, all the treatments appeared to kill the Gram-positive bacteria after ten HLTDs. Further study is needed to identify a topical antimicrobial treatment that continues to work well after twenty-five HLTDs.

KEYWORDS: cotton, functional finishes, moisture management, comfort, antimicrobial, fluorochemical

INTRODUCTION

As consumers demand more durability and more functionality from their clothing, apparel makers must respond with garments that are technically advanced yet still soft and comfortable. Cotton can provide naturally the comfort that is expected in garments and, by finishing, protection from ultraviolet, from weather, or from odors due to microbe growth. Additional properties such as resistance to burning and freedom from wrinkles are also desirable and may be achieved with the selection of an appropriate finish. Our challenge is to broaden the range of characteristics which can be obtained with cotton without forfeiting the superior comfort properties with which cotton is endowed.

Briefly, some of the characteristics which have played a part in the success of cotton are breathability, absorbency, texture, and

freedom from static. Breathability, absorbency, and texture also contribute to the comfort of cotton. Some of the finishes that are widely used to expand the appeal of cotton are wrinkle resist, softeners, and enzyme treatments. Coated and laminated fabrics have become very fashionable in some areas. Application of fluorocarbons to apparel for soil repellency, water repellency, and stain release has been limited. Although antimicrobial finishing has become popular in other countries, in the U.S., questions about regulations have restrained the use on fabrics. Other unique finish applications that may have some consumer appeal include the incorporation of scents or chemicals to remove odors and temperature regulation through phase change materials. Finally, ultraviolet-protection and flame-resistance are features that have been historically are targeted to specific markets, for instance, beachwear or protective apparel.