It is well known that a little bit of elastane can go a long way in an item of clothing. Now the yarn is incorporating new properties, from odour-management to heat-generation, and including recycled content, to further boost its appeal.

Versatility in elasticity

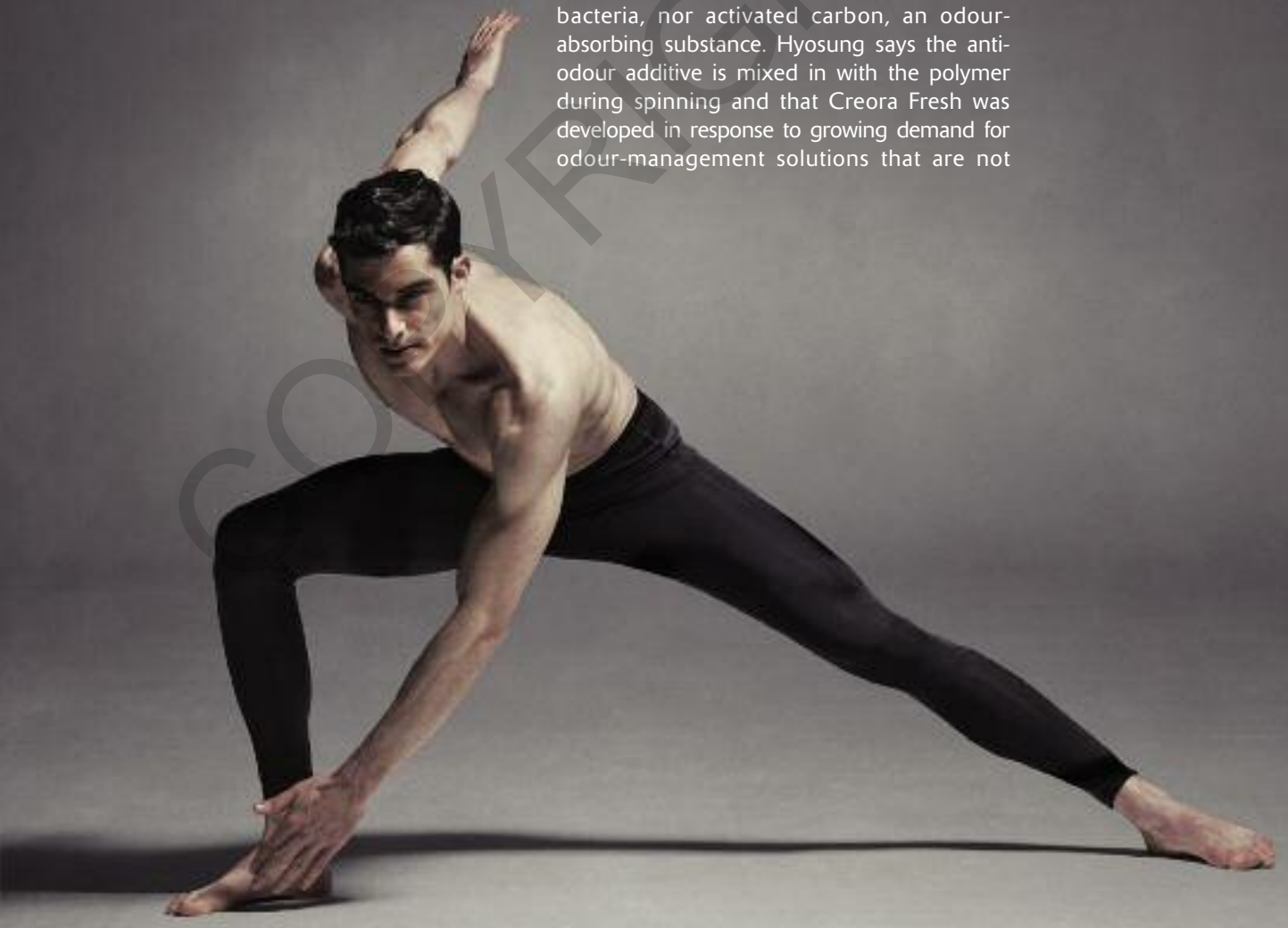
With sustainability and aesthetics, topped up with additional properties, elastane producers are introducing new options to a market that is seeing ever-expanding demands. "Nowadays, stretch fibres are everywhere, from medical applications to babywear, even football kits have embraced stretch for compression undershorts," says Uwe Schmidt, managing director of Asahi Kasei Spandex Europe. These new markets are driving the roughly 5% to 7% annual growth in spandex sales, he says.

Identifying three macro trends, Simon Whitmarsh-Knight, European manager for activewear and outdoor apparel at Invista, points out that people are getting bigger, which is leading to an increasing penetration of stretch in both men's and women's wear, while athleisure continues to be important and, in the workwear segment, there is a move to make clothes that look good and feel comfortable, increasing the need for performance and styling.

For premium stretch fibres, the addition of novel functions is a way to fuel demand. Among these, odour control would be a particularly useful property for close-fitting garments. The trend to combine elasticity with other performance attributes is seen at many leading elastane producers.

Deodorise

With Creora Fresh, Korean elastane producer Hyosung has added an odour-neutralising function to its spandex offering. Launched at Interfilière in July, the new fibre contains neither silver, a standard antimicrobial agent that kills bacteria, nor activated carbon, an odour-absorbing substance. Hyosung says the anti-odour additive is mixed in with the polymer during spinning and that Creora Fresh was developed in response to growing demand for odour-management solutions that are not



Claiming to be an evolution on odour control, Creora Fresh reduces the smells produced by ammonia, acetic acid and isovaleric acid, three main sources of unpleasant odours in garments.

Hyosung Creora

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antimicrobial. "We have a number of brands interested as they want to move away from antimicrobial chemicals next to the skin," says Ria Stern, Hyosung global marketing director for textiles. Tested using the Japanese Gas Detection method, Creora Fresh reduces smells produced by ammonia, acetic acid and isovaleric acid, three main sources of unpleasant odours in garments. Ms Stern says this "represents an evolution in odour control" as it does not inhibit bacteria. A fabric containing as little as 9% Creora Fresh is said to effectively reduce smells. This would make it "less expensive than applying a fabric finish," she adds.

Kinetic warmth

Japan's Asahi Kasei is also treading new ground with the launch of Roica Stretch Energy, a spandex-based fabric construction capable of producing heat. "This is a unique product that uses kinetic energy to generate warmth," says Uwe Schmidt. "It will emit heat for as long as the user moves; when movement stops, it slowly reduces heat emissions." Italian knit manufacturer Sitip has introduced the yarn in a new range called BeHot, also on show at Interfilière in July. Thermal imagery provided by Asahi Kasei shows the exothermic effect of a Stretch Energy fabric on knees and elbows.

The company is also scaling up its recycled elastane Roica Eco Smart made from pre-consumer waste. The process of reusing its waste was first implemented in its German plant, in 2015, and is now be applied in its Japanese factory. The eco-elastane contains 50% recycled content, certified by GRS. "The first driver of demand was the request to reduce waste and the cost of waste. We initially recommended using this yarn in uncritical fields of application, but we are now moving into sportswear," Mr Schmidt says. Swiss weaver Schoeller, and Italian knitters Sitip and Maglificio Ripa, are some of the first companies to develop fabrics made with the recycled stretch yarn.

Aptly, Maglificio Ripa has chosen to blend the recycled stretch fibre with Evo, a bio-sourced castor oil-derived polyamide, and with Q-nova, a recycled polyamide made from 99% recycled raw materials, both yarns supplied by Italian producer Fulgar. The Italian knitter is making further moves to address sustainability by recycling 100% of its industrial waste and installing solar panels at its plant. This past May, it joined Greenpeace's Detox challenge pledging to remove eight groups of polluting and dangerous chemicals from production processes immediately and seeking to phase out three more groups by the end of 2020. The company says these remaining substances are currently difficult or near impossible to replace based on today's technology.



Berlin-based athleisure brand Aryswear was an ISPO Brand New finalist this year. It seeks to offer all-in-one clothing solutions for consumers with active lifestyles.

Uwe Eichenberg

Colourise

The need to improve aesthetics by addressing grin-through, the shiny strands of spandex that become visible when a fabric is stretched, has been high on the agenda of premium elastane producers.

Asahi Kasei was one the first to tackle the issue when it introduced Roica Colour Perfect five years ago. The elastane polymer was modified to become dyeable, specifically when blended with cellulose fibres such as cotton, lyocell or modal. The coloured spandex yarn will remain invisible however much a fabric is elongated. Since its introduction, 15 fabric manufacturers have added the dyeable elastane to their collections. "Over the last few years, consumer behaviours have changed, placing new emphasis on performance and aesthetics, which are a perfect fit for Roica Colour Perfect," says Mr Schmidt.

An enthusiastic supporter of this dyeable elastane, Fabio Cescon, Maglificio Ripa's marketing manager, explains that his company has developed an entire range of fabrics. Called Deep by Ripa, it offers 43% better colour fastness, he says, adding: "Within the next five years, we will most probably convert our entire collection to this elastane, and the entire industry might follow suit."

Hyosung and Invista have also developed special yarns that avoid grin-through. Hyosung's Creora Color+ dyeable elastane is designed to create deeper, darker shades, and Creora Black is a solution-dyed black elastane. It is similar to Invista's Lycra Black Technology said to offer superior wash fastness and uniformity in the darker tone spectrum.

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Invista's Lycra Moves campaign, translated into an athleisure capsule collection, promotes the many versions of its branded elastane. The denim look fabric shown here is made with Lycra T400.

Invista Lycra

Added comfort

The latest developments at Lycra focus on combining multiple functions beyond stretch. A study commissioned by Invista polling women in Germany and the US found that that they are looking for more versatility, comfort, aesthetics and technical performance. "With the athleisure trend, women are looking for a bit more performance in their everyday clothes, these include moisture management and compression, or shaping," says Arnaud Ruffin, Invista Lycra manager for Europe.

The Koch-owned company is addressing these new demands with a number of different elastanes, from Lycra Cooling Technology, which offers moisture management and quick-drying properties, to Lycra Sport, also known as Lycra Active Technology, which provides compression for muscle support and recovery and long-lasting fit. Lycra Soft Comfort is engineered to offer high elongation (700% compared to 500% for a standard Lycra) while exhibiting the same level of recovery. "This feature makes it easier to put on and take off a sports bra, for example," says Mr Ruffin. This market segment is experiencing something of a boom. Sports bras represent nearly 21% of bra sales and the category is growing 20 times faster than the non-sport bra market in the US this year, according to market research company NPD.

Powerful prints

Inspired by its successful run of co-branded sneakers with Nike, Liberty Fabrics has decided to move into the active sportswear market with a new range of printed performance fabrics, on display at Interfilière. Formerly comprised of a single jersey knit, the collection now includes many sports-specific fabrics. Many of these are polyamide-elastane blends, but the company has also printed its famed Art Deco floral patterns on nylon ripstop fabrics for down jackets. Double-layer bonded jerseys tap the trendy neoprene look, but will be able to breathe. "With these activewear fabrics, we are taking Liberty in a new direction," says Amanda Vogado, Fabric Development manager for Liberty Art Fabrics.

Brands looking for fabrics that capture the neoprene look and offer moisture-wicking can also turn to Eurojersey's double-layer bonded Sensitive fabrics. The Italian flat knitter has expanded its print offering, introducing its first range of activewear prints with matching solids at the OutDoor show in Germany. Eurojersey has in the past applied a Liberty print to a Sensitive fabric, an item chosen by UK cycling brand Rapha for a women's performance jersey. The new printed warp knits are also a key feature of Vibram's wrap-around Furoshiki shoes. "Our fabrics provide a high-quality print because of their compact and flat surface," says Eurojersey sales manager, Matteo Cecchi.

Compression

As activewear continues to gain importance at Eurojersey, representing 5% to 20% of its sales, the company has introduced Lycra Sport-labelled fabrics to its Sensitive range, the family now counting 15 different categories. Lycra is an important part of the Sensitive fabric story: its presence ranges from 20% to 41% depending on the reference. "Our best-selling fabric is made with 28% Lycra," says Mr Cecchi.

The patented fabric construction possesses the same amount of elongation



Eurojersey's Sensitive fabrics now feature Lycra Sport certification.

Eurojersey Sensitive

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Carvico's new Vita knit is certified Lycra Sport and shown here on Italian cyclist Filippo Pozzato, a former winner of the Milano-San Remo race.

Carvico Lycra Sport

and recovery in both directions. "This means the fabric will be more comfortable to wear, particularly in clothing with shaping or compression properties," he says, adding that "the polyamide and elastane yarns are not on top of each other but rather placed side by side, which means the polyamide covers and protects the Lycra." This also helps avoid any issues related to grin-through or sheerness.

The two new Lycra Sport Sensitive fabrics offer what Eurojersey is calling "comfort compression". They contain 41% Lycra and come in two weights (167 and 218 grammes per square-metre). Possible end markets include fitness, running, triathlon and stand-up paddling clothes thanks to their quick drying properties and UV and sun lotion resistance. The flat surface of Sensitive fabrics is also said to lend itself to innovative garment making techniques such as pre-forming, ultrasound, laser-cutting and taping.

What's next?

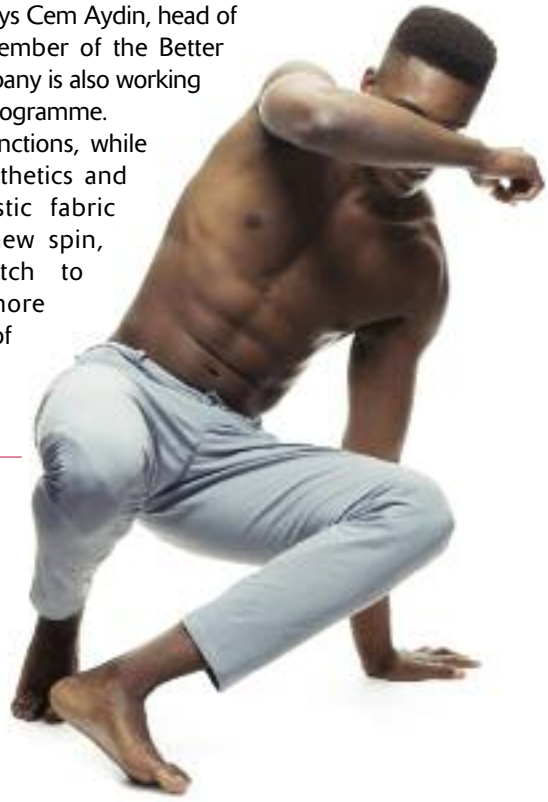
To capitalise on its forays into sportswear, Eurojersey is currently experimenting with yarns that have special cross-sections to provide faster wicking. With regards to sustainability, it is also developing fabrics with Econyl regenerated polyamide yarns. Eurojersey has been collaborating with Aquafil's recycling programme since 2007. In 2015, a total of 96,000 kilos of fabric scraps were recovered to be recycled into nylon 6 yarns.

In the compression category, Invista is currently working on a new Lycra Sport platform to be rolled out this autumn. This market segment is also important for Asahi Kasei, whose Roica Contour is designed to provide "high-quality and high-precision compression," says Mr Schmidt.

Turkish textile conglomerate Sanko, a vertically integrated producer specialising in cotton with spinning, knitting and dyeing facilities, has also decided to take a closer look at activewear as a possible end market for its fabrics, and took a booth at the Outdoor Show in Germany for the first time this year. Marketing manager Eser Ogucu Khan believes there is "growing demand for natural fibres for those consumers who don't like the feel of polyester on their skin".

In addition to pure cotton fabrics, Sanko also blends the natural fibre with Lenzing's Tencel modal and micro-modal yarns, and with synthetics. "We are developing more functional and innovative fabrics," says Cem Aydin, head of international sales. A member of the Better Cotton Initiative, the company is also working on a cotton traceability programme.

By integrating new functions, while keeping an eye on aesthetics and sustainability, the elastic fabric category is taking a new spin, moving beyond stretch to address the ever-more sophisticated demands of today's consumers.



Swedish brand Houdini has experimented with new pattern making techniques to create the Made to Move pants. The two-way stretch woven and diagonal seaming make the most of the fabric's natural give.

Houdini

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