

# 에어젯트 공정특성이 텍스처링사의 물성에 미치는 영향

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This paper starts with brief comments on the mechanism of air-jet texturing and the physical properties of air-jet textured yarn with various processing conditions centering around the published papers until now. Physical and mechanical properties of air-jet textured yarns manufactured with Hemma Jet T311 type are measured with various processing conditions such as overfeed, air pressure and dry/wet effect. Polyester filaments used are 75d/36f semi dull, which is used for core, and 75d/72f semi dull, which is used for effect in the yarn, respectively. The other polyester filaments used are 40d/24f, which is high shrinkable yarn and 50d/24f, which is cation fibre, both are used for core in the yarn. Physical properties measured are yarn linear density, yarn stability (instability and decay) by the stress-strain diagram, loop structure by SEM. Mechanical properties measured are tenacity, modulus yarn compression, and bending property. These physical and mechanical properties are analysed and discussed with various processing parameters such as overfeed, air pressure and dry/wet condition.

The main conclusions from this study are as follows.

Modulus and tenacity of core/effect air-jet textured yarns are decreased with increasing air pressure and over feed, respectively. On the other hand, these mechanical properties of core/core yarns are increased with air pressure and over feed, respectively, but, under high over feed, 15% with low or medium air pressure and high air pressure, 11 bar with high over feed, core/core yarns show very extensible property with high tenacity. Instability of air-jet textured yarns related to the modulus and surface structure of yarn could demonstrate the validity of above results. Decay related to the internal structure of textured yarn shows some trend with various air pressure and over feed for core/effect yarns, but doesn't show any effect for core/core yarns. Yarn mechanical properties in the lateral direction such as bending rigidity and compressional energy related to the fabric hand, drape, and resilience show some propensity with various air pressure and over feed for core/core yarns, and doesn't show for core/effect yarns as the mode between longitudinal and lateral deformations is different each other.