BOSTON – Sportswear giant Reebok has launched a new premium sports bra which integrates Shear Thickening Fluid, a gel-like solution developed by engineers at the University of Delaware that solidifies when in motion to offer enhanced support.

Reebok’s PureMove bra weaves in the viscous fluid that is said to have no effect on the look or feel of the fabric. The technologically-enhanced fabric adapts to body shape and movement to offer necessary support depending on the intensity of an activity.

The technology in play, developed in 2005 in the US, has found use in Kevlar bulletproof vests and was even adopted by NASA for its spacesuits (research-news/1220-liquid-armor-reinforces-spacesuits) late last year. In this instance, the ‘Liquid Armor’ – as it is described – was brought in to improve the puncture and ballistic-resistance of apparel due to the risk of space orbiting rocks and shrapnel. In which case the fluid would solidify to protect the garment’s structural integrity.

The Shear Thickening Fluid coats textiles to offer enhanced protection with the liquid fabricating a suspended fibre with silica and polymers. In its natural form, the liquid is said to bare resemblance to the viscosity of honey, but during activity, depending on intensity, the liquid solidifies to offer greater support.

The PureMove bra has undergone rigorous testing at its newly-established breast biomechanics testing centre to test its performance potential. A team of engineers from the University of Delaware assisted in this work, which employed 54 separate motion sensors to track and measure various parts of the chest and the areas in which the fluid would need to add greater support.

This work was undertaken for over a year culminating in the design and development of Reebok’s first PureMove sports bra. The garment’s minimalistic aesthetic is juxtaposed to the technology within. According
to the studies conducted, the product offers adaptive support to various exercises. What’s more, due to the greater support, wearers experience less friction.

There are perforations throughout the bra to allow for ventilation and breathability. And Reebok is launching the bra in a range of 10 sizes, from XS to XL+, to provide a more tailored fit to wearers.

Danielle Witek, a designer at Reebok who spearheaded the PureMove bra’s creation, has hinted that its ‘Motion Sense Technology’ could find use across the activewear market. “For a designer, discovering this material is so exciting because it unlocks so many possibilities,” she said. “We can now look at every single garment we make and think about how we can add another layer of adaptability to it.”

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