

Polymer Nanocomposite Fibers and Nano-Enhanced Textile Structures in Consumer Applications

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Abstract

Breakthroughs in nanocomposite materials have led to a broad variety of potential applications in textile materials and structures. Examples of functions enabled using nano-enhanced textiles include biocidal performance, electrical conductivity, antibacterial potency, thermal stability and flame retardancy, thermal regulation, and selective permeability. Some of those breakthroughs have recently been adopted in everyday products available to consumers on the marketplace. In this report, we first discuss research relevant to the application of nanocomposites in textile structures. We then examine actual uses of nanotechnology in consumer products in an effort to reconcile the research potential of nanotechnology with the consumer market reality. The results show a significant gap between the potential expressed in research on nanotechnology in textile consumer products and marketplace reality.

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