

# COMPARISON OF PHYSICAL PERFORMANCE CONTRIBUTIONS OF GIZA COTTON VS REGULAR COTTON IN DENIM FABRICS

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## Abstract:

Giza cotton, known for its staple length ranging from 3.8 cm to 5.7 cm, boasts longer fibers compared to other cotton varieties, enabling the production of exceptionally fine yarn counts. This unique attribute lends Giza cotton a distinct advantage in textile manufacturing, particularly in crafting fabrics of unparalleled quality [1, 2]. Characterized by its luxurious softness, glossy appearance, and remarkable durability, Giza cotton stands out among its counterparts. Its fibers possess an exceptional liquid absorption capacity, allowing dyed fabrics to maintain their vibrant colors and luster for extended periods, a feature highly coveted by discerning consumers and luxury brands alike. Indeed, Giza cotton has become the preferred choice for global brands catering to affluent clientele, owing to its superior attributes and premium quality. Consequently, the market value of products made from Giza cotton tends to command a slight premium compared to those fashioned from other cotton varieties [2]. Furthermore, while traditional woven and knitted fabrics may exhibit limited tensile strength and recovery abilities, the incorporation of elastane fibers introduces a spectrum of stretch and recovery potentials, enhancing the overall versatility and performance of such textiles [3]. The goal is to combine the performance characteristics of Giza cotton with traditional cotton denim fabrics. Denim, being a durable cotton fabric, has become an integral part of daily life due to its strength and flexibility. Historically, denim was commonly made from traditional cotton, which was widely available and inexpensive. However, the introduction of Giza cotton, known for its high quality, durability, and luxurious features, has increased interest in its applications within the denim sector. The primary objective of this study is to analyze and compare the performance of Giza cotton with Aegean cotton denim fabrics (see details in Table 1). This assessment is based on specific parameters carefully tailored to customer needs and industry requirements. In this study, mechanical and physical

properties of the fabrics are evaluated via tensile strength, pilling and abrasion resistance tests. It is shown that fabrics made of Giza cotton are superior to those made of Aegean cotton in terms of physical performances.

**Keywords:** Aegean cotton, Giza cotton, elastane, performance.

**Table 1** Sample fiber details.

Samples	Fiber Content (%)		
	Giza Cotton	Aegean Cotton	Elastane
Sample 1	0	100	0
Sample 2	0	99	1
Sample 3	100	0	0
Sample 4	99	0	1

**ACKNOWLEDGEMENT:** The authors would like to thank Design Center of DNM Denim for their support throughout the study.

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