

It was evolution rather than revolution for many exhibitors at Titas 2016, but biomonitoring garments, breathable neoprene and fabrics made from cinnamon extract indicate that the pace of innovation in Taiwan's textile industry shows no signs of slowing.

Titas marks anniversary with biggest-ever event

COPYRIGHT

The textile industry remains a crucial part of the national economy of Taiwan – that was the message from President Tsai Ing-Wen as she officially opened the 20th edition of the Taipei Innovative Textile Application Show (Titas) last October. She pledged that her government would work with local textile manufacturers to help them grow their brands and continue to develop cutting-edge functional textiles. She urged them to build partnerships with technology companies to accelerate their innovation and ensure Taiwan remains competitive in the global market.

Record highs in terms of exhibitors and booths at the 2016 event saw Titas celebrate its anniversary in style; in total, there were more than 380 exhibitors occupying the venue. The Taiwan Textile Federation (TTF), organiser of the show, said the diversity of exhibitors, which included companies from China, Germany, South Korea and the US, as well as from the host nation, meant that event offered "very promising business opportunities for all participants". Buyers from international brands also registered to attend in record numbers, further cementing Taiwan's important position in the textile supply chain.

Titas offered "very promising opportunities" for the wide variety of international visitors.
TTF

Not easy being green

Textile companies have already invested heavily in developing sustainable materials, with Titas providing them with the perfect stage to demonstrate their progress to a broad range of international visitors. Justin Huang, president of the TTF, stressed that companies must not lose sight of the importance of sustainability in their pursuit of innovation. There is increasing pressure to keep coming up with 'greener' solutions as apparel brands strive to make their businesses more sustainable. He pointed to the fact that rival sportswear manufactures Nike and adidas are working side by side as contributors to the Zero Discharge of Hazardous Chemicals (ZDHC) programme as an example of the commitment of international brands to driving sustainability.

Mr Huang predicted that one of the areas in which advances will be made in the near future is water-free dyeing. Formosa Taffeta, part of the wider Formosa Plastics Group, exhibited fabrics that use its Aquaoff waterless dyeing technology. It uses supercritical carbon dioxide (CO_2), carbon dioxide in a fluid state, to provide a more sustainable solution for dyeing fabric. The dye is dissolved into the fluid CO_2; Formosa says the fluid's dual properties of effectively dissolving dyes and high penetration result in uniform dyeing. The absence of water means there is no risk of it being wasted. The company says up to 95% of the CO_2 used can be recovered and reused. It also requires 40-60% less dyestuff than other methods.

Kingwhale, which counts Lululemon, Under Armour and Patagonia among its customers, promoted its Low Impact Technology (L.I.T.). The company has developed fabrics made with a modified polyester yarn that can be dyed in a more sustainable manner. It says the technology uses 15% less dyestuff, 22% less electricity for heating and cooling, 50% less thermal energy and 60% less water than conventional dyeing methods. The L.I.T. yarn is a feature of Kingwhale's Allo Fibres, used by activewear fabrics developer Concept III. It is combined with hollow fibres to create a lightweight, warm and breathable fabric, and trilobal fibres, which gives the material a soft touch and better wicking properties due to the increased surface area.

HoYu Textile presented its technology that allows fabric printing to be carried out at room temperature. Beyond saving resources, most notably water and energy, the lower temperature is kinder to the fabric structure, meaning it is suitable for use with nylon, wool, cotton and other materials. It uses either gravure or sublimation printing at room temperature to give a richer and more layered printing pattern than traditional printing technology. It also creates a softer feel.

As the name suggests, the 3XGreen recycled polyester yarn from Hung's Fortune is another development aiming to satisfy the demand for more sustainable products. Doug Ross, vice president of the company's North American office, told *WSA* it is aiming to go beyond recycling and offer "multi-level sustainability". The name '3XGreen' represents the use of recycled materials, the low dye temperature, and the fact that the material is Bluesign-certified. Mr Ross said he expects the importance of sustainability to continue to grow as fossil fuels become scarcer, adding that it is "the future of fabric technology".



Taiwan-based Sheico Group presented a breathable neoprene targeted at the outdoor market.

Sheico

Smart money on sensors

A report from the Taiwan Textile Research Institute (TTRI) showed that Taiwan-made functional fabrics have a 70% global market share. It believes Taiwanese manufacturers will now turn their attention towards smartwear and urged them to develop products for wearable devices and medical use. It also called for the establishment of a complete smartwear supply chain in the country. The TTF echoed the call from President Tsai for local companies to work closely with the technology sector to secure a slice of the smart clothing market, which it predicts could be worth $2.9 billion by 2020.

Mr Huang says garments with sensors capable of measuring functions like blood pressure, heart rate and temperature have strong applications in the medical world as they would allow patients to be monitored constantly; this would be especially useful among older people. The data

COPYRIGHT WTP

could be transmitted to their doctor, providing a better assessment of a patient's all-round health, rather than it being judged on a one-off consultation on the day they see the doctor. This technology could also be used to monitor the performance of athletes.

Far Eastern New Century (FENC) is one company exploring this application. At the exhibition it introduced its DynaFeed garment biosensor technology, the latest development from the Far Eastern R&D Manmade Intelligence (FERMI) smart textiles platform, which was unveiled at last year's exhibition. The highlight then was a sensor-equipped module able to monitor various vital functions. DynaFeed combines the FERMI module with an ultra-thin conductive non-metallic polymer film for accurate monitoring of functions such as heart rate, as well as for tracking movement and motion. FENC says it enables a more efficient interface between the body's physiology and digital devices, giving athletes access to real-time data related to their training and performance. Jeffrey Hsu, a lead specialist at FENC's R&D centre, explained to *WSA* that the film allows conductive circuits to be printed on to the surface of a substrate at the final garment level; this means there is no need to use a specialised fabric. "The technology upgrades the garment," he said, adding that the film is bendable, malleable and washable. He explained that "taking metal out of the equation was key" as this makes it more suitable to deal with the "harsh environment" of the washing machine. As well as having enhanced wash cycle wear, it is durable and has excellent resistance to chemical oxidisers. DynaFeed received a Gold Award at the 2016/2017 ISPO trade show. Mr Hsu expects the future to be "much more integrated smart textiles".

Tex-Ray, which has been working on the development of smart garments for a number of years, had its AiQ smart clothing technology on display in Taipei. It uses conductive steel yarns and threads from King's Metal Fibres, a Tex-Ray affiliate, which serve a variety of purposes. At the exhibition, the focus was on a Bluetooth-enabled smart shirt, which is able to track the body's vital signs and send the data recorded to a smartphone or computer. The yarns have also been used to make conductive gloves that allow the wearer to operate touch screen devices without the need to remove them. It is also targeting the cycling and running markets with garments that have integrated LED lighting.

Outside the box

Spinning, knitting and weaving company Chia Her displayed an updated selection of performance merino wool. The NwoolTec3.0 range includes a fabric that blends wool with Lenzing's Tencel fibre; the company says it is suitable for use in garments for spring and summer due to its wicking and cooling properties. It rapidly absorbs and releases moisture to keep the wearer cool. Helped by the natural anti-odour properties of merino wool it helps keep the wearer feeling fresh. Another fabric in the range is its combat wool, which includes nylon from Cordura. Zoey Chuang of Chia Her's sales division says this is "the best-seller of the new selection". It is durable and has good abrasion resistance, making it suitable for use in outdoor sports.



Taiwanese president Tsai Ing-Wen was present at the opening ceremony to celebrate the 20th edition of the event.

TTF

Following the breakthrough of its Naturalprene wetsuit, which uses a natural rubber foam harvested from rubber trees as a more sustainable alternative to neoprene, Sheico Group displayed its Ventiprene breathable neoprene solution. Jim Shiue, director of sales at Sheico, said the company was aiming to "broaden the applications of neoprene". While regular neoprene is a closed-cell material designed to keep the wearer warm, the new material is breathable as it contains tiny holes in the fabric that allow body heat and sweat to escape while retaining its waterproof properties. Ventiprene received an Outdoor Industry Award in 2016 in the material innovations category. In a statement explaining their decision, the jury for the awards said breathable neoprene has "some promising advantages" and could "offer benefits to new user groups, outside of water sports".

Shin Era presented an antibacterial textile made using material extracted from the shells of crabs. The material, Chitin, which is a long-chain polymer, is broken down into Chitosan, purified nano-sized particles of which are combined with rayon to create a yarn that has antibacterial properties. This Chitosan Rayon yarn can be used on its own or combined with cotton, wool, nylon or polyester to create composite yarns. M.H.Chiu,

COPYRIGHT

president of Shin Era, told *WSA* the antibacterial effect is reliable because it is engrained in the fabric rather than added later; this means it won't wash out. He says that, although the current use is limited to "medical textile applications", it could also be applied to the inner face of sportswear and outdoor wear products.

Lily Textile has also turned to natural materials to create an antibacterial fabric. Its Green Defence creation uses extracts of cinnamon and almonds, which the company says have natural antibacterial qualities. It blends the extracts with polyester or nylon chips to make what it calls Green Defence chips. These chips can be used to create yarns for use in textiles or to make plastic products. Lily Textile claims the extracts, and the antibacterial properties they bring, will not leach out during washing as they are contained within the fabric, rather than being added as a finish. Craig Su, a manager of the Green Defence project, said the yarn comes with a "lifetime antibacterial effect". The company is currently producing samples for European and US brands, although it wasn't able to publicise their names. Mr Su predicts that the product will come to market within two to three years. Lily will target it at several sectors, including sportswear, fashion and home textiles.

Innovation is key

Data from the TTF showed that the value Taiwan's textile exports fell 10% year-on-year during the first nine months of 2016 to $6.6 billion. There was also a 10% drop in exports of finished fabrics, which totalled $4.5 billion during the period. Despite these figures the mood at Titas 2016 was positive. In comments to local media, Hung Chen-hai, chairman of Eclat Textile, which specialises in sportswear, said he expects recovering demand to boost the local textile industry. Douglas Hsu, chairman of FENC, expressed his belief that the industry is in good shape due to the growing functional apparel market. What's more, with functional apparel currently making up just 10% of the market, there is plenty of room for expansion.

The Trans-Pacific Partnership (TPP) trade agreement, of which Taiwan is not a part, was on the minds of many at the event. Having been signed in February 2016, it is awaiting formal ratification by all of the parties involved. Mr Huang of the TTF said the fact that many countries seem reluctant to sign free trade agreements with Taiwan means textile companies in the country have to "keep innovating and innovating". This sentiment was echoed by James M.C.Lee, vice president of Formosa Taffeta, who said the only solution is to "work hard and make efforts every year" in order to stay ahead of its competitors. He believes TPP will not be catastrophic to Taiwan's textile industry as many top companies already have operations set up in other Asian countries. Several companies told *WSA* the industry would continue to thrive as the country still produces the best fabrics as well as having a highly-skilled workforce.

Looking to the future for the Taiwanese textile industry, Mr Huang said an increased presence in the fashion market is a key aim. More fashion brands attended Titas this year than previous editions, suggesting they may be starting to take more notice of the fabrics and products being developed in the country. What is beyond doubt is that Taiwan possesses the expertise, technology and creativity to maintain its position as a leading player in the textile industry.

PERFORMANCEDAYS
FUNCTIONAL FABRIC FAIR

APRIL 26-27th
2017 | MUNICH
KICKOFF SUMMER 2019 | **UPDATE** WINTER 2018/19


EXCELLENT SUPPLIERS



PERFORMANCE FORUM


PRESENTATION PROGRAM

GET YOUR FREE TICKET!
www.performancedays.com

COPYRIGHT WTiN