

Influence of Annealing on the Mechanical Properties of Polyester-Cotton Friction Spun Yarn

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Abstract : In the course of processing phases and use, fibres, yarns, or fabrics are subjected to a variety of stresses and strains, which cause the development of internal stresses. Given an opportunity, these inherent stresses try to bring back the structure to the original state. As an example, a twisted yarn always shows a tendency to untwist whenever its one end is made free. If the yarn is not held under tension, it may form snarls due to the presence of excessive torque. The running performance of such yarn or thread may, therefore, get negatively affected by it, as a snarl may not pass through the knitting or sewing needle smoothly, leading to an end break. A fabric shows a tendency to form wrinkles whenever squeezed. It may also shrink when brought to a relaxed state. In order to improve performance (i.e., dimensional stability or appearance), stabilization of the structure is needed. The stabilization can be attained through the release of internal stresses, which can be brought about by the process of annealing and/or other finishing treatments. When a fabric is subjected to heat, a change in the properties of the fibers, yarns, and fabric is expected. The degree to which the properties are affected would depend upon the condition of heat treatment and on the properties & structure of fibres, yarns, and fabric. In the present study, an attempt has been made to investigate the effect of annealing treatment on the properties of polyester cotton yarns with varying sheath structures.

Keywords : friction spun yarn, annealing, tenacity, structural integrity, decay

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