SUSTAINABILITY: TITAS 2017

Eco-friendly manufacturing techniques, fabrics and fibres derived from natural sources and a new project to recycle full garments: Titas 2017 provided plenty of examples of the Taiwanese textile industry's commitment to sustainability.

Sustainability gets top billing at Titas 2017

by Jo Tait

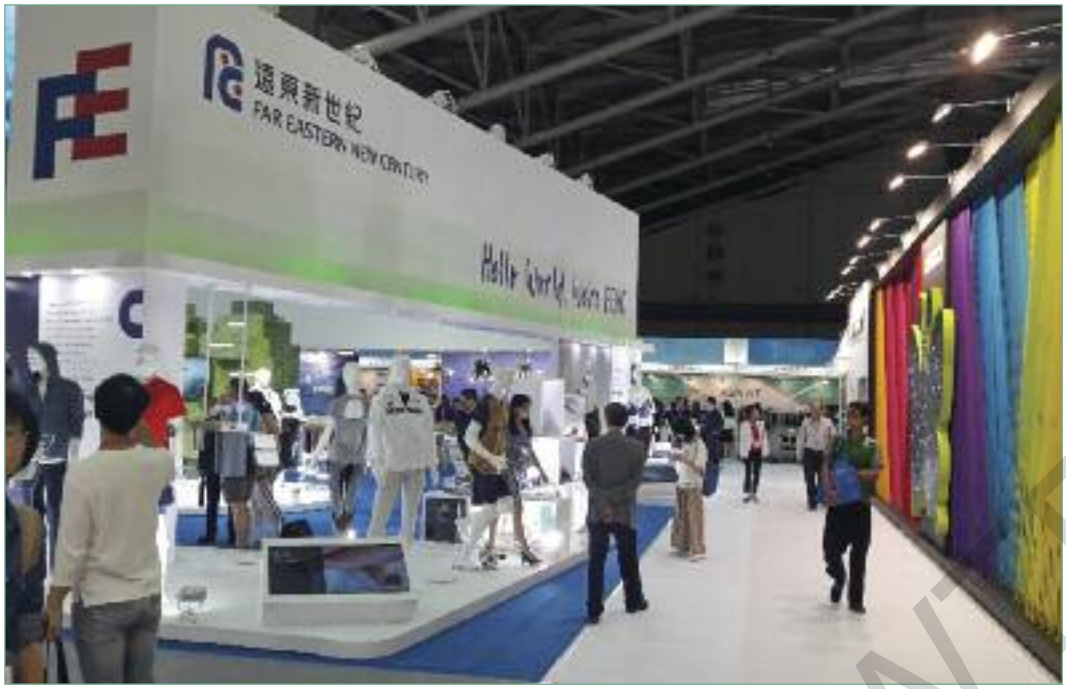
A total of 383 exhibitors from 11 nations descended on the Taipei Nangang Exhibition Centre in Taiwan in October for the 2017 Taipei Innovative Textile Application Show (Titas). The large contingent of Taiwanese companies showcased a range of innovative products and technologies related to the functional textiles industry. They were joined in Taipei by overseas representatives from China, Czech Republic, Germany, Hong Kong, India, Japan, South Korea, Sweden, Switzerland and Germany.

As has been the case for a number of years, a key theme of the exhibition was sustainability. Welcoming visitors to the show, Justin Huang, president of the Taiwan Textile Federation (TTF), said: "In response to the rising environmental abnormalities caused by climate change, Titas 2017 continues its theme around the axis of eco-



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Far Eastern New Century, one of Taiwan's leading textile manufacturers, had a range of innovations on show at its stand in Taipei.

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friendliness, recycling and sustainability to showcase textiles based around the concept of the circular economy." This central topic was complemented by items of smart clothing and examples of high-performance textiles.

Following the attendance of Taiwanese President Tsao-Ing Wen in 2016 to mark the event's 20th anniversary, the guest of honour at Titas 2017 was Jen-Ni Yang, director general of Taiwan's Bureau of Foreign Trade (BOFT). In her address at the opening press conference, she explained that the Taiwanese textile industry is equipped with a complete supply chain which has helped it become one of the leading generators of foreign exchange.

Away from the trade show floor, visitors were able to take advantage of an extensive and diverse seminar programme with talks covering topics such as RFID solutions in the garment industry, the evolution of smart textiles and the latest trends in performance wool.

The organisers invited more than 100 brands and retailers to attend and set up over 1,000 one-on-one business meetings across the three days. Mr Huang said this demonstrated that Titas offers "considerable business potential" for those taking part in the show.

Green light

Among the wide range of products that Taiwanese textile manufacturer Far Eastern New Century (FENC) had on display at its impressive stand in Taipei was its TopGreen membrane, which is made from recycled PET bottles. Since 2015, the company has been involved in a project to collect marine debris and convert it into material that can be used in apparel and footwear products. Its major partners in this project are sportswear manufacturer adidas and campaign group Parley for the Oceans.

The latest stage of FENC's involvement is the development of this waterproof, breathable membrane. It is engineered to remain flexible, soft and breathable in extremely cold temperatures, making it well-suited for use in outerwear products. FENC's fully integrated in-house PET recycling facility means the material used in the membrane can be fully traced. The TopGreen membrane will be incorporated into a range of high performance outdoor jackets from German company Vaude.

High performance polymer manufacturer DingZing Advanced Materials presented its own waterproof, breathable membrane, Duopel, which can be used in fabrics for outdoor and sportswear products. It is made from thermoplastic polyurethane (TPU) rather than expanded polytetrafluoroethylene (ePTFE) and the company says it is fully recyclable and biodegradable. DingZing has an integrated TPU production model so is able to offer custom-made membranes.

Functional textile maker Grandetex Development took advantage of Titas to promote its Rich-Y synthetic yarn, which is available in nylon and polyester options. It incorporates a liquid transition element; as well as increasing the yarn's functionality, the company says this also helps to reduce water waste and environmental impact. It is said to offer longer lasting antibacterial and moisture absorption performance, making it appropriate for use in baselayers. Grandetex explained that products made from this yarn can be washed in exactly the same way as other functional wear. The functional ingredients are incorporated into the yarn, so its performance will not reduce with frequent washings.

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Fit for the future

Grand Textile was one of a number of Taiwanese exhibitors that are working hard to make their long-term future more sustainable. At the exhibition it offered more information about an eco-friendly steam dyeing solution that it calls Color Max. It claims this technique offers more gradated and tie-dyed effects and textures than traditional steam colouring and can be directly applied to yarns, fabrics and garments. There is also no restriction on material, with polyester, nylon and cotton among those it suggested are suitable for dyeing via Color Max. Grand Textile is planning for expansion with the opening of a new production facility in Vietnam's Bing Duong province and the establishment of a new office in Seoul, South Korea.

New Wide Group, a specialist in knitted fabrics, based its offering in Taipei on their new Corporate Social Responsibility (CSR) White Paper that it had unveiled a week earlier at Intertextile Shanghai. The range of fabrics and apparel products it displayed included its OP Dope Dyed yarn and its Eco-Poly fabric.

HoYu Textile presented its solvent-free polyurethane dispersion (PUD) process. It is designed to be in line with regulations set out by the Zero Discharge of Hazardous Chemicals (ZDHC) foundation and its benefits include reduced cost of manufacturing, lower energy consumption and increased capacity. It also causes no emissions of volatile organic compounds (VOC); the company told *WSA* that this has been verified by testing services provider Intertek. HoYu has so far developed solvent-free PUDs for top coating, solvent-free polyacrylate urethane (PAU) for adhesives and biodegradable PUDs.

Performance fabric manufacturer Kingwhale again promoted its Low Impact Technology (L.I.T). The president of the company, James Huang, explained that it wants to go beyond just manufacturing in a sustainable manner and using recycled materials. He revealed Kingwhale is working on a full garment recycling project with an unnamed Japanese partner, adding that it could come to fruition in the coming quarters. According to Mr Huang, this project will allow polyester fibres that have been blended with cotton and wool to be extracted for recycling. Its Japanese partner is also able to recycle some natural fibres. Kingwhale intends to recycle all parts of the garment including buttons and zippers. It is in dialogue with brands and consumers to source the garments for recycling as its seeks to implement the project at mass market level. Mr Huang said this will start with the brands with

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which Kingwhale already has close links including Patagonia and The North Face.

Nod to nature

Several exhibitors chose to approach sustainability from a slightly different angle by developing fabrics and fibres from natural resources. One such example was knitted and woven fabric manufacturer J2 Textile which showed a fibre derived from bamboo. It is created by processing the bamboo at high temperature before grinding the resulting bamboo charcoal into a powder that is diffused into the fibre during spinning. J2 said materials made from this fibre offer good levels of coolness, softness and moisture absorption, making them suitable for use in clothing that comes into contact with the skin.

Libolon, a core brand of polyester yarn producer LeaLea Enterprise and nylon chip supplier Li Pen Enterprise, also showcased a bamboo yarn. It explained that the yarn, which it has called Litan, is adept at regulating humidity due to the tiny holes in the charred bamboo which forms the basis of the fibre. It is also said to stimulate blood circulation by reflecting far infrared rays back towards the body. Libolon adds an antibacterial material during the polymerisation process to give the yarn odour control properties. Suggested applications for the yarn include clothing, upholstery and health products.

Grandtek Asia Corporation (GAC) presented two fabrics made using fibres derived from nature. Seacell is a natural fibre made from seaweed, which contains vitamins and minerals that give a fabric good hand feel and natural skin protection. The seaweed is harvested below sea level so that it can regrow, a sign of GAC's environmental responsibility. The other fibre it showed was derived from the dried fruit of the kapok tree. The company says the natural waxing of the source material offers natural resistance to moths and mites as well as antibacterial properties. The fibre is hollow, so it has excellent thermal properties and as well as a comfortable feel.

Spotlight on smart textiles

FENC led the way when it came to the smart textile solutions that were on show, unveiling the latest upgrade to its DynaFeed garment biosensor technology. After introducing the DynaFeed system at the 2015 exhibition, it has now expanded its applications into the areas of sport and training optimisation, health management and therapeutic recovery.

The first component, which it calls DynaFeed



Sport, has been used by outdoor brand LL Bean in performance clothing for the US ski team. The technology is capable of providing real time endurance feedback and assessing the angular momentum of specific parts of the wearer's body. This data can help the skier modify their technique to gain an edge over the competition.

DynaFeed Therapy can also be used to register the minute voltage caused by a muscle contraction or to deliver energy to the muscles to cause a contraction. This is known as electro muscular stimulation (EMA) and can serve to slow or prevent the onset of muscle atrophy, relax the muscles after a workout or improve muscle tone. FENC's technology means this capability can be offered in a fully-integrated garment. It has partnered with Swiss medical device company Valmed to further develop the concept.

FENC states that the accuracy of the core technology of the third component, DynaFeed Health, is 97% that of a medical grade electro cardiogram device. Supported by a grant from the Taiwanese economics ministry, it has optimised this technology for use in the telemetric monitoring of sleep quality. Continuous monitoring of a patient using the system can help diagnose conditions such as sleep apnoea.

Another Taiwanese company with a strong history of developing smart garments, Tex-Ray, again displayed the most recent fruits of its AiQ smart clothing project. In 2016 it promoted a Bluetooth-enabled smart shirt; the technology is now also integrated into garments including sports bras, tank tops and cycling jerseys. It incorporates conductive stainless-steel yarns from King's Metal Fibres, a Tex-Ray affiliate.

At Titas 2017, the company also offered more information about its partnership with Bureau Veritas Taiwan, which it has enlisted to ensure the data provided by AiQ smart clothing is accurate. Tony Lin, Tex-Ray's head of research and development, said the involvement of Bureau Veritas will ensure it gets the "technological aspect" of the innovation right.

Promising prospects

Ahead of the exhibition, the Taiwan Textile Federation released figures showing Taiwan exported textile products worth $7.55 billion during the first nine months of the year. This represented a 1.5% increase compared to the same period of 2016. Speaking at a press conference, TTF president Justin Huang said this momentum was expected to continue in the fourth quarter of the year amid growing confidence in the nation's textile industry. Total textile exports for 2017 were forecast to be 5% higher year on year.

"Taiwanese textile suppliers will benefit from the 2020 Tokyo Olympics over the coming years, as local companies are strong producers of functional wear and high-performance sportswear for athletes," Mr Huang explained. The TTF has said it expects Taiwanese textile and fabric manufacturers to also get a boost as a result of increased demand ahead of the 2018 FIFA World Cup, whichtakes place in June and July in Russia. A number of companies are likely to secure large orders of sports apparel from global brands in the build-up to the event.



The guest of honour at Titas 2017 was Jen-Ni Yang (third from right), director general of Taiwan's Bureau of Foreign Trade.

TTF

Mr Huang admitted the emergence of e-commerce operators has changed supply chains in the global retail industry, but insisted it will only have a limited impact on local textile and fabric companies.

In fact, if recent media reports are to be believed, Taiwanese companies are well placed to take advantage of the e-commerce boom. It was reported in October that US online retailer Amazon had recruited two Taiwanese garment manufacturers, Makalot Industrial and Eclat Textile, as it looks to launch its own athletic apparel label. The companies have reportedly produced small quantities of garments for Amazon as part of a trial.

Last August, Eclat chairman, Hung Chen-Hai, was quoted as saying his company intends to focus on e-commerce platforms to boost its growth. He suggested Eclat had secured a new e-commerce customer but gave no further details. At the time, industry analysts speculated that this new customer was Amazon and October's reports would seem to support this theory.

Amazon's plans remain unclear but what is certain is that Taiwan continues to be held in high regard when it comes to performance textiles. Titas 2017 provided yet another demonstration of the Taiwanese textile industry's commitment to sustainability as well as its flair for innovation.

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