



Nanotechnology is huge, and it's no wonder that it made its way into the contract design industry. This hybrid science that blends chemistry and engineering involves designing tiny molecules (up to one million times smaller than a grain of sand) to assemble, act, and react in pre-determined ways. In turn, it helps products—from pharmaceuticals to electronics—become smaller, stronger, lighter, and more resilient than ever before. It's a science so big that the National Science Foundation predicts it will grow into a \$1 trillion industry by 2015.

Attendees at this year's Hospitality Design Expo in Las Vegas likely heard of this innovation, as six textile companies brought to market products that use this new technology. DesignTex, Carnegie, Arc-Com, Architex, Hunter Douglas Hospitality, and Kravet have created fabrics that use Nano-Tex, a treatment that enhances textiles at the molecular level to repel liquids and release stains. Nano-Tex was first patented in 1999 and has been used in the apparel industry for several years—especially in cotton and in clothing by Brooks Brothers and Eddie Bauer. In the last year, Nano-Tex has come to the commercial interiors market.

One of the pluses of Nano-Tex is that most fabrics—from silks to mohair to wool—can be treated to be stain- and spill-resistant. That means greater flexibility for designers. According to Amanda Eaton, director of the design department at Arc-Com, "It's a vehicle to make beautiful fabrics even more attractive through enhanced performance features." David Halsey, vice president and national sales manager for Hunter Douglas Hospitality, agrees that it is an ideal innovation, especially because it is at once stain resistant, durable, and cleanable. The one instance where Nano-Tex will not work is on olefin. That's because olefin has a low melting point, and the high heat used for applying Nano-Tex would melt the fiber.

So how does Nano-Tex use nanotechnology? First, molecules are engineered with the specific performance attributes of stain resistance and moisture repellency. Second, the molecules are engineered to assemble on the surface of a textile with extreme precision (the molecules are like a wall of lined up bricks, rather than a pile of them, for example). As a result, that precision means less chemistry needs to be used, thus making it indistinguishable to the eye or hand. Nano-Tex is permanently attached to the fibers through a patented binding technology, making the treatment an inherent part of the fabric that will not wear away, explains David Offord, chief scientific officer at Nano-Tex. The main point is that Nano-Tex particles are so small that they only attach to the fibers in the fabric, allowing it to breathe. They also make the fabric more durable and easier to maintain.

Nano-Tex should not be confused with other stain and liquid repellents like Crypton, as these are two different products. Crypton is a heavy-duty barrier often specified for more extreme cases. "Our product really focuses on situations where you're just going to spill a cup of coffee onto a chair in a boardroom," says Renee Hultin, executive vice-president of global sales for Nano-Tex. Crypton is the same in that liquid beads up and rolls off, but it is also a barrier to cushions. Hultin points out that that technology is not necessary in all interiors. In the scenario of a simple beverage spill, it's just wiped up. Nano-Tex helps protect fabrics in everyday situations like this much in the same way that nanotechnology will help simplify our everyday lives.