

## Influence of Enzymatic Industrial Washing on Cotton and Cotton/Elastane Garment's Properties

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The domestic readymade garment sector is booming, and garment processing has emerged as one of the important production routes towards meeting quick changing demands of the fashion market. One of the possibilities in increasing opportunities available for differentiation of the end product, offering options to retailer which are not available in piece good finishing and giving opportunities to impart unique looks and finishes that cannot be achieved in fabric form, is industrial washing. During the washing cycle, garments are affected by the entire complex of different factors such as a washing solution, abrasion, creasing, heat, various chemicals, etc. Therefore, intensive destruction of polymers that are the components of fibers takes place and leads to intensive wear of articles. Garments from short fibers feature more intensive wear and tear as in the process of washing fibers are released gradually.

In recent years, there has been increasing interest in the use of environmentally friendly, nontoxic, fully biodegradable enzymes in the modern textile technology finishing process. It has been proven that enzyme treatment can replace a number of mechanical and chemical operations, which have been applied to improve the comfort and quality of fabrics by now. So, cellulase enzymes were used in finishing garments made of cotton and cotton/elastane. Garments were made of fabrics in various waves plane and twill, different fabric weights, continuously dyed or weaved with dyed yarns in appropriate design. After enzymatic treatment garments were softened with silicone or cationic softeners.

Structural (thickness, density, surface density) shrinkage, mechanical properties (tensile strength, elongation, abrasion resistance, bending strengths as well as bending modulus), drapability, wrinkle recovery and hygienic properties (water retention value) as well as the change in colour of garments were tested before and after applying different finishing methods. The whole appearance of garments was also evaluated after finishing. Correlation between analyzed properties were found.