

Summer 2013 and Winter 13/14 knit fabrics address athletic sportswear needs from new angles, providing physiological well-being or improved protection, from first to outer layers.

# *New heights for knits*

**I**nnovative yarns and finishes are elevating knits to new heights of performance and comfort, thanks to a series of product launches organised at Interfilière in Paris in July, and at Performance Days in Munich in May. Spanish polyamide producer Nurel introduced firming and slimming versions of Novarel, its long-lasting micro-encapsulation technology.

In development for the past six years, Nurel's patented process embeds microcapsules into fibres during extrusion; each fibre is said to contain thousands of microcapsules and each active ingredient is enclosed in a specific ceramic-based capsule. Novarel microfibres release their active ingredient - aloe vera, caffeine, essential oils - progressively and over a period of 100 washes, doubling the lifespan of conventional cosmeo-textiles (where the microcapsules are deposited on fabrics). The long-lasting performance of Novarel is due, says Leyre Quibus, the company's marketing manager, to the semi-crystalline molecular structure of polyamide that enables dyestuff to spread within the fibre, and similarly makes it possible for the microcapsules to release their



active ingredient even if they are stored deep inside the fibre.

Since durability has long been the weak point of micro-encapsulated fabrics, the unprecedented longevity of Novarel has attracted much attention and several knit manufacturers have introduced the cosmetic microfibres in their ranges. Eurojersey has chosen Novarel Firming for its newly launched A-More Sensitive ultralight firming fabric, a 143 g/m<sup>2</sup> knit made from 78% polyamide and 22% Lycra. It is the first product in a range programmed to provide other functions in the future. Italian knitter Carvico has also added Novarel Firming to its Revolutionary range of performance knits. The young swimwear brand Joy de Villaret selected the fabric to design what may be the first swimsuit combining slimming and shapewear properties, presented at the swimwear and lingerie Mode City show in Paris in July. The microcapsules used in Novarel firming are filled with retinol or vitamin E that are said to regenerate cells and stimulate the synthesis of collagen and ceramide, an ingredient reported to provide a tensor effect on skin. According to Nurel, clinical studies have shown that Novarel Firming fabrics improve skin tension by 10% and skin tonicity by 14% after 28 days of use.

### Keep cool

In the cooling category, Israel-based nylon 6.6 manufacturer Nilit introduced a new fresh-effect yarn called Nilit Breeze at Interfilière. The polyamide fibre possesses a special cross-section, to accelerate evaporation, and an inorganic substance is added into the polymer itself. The result is said "to cool wearers by almost one degree Celsius in comparison to fabrics knitted with standard fibres" according to Nilit. The Belgian textile research centre Centexbel tested the fabrics.

Sensitive Bodyware, another new category in Eurojersey's high-tech knit range, was also introduced at Interfilière and has been developed to offer both advanced thermoregulation and hygiene. The Italian knitter applies two finishes developed by HeiQ on Bodyware fabrics: Pure, a silver-based antimicrobial additive, and Adaptive, a special polymer that coats the fibres and accelerates the evaporative process.

Tepso is yet another cool-effect fibre in development at Italian textile manufacturer Lenzi Egisto. First developed for medical end-uses due to its ultra smooth handle, the fluorofibre or PTFE fibre is now being marketed for sportswear under the Tepso Dynamic label. The fibre is said to be hydrophobic, cool to the touch and has a low friction, potentially useful functions for cycling, running or football apparel, says the company's Daniela Annovazzi.



### Energy and wellness

The wellness and endurance markets, another key area of innovation in knits, are expanding thanks to new developments using the Emana fibre developed by Rhodia Brazil. Emana is a polyamide 6.6 yarn to which a ceramic alloy has been added. The ceramic additive reflects far infrared radiation, which is believed to activate blood flow, delay the emission of lactic acid and help reduce cellulite. Sofileta, in France, and Piave Maitex, in Italy, have both created new fabric ranges made with Emana.

Sofileta Energizing fabrics, introduced at Performance Days in May, boast a wide selection of references including first-layer knits, bonded and double knit fabrics for soft shells as well as laminates for outerwear. "Sofileta is not the first company to develop far infrared reflecting performance fabrics, but we would like to be the reference," says Dominique Heuillard, Sofileta's project and product manager. The French company has gone to great lengths to validate the concept's properties: tests conducted by an independent cosmetic-testing lab suggest the fabrics improve skin texture and elasticity while two university research teams have studied the effect of the fabrics on sports recuperation. Results indicate a lower level of lactic acid in the muscles, meaning less cramp for athletes, says Mr Heuillard.

Piave Maitex also presented, at Performance Days in May, a new series of far infrared reflecting fabrics made with Emana polyamide. Sales manager Enrico Serafini plans to market the products both to sports and lingerie brands. "According to data provided by Rhodia, these fabrics contribute to cellulite and lactic acid reduction. In addition to accelerating micro blood circulation, Rhodia claims Emana improves skin texture by 11%, increases collagen production by 9%, and boosts skin elasticity by 8%," he says.

*Sensitive Bodyware, by Italian knitter Eurojersey, combines antibacterial and thermoregulating properties thanks to Pure and Adaptive finishes developed by Swiss chemicals company HeiQ.*

 Sensitive

### Stretching the limits

New developments at Invista, in particular Lycra W technology, in which high-content Lycra fabrics boast deeper, denser colours that don't yellow over time, was also a high point of the knit fabrics presented at Interfilière. Belgian knit specialist Liebaert worked with Invista to develop Lycra W technology and has applied the process to fine-gauge knits. Knitted on gauge 50 and 60 machines, these lightweight fabrics (as low as 95 g/m<sup>2</sup>) remain opaque and come in an array of shimmering or ultra matte shades. For the growing body-shaping market, Liebaert has developed a series dubbed NanoStitch, made in 70% micro polyamide and 30% Lycra and weighing 155 g/m<sup>2</sup>, which the company claims provides comfortable support for bodywear.

Elastane fibres are commonly used in proportions spanning 2% to 40%, to achieve a suitable combination of elasticity and usability. Piave Maitex has experimented with super-high stretch in a fabric called Grippante, made in 52% polyester and 48% Lycra elastane and weighing 280 g/m<sup>2</sup>. Grippante, as its name implies, features a rubbery non-slip surface on the back. "I see this as an ideal fabric for cycling shorts that won't ride up the legs," says Mr Serafini. The fabric is available in large widths but will probably be used to trim hems or sleeve cuffs.



### Outerwear options

Knits are also making progress in outerwear, presenting new performance characteristics not often associated with knit textures, such as downproofness and snag resistance. Textile manufacturer Dyntex, which owns two plants, one in Austria and the other in Korea, has developed a new stretch knit fabric technology for down jackets. The company presented the new item at Performance Days and says it is the result of growing demand for slimmer puff

*A selection of fabrics made in the new Lycra fibre W Technology from the Spring-Summer 2013 collection of Belgian knit manufacturer Liebaert.*



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jacket styles. The fabric is knitted on high-gauge machines, compacted and then laminated with an air permeable membrane, says John Lee, the chief executive of Dyntex Korea. The lightest reference weighs 90 g/m<sup>2</sup>. Dyntex has also lightened up its stretch downproof wovens (which do not require any lamination) down to 50 g/m<sup>2</sup>. The special compacting finish applied to the knits “makes for a good anti-snag or anti-hook-and-loop fabric”, adds Mr Lee.

Specialising in high-density knits, Taiwan-based textile manufacturer Evertex has developed what it says is a unique windproof as well as anti-snag fabric. Tonissimo is a wind-resistant 100% polyester knit with a special finish. “This fabric is designed for high-intensity sports, activities in which adding a membrane would tend to reduce breathability,” says the company’s Tony Yeh. Tonissimo 130 has an air permeability level of 50 cfm while a newer version, Tonissimo 171, recently tested by Intertek in Taiwan, measures only 18.2 cfm. The high-density fabric is also said to resist snags and was initially developed for Arc’teryx.

At Bemis, the range of Proteus overlay tapes used for decoration or for abrasion resistance now comes in a new series of raised patterns and colours and can be applied on knits or wovens. For compression apparel, the

### Knitwear Solutions debuts at Première Vision Pluriel

At the next edition of Première Vision Pluriel in Paris (September 19-21), a new section dedicated to flat-bed knitting will be inaugurated.

Exhibitors in the Knitwear Solutions area will cover all facets of this product group, from spinners, to garment makers and machine manufacturers. At time of printing, 27 companies had signed up.

Première Vision commissioned the IFM (French Fashion Institute) to conduct a study on flat-knit apparel before launching the new concept. “According to the survey, flat-knit garments represent 20% to 40% of apparel collections,” says Philippe Pasquet, chairman of the board of Première Vision Pluriel. “We did not fully realise the importance of this market and believe it is a useful addition to the show’s product offering.”

The new section will be located in Hall 5, in between Expofil (spinners’ section) and Indigo (print section). 

company’s TL 644 film, which is said to offer both high stretch and high recovery, is now available in six shades. This film introduces new options for body-mapped compression, says Chris Parlee.

Elasticity, inherent to knit constructions, is just one of the many properties that these fabrics now offer. From cosmetic substances to physiological well-being, and from slim fit to smooth seamless designs, knits are exploring an ever wider array of advanced second skin functions. 



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