



Solucell[®] Zero-Twist

Solucell Zero-Twist for Apparel

SOLUCELL ZERO-TWIST: THE SOFTNESS OF PARALLEL FIBRES

To reach the maximum softness in a fabric, using untwisted fibers would be ideal, but it is practically impossible due to lack of strength and structure.

Solucell Zero-Twist is the technology that makes it possible: by twisting regular cotton yarns and Solucell filament yarn in an intelligent way, once Solucell is dissolved after fabric formation, it leaves the cotton fibers with very low or zero twist in the finished product.



SOLUCELL ZERO-TWIST: GREEN SOLUTION FROM THE TOWEL INDUSTRY

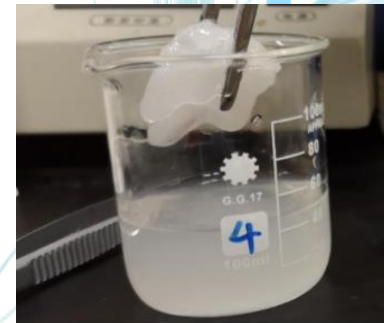
Zero-Twist yarns are widely used in home textile and are traditionally made by PVA yarns.

The use of Solucell grants several advantages and opens the door to the use in the apparel industry:

- ✓ Easier dissolving
- ✓ Lower consumption of soluble material
- ✓ Solid waste reduced by over 35%
- ✓ COD reduced by over 50%
- ✓ Easier water treatment due to simple powder versus complex residues (see picture)
- ✓ No toxic by-products (like formaldehydes) released during the process
- ✓ Oekotex certified



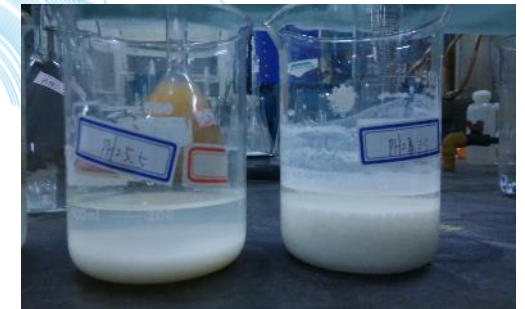
PVA



Salting-out of PVA



Solucell



Acid-Extraction of TA



SOLUCELL ZERO-TWIST: TERRY BACK-LOOPS

Similarly to the way towel back-loops are designed, terry back-loops can be made by Solucell Zero-Twist yarns, achieving softness and bulk look and improving the thermal performance of the fabric without need of brushing.

This also reduces the risk of microplastics in case of poly or poly-blended fabrics.



Zero-Twist Towel



Zero-Twist Back-Loops

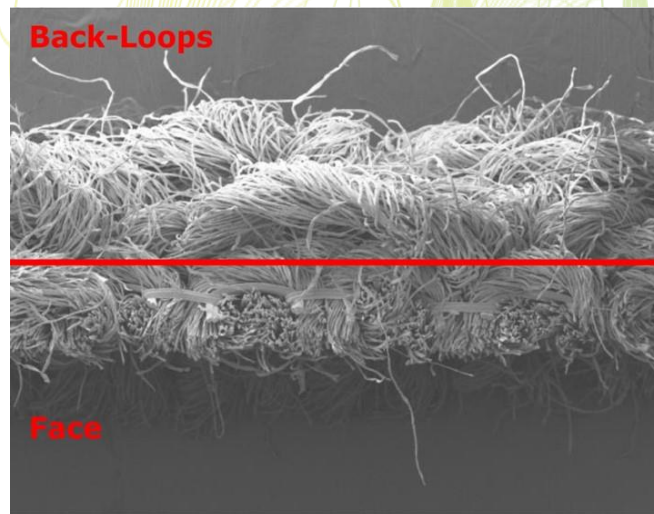


Poly Brushed Back-Loops

SOLUCELL ZERO-TWIST: SMART ADAPTIVE TECHNOLOGY

Due to high water absorbency, it's hard for cotton fabric to dry quickly. However, from 3-dimensional point of view, we could transport the moisture from skin side to the outer surface of the fabric, spreading it for evaporation and avoiding to return inside.

The Smart Adaptive technology combines bottom Zero-Twist yarns with very low wicking capacity, with the surface yarns have much higher one, forming a gradient and quickly transporting the moisture to the fabric outer layer. It's like in a big tree where the roots suck water from the ground, transport it through the trunk to the leaves, but never lets it go backward.



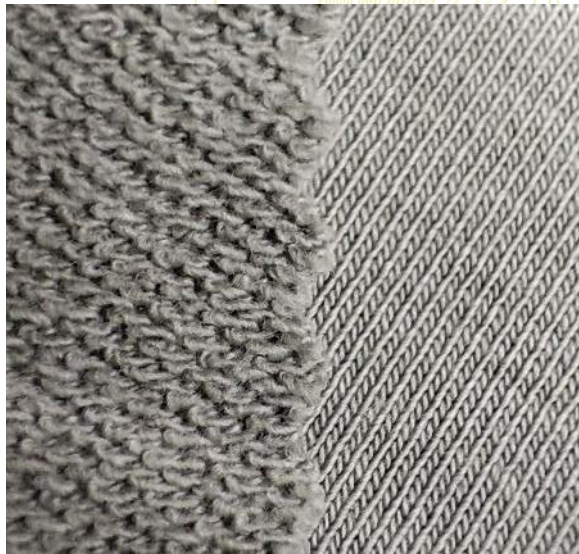
Fabric Cross Section SEM



SOLUCELL ZERO-TWIST: SMART ADAPTIVE FOR MINI TERRY & POLOS

When it's cold, the fabric has a warm touch like pure cotton balls. The space between the fibers is larger, thus it traps more static air offering a good thermal performance. At the same time, their breathability is excellent.

When it's hot and in presence of sweat, the fabric offers a mechanism of moisture management. The bottom Zero-Twist yarns have a very low wicking capacity, while the surface yarns have much higher one, forming a gradient and quickly transporting the sweat to the fabric outer layer. The sweat takes away the body heat and helps to cooling down, providing better cooling comfort and preventing post activity chill, by keeping the body dry.



Mini-Terry



Back-Loops 50x



Polo

SOLUCELL ZERO-TWIST: FILLER USE

Solucell Zero-Twist yarns can be used as filler for multi-layer fabrics, so that they can offer additional airspace to trap static air and improve the thermal insulation, being at the same time light and extremely soft.

The special quilted structure of such fabrics, thick and fluffy, is the most effective way to achieve excellent thermal performance working on the influence of heat transmission and ventilation.





Solucell®

<http://www.solucell.org> - <http://solucellair.com>