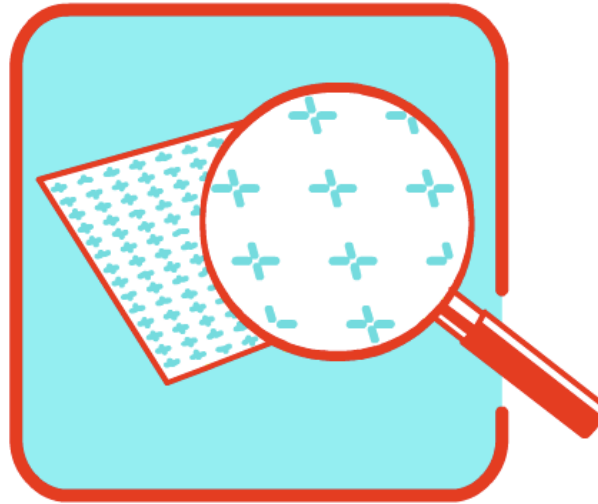
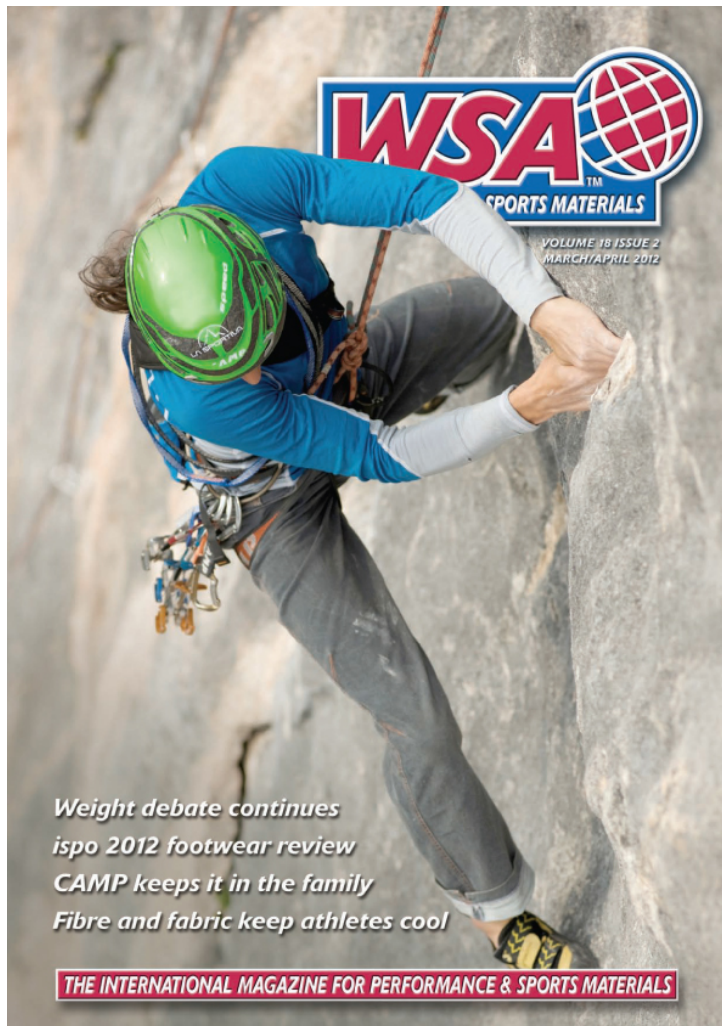


Cool Effect Textiles



How new fibers, fabrics and finishing keep the body fresh



This conference is based on an article published in WSA (March-April 2012)

Participants

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Fresh solutions to keep cool

- HeiQ Adaptive
- Cool Jade / Stone Cold
- Advansa ThermoCool

- Xylitol
- Outlast
- Luxicool

Moisture management 2.0

Moisture management textiles traditionally focus on two functions: wicking humidity away from the skin & accelerating evaporation.

A new family of fibres, finishes and fabrics now optimises the evaporative process itself. Evaporation consumes calories, absorbs excess heat, resulting in a feeling of freshness.

These materials model their properties on the body's physiological approach to lowering skin temperature, which is to perspire.

HeiQ Adaptive

Developed by the Swiss chemicals company HeiQ, the concept is based on a hydro-functional polymer that captures and distributes moisture in a film surrounding each fibre. The result is a material that three modular functions:

Dynamic evaporation

- Increased evaporation (cooling) in warm conditions
- Decreased/moderate evaporation in cool conditions

Dynamic fabric wetting

- Increased wetting and spreading in warm conditions (more cooling needed)
- Moderate wetting in cool conditions (less cooling needed)

Dynamic Wicking

- HeiQ Adaptive AC responds to the temperature and moisture conditions of the skin surface
- Moisture transport properties adapt to temperature conditions
- More moisture transport at higher temperatures when needed most for cooling

Advansa ThermoCool

European fibre producer Advansa has put new emphasis on ThermoCool's dual properties with Duoregulation.

The fabric concept optimises the body's natural thermal capabilities by combining two types of fibres.

When the body perspires, the modified cross-section polyester speeds up moisture evaporation.

In cool conditions, the hollow core polyester filament kicks in to provide thermo-buffering, which also helps prevent post-exercise chills.

The two combined are said to reduce temperature variations to keep the body in an ideal "comfort zone."

Other cool effect concepts

- **Luxicool by Belgian company Luxilon**
The soon-to-be patented polymer combines hydrophilic and hydrophobic molecules that break water molecules apart to speed up evaporation and cool the body. The fibre is also said to be conductive.
- **PCM-based materials**, such as Outlast, are cool at first touch, but they do not wick away humidity or accelerate moisture evaporation. They are said however to minimize perspiration by reducing temperature variations.
- **Tepso Active by Lenzi Egisto** is a PTFE or fluorofibre that combines a super smooth surface with a cool hand.

Cool Jade or Cold Stone fibres

Jade-based fibres incorporate jade micro or nano-particles into a polyester fibre, often given an x-shaped cross section.

Though technical data is hard to come by, these cool-effect fabrics are said to reduce skin temperature by 2 to 4 °C.

The presence of the jade particles produces an endothermic reaction that absorbs energy, generating a feeling of freshness.

The jade fibre fabrics feel cool to the hand, at first touch, after which the fabric stabilizes at ambient temperature.

Xylitol

Microencapsulated xylitol changes state in the presence of moisture, producing a cool sensation. This type of material, based on a hydric phase change substance has limited durability.

Columbia Sportswear used a similar material in its cool effect fabric concept called Omnifreeze Ice with a flat filament yarn. The flat filament creates a greater surface of contact with the skin, and has a higher degree of heat convection. By combining the additive with the flat yarn, the brand can promote a permanent effect that won't wash out.



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Thanks you

