



REGULATORY

ASTM D3939

SNAGGING RESISTANCE

HOW SNAGGING IMPACTS GARMENT LIFETIME

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TEXTILES PROTECTING LIVES

SNAGGING RESISTANCE TESTING

17092ASTM D3939

During everyday use, garments frequently come into contact with rough surfaces, sharp edges, branches, hooks, equipment, fasteners, and other objects that can catch individual yarns. This type of mechanical damage, known as snagging, can permanently affect the appearance of a textile even when its structural strength remains largely intact. ASTM D3939 is the internationally recognised test method used to evaluate a fabric's resistance to snag formation under controlled laboratory conditions.

Unlike abrasion or pilling, snagging occurs when fibres or yarn loops are pulled from the fabric structure after becoming caught on an external object. Depending on the fabric construction, this may result in visible pulled yarns, distorted surfaces, permanent loops, or local damage that reduces the garment's visual quality. ASTM D3939 provides a repeatable method for comparing how different fabrics resist this type of damage and helps manufacturers select materials that maintain their appearance throughout their service life.

THE MACE SNAG TEST

CONTROLLED SNAGGING, STANDARDISED EVALUATION

ASTM D3939 evaluates the snagging resistance of fabrics using the Mace Snag Tester, which simulates mechanical snagging that may occur during normal garment use. During the test, cylindrical fabric specimens rotate inside a chamber while repeatedly coming into contact with a rotating ball fitted with hardened steel pins that intentionally catch the fabric surface. After a specified number of revolutions, the specimens are visually assessed against standard photographic references and assigned a rating from Grade 5 (no visible snagging) to Grade 1 (severe snagging and surface distortion). Higher ratings indicate greater resistance to snag formation and better appearance retention during use.

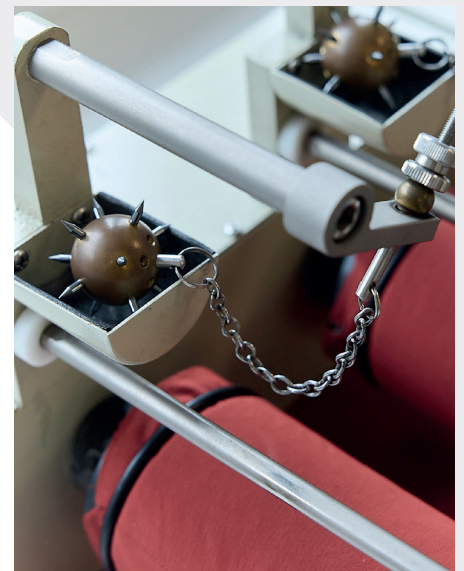
WHY SNAGGING MATTERS

APPEARANCE, DURABILITY, GARMENT PERFORMANCE

Snagging is one of the most common forms of visible textile damage, particularly in garments exposed to demanding environments. Workwear, outdoor clothing, tactical apparel, uniforms, sportswear, and everyday garments frequently encounter surfaces capable of pulling yarns from the fabric structure. Even when no fibres break, visible snags can significantly reduce the perceived quality and professional appearance of a garment.

Certain fabric constructions, especially those containing filament yarns, knitted structures, or lightweight woven fabrics, may be more susceptible to snagging than tightly woven staple fibre fabrics. The risk also depends on garment design, intended use, fibre type, yarn construction, finishing treatments, and exposure to rough surfaces throughout the garment's lifetime.

While ASTM D3939 provides valuable information about a fabric's resistance to snagging, the results should not be interpreted as a direct prediction of garment lifetime. Real world performance is also influenced by user activity, environmental conditions, laundering, garment construction, and the nature of the surfaces encountered during use. ASTM D3939 is therefore best regarded as a technical indicator of snag resistance that supports material selection, product development, and quality assurance.



HOW SNAGGING IMPACTS GARMENT LIFETIME

Snag resistance is essential for preserving both the appearance and long term durability of garments, as fabrics with poor snag resistance can quickly develop pulled yarns, visible loops, distorted weave patterns, or localized surface damage during normal use. While these defects may not immediately compromise fabric strength, they can reduce product value, lead to customer dissatisfaction, and shorten the perceived service life of the garment. ASTM D3939 provides objective, standardized performance data that supports material selection, product development, quality control, and production consistency, enabling manufacturers to minimize appearance defects while ensuring the durability and quality expected in demanding applications.

BEYOND THE GRADE BALANCING DURABILITY, APPEARANCE AND COMFORT

High snag resistance is an important indicator of textile quality, but it should be evaluated alongside other performance characteristics such as abrasion resistance, pilling, comfort, flexibility, weight, breathability, and the functional requirements of the intended application. The goal is to achieve a balanced fabric construction that maintains its appearance while delivering the required level of comfort, mobility, and overall garment performance. By considering ASTM D3939 in combination with other mechanical performance tests, textile developers can make more informed material selections and optimize the balance between durability, appearance retention, and long term wearability.



PERFORMANCE THAT LASTS

ASTM D3939 helps demonstrate that a fabric is not only visually appealing when new, but technically prepared to resist one of the most common forms of surface damage encountered during everyday use. This standardised test provides measurable data that supports material engineering, garment development, and long term quality assurance.

For IBQ Textiles, snag resistance forms part of a broader commitment to technical fabric performance. That is why ASTM D3939 is included in our material evaluation programme, helping brands and manufacturers create garments designed to maintain their appearance, durability, and performance for longer.

Because garment lifetime depends on more than strength alone.

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