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ANDY DONG

Positive energy

Founder of China-based performance fabric developer Dry-Tex, Andy Dong, shares insight into some of his newest ideas, from using salt to generate clean energy for steam dyeing, to convincing major brands of polypropylene's positive attributes.

DIALOGUE

Andy Dong, founder of Dry-Tex

CREDIT: DRY-TEX

You have earned a reputation for being able to identify early what the market will demand in the coming seasons. What new developments are taking up your thinking time at the moment?

On a recent visit to Sweden to visit customers, including jacket brand Didriksons and golf and ski apparel brand J Lindeberg, it seemed to me that everybody was talking about how to reduce carbon emissions. We discussed recycled polyethylene terephthalate (rPET) from waste plastic bottles and textile-to-textile recycling, plus recycled nylon, bio-based nylon and solution-dyeing. After returning to China, we got together as a company and decided to transition to 100% green energy, beginning this year. Our costs will be higher, but we need to take this action. We already have the ability to make this change because we have the right connection to the national grid; we can buy green energy. It is a big step for us, but a very good one. We were also inspired to do this following a conversation we had with the Decathlon team last year. The green energy will come from renewable resources, from wind and solar panels in north-west China. We calculate that this can help us save more than 20,000 tonnes of carbon emissions per year, which will be 1.2 kilos of emissions for every metre of fabric we produce.

Will this take care of all your energy needs?

In the textiles business, we are largely dependent on two energy sources: electrical power and hot steam for dyeing. Both can produce carbon dioxide. If we use green energy, we can figure out the electricity part. But all over the world, hot steam comes from coal. This has generally been the biggest headache. However, the good thing is, we think we may have found a solution.

What is the new idea?

The new technology is based on ordinary, edible salt. At the moment, for the most part, a government-owned company supplies hot steam to China's industrial parks, including the one where our factory is based in Shaoxing, Zhejiang province. One of our neighbours in Shaoxing is a very high-tech company, which has been working on a way of converting green electricity into heat energy and storing it in high-temperature molten salt. You can imagine how much energy is required to make this salt melt into liquid form, it needs lots of heat. They've built a tank to store the salt and use electric power to heat the salt and melt it into liquid during the night. This requires a temperature of 543 degrees Celsius. And in the daytime, this liquid turns into a solid again and lots of heat comes out. This heat can make hot steam for use in the dye mills. This is an investment of a lot of money for our neighbours. They are waiting for the result of some trials, and for feedback from the market. I don't know when we will be able to use it in our production for dyeing. It may take five or seven years, but at least we may have found a solution and my customers are super excited about this. This is important because we need support. Their support will help us talk to the government and to international holding companies about enlarging our facilities and making textiles production more green. With this technology and our access to green energy, in the future we will be able to carry out the whole process, from yarn production to weaving and dyeing, zero-carbon.

Customers, including Swedish jacket brand Didriksons, are pushing Dry-Tex and other suppliers to do everything they can to reduce carbon emissions.
CREDIT: DIDRIKSONS

What have the trials of the salt technology shown so far?

They started a small trial last October and we will have to wait for the results to see how successful this has been. The cost of the investment is high and we need to have confidence that the technology will work and, as I mentioned, we will need brands to work with us. We have been involved in the trial. It is happening in our industrial park and we have connected the technology to our steam plant as part of the trial and we are quite proud of that. If the plan works out the way we hope, it could produce 16 million tonnes of hot steam for mills to use for dyeing. This will save 3.1 million tonnes of coal per year and that, in turn, will save 5.8 million tonnes of carbon emissions per year. I think this is quite interesting. Shaoxing is the biggest fabric-manufacturing city in the world. I think it makes 40% of the world's textiles and if we can have green energy here, we can save the planet.

Brands talk constantly of their desire to make advances in sustainability, but how confident are you of securing their support for this initiative?

Our business is 90% for European and US customers, many of them brands that are active in the sports market. Most of them care deeply about green issues. One of the reasons we are enthusiastic about this project is that our customers are pushing us towards this. Brands that have been sourcing from fabric mills in Vietnam, Bangladesh or Indonesia will know that it is hard to talk about green energy there. In China, it is part of national strategy to invest in new energy and we have large installations for solar power and wind power in the west of China, in the desert. It is expensive now but it will become cheaper and cheaper. I think this strategy can help China hold onto business and grow.

On the subject of Vietnam, in previous conversations with WSA, you have set out plans to expand production by setting up Dry-Tex facilities there. How have those plans evolved in recent months?

We have bought the land. We have been working hard on the many documents that the Vietnamese government needs and there are ongoing issues that we are still figuring out, for example fire prevention. We want to quote the real capacity in our planning. We don't want to cheat at the outset because that could be quite dangerous. So we are still working on the

documents. We still think that Vietnam is a good place for textiles; many garment manufacturers are there and we will be able to offer them quick delivery. Another benefit is that it's near China. But at the same time, with the new energy projects we are working on in China, it may be two or three years more before we complete the plan for Vietnam.

When you last spoke to WSA, you shared that Dry-Tex's focus was then on warp-knit tricot fabrics for outdoor clothing. What progress have you made in this area and you how have customers have responded?

It's a challenge because in many of the tricot fabrics, the proportion of elastane we needed was very high, sometimes as much as 25%. Some customers prefer not to have that because they want the whole garment to be recyclable, and mono-material garments are better for this. These tricot fabrics are doing well in some markets, though, for example in China.

Has Dry-Tex begun to do more business with Chinese brands? Is this as a result of how difficult international business became for a few years? What are the main differences that you see between the way Chinese apparel brands work compared to their counterparts in Europe and North America?

Our business in China is growing, and it is not only because of covid-19. Chinese brands are becoming bigger and they have good knowledge now and this makes it easier for us to work with them. Last year, sales of seam-sealed outdoor jackets in China were very strong. Outdoor jackets have become very fashionable. Since Anta became the controlling stakeholder of Amer Sports, in 2019, one of Amer's brands, Arc'teryx, has become very popular in China. The market for sports apparel in general is growing. Trail-running and hiking are very popular now and millions of people are travelling to the west of China, for example, to take part in outdoor activities in the mountains there. As a result, outdoor brands are expanding in this market. But it is a different market compared to Europe and North America, even in terms of product. As in Japan and South Korea, consumers in China like garments that have a very tight construction. Another difference is that the supply chain for the Chinese market is shorter and sometimes customers call to ask for changes from one day to the next. The process is faster compared to what happens with western brands.

You were among the first to emphasise the importance of lighter fabrics in advance of the huge demand for lightweight garments that we have seen in recent years. What is your focus right now, material-wise?

We are developing a new fabric with the face, membrane and backer made from polypropylene. It is good for it to be mono-component. Brands need to prepare garments for end of life. We have seen what is possible with garments that have a face-fabric all in polyester, a membrane in polyester, and the backer in polyester too. This can be recycled. My customers have tested this at a college in Stockholm and have been successful in turning the polyester back into PET flakes to produce new fibres. I was also interested to see announcements like BASF's about Loopamid, its new version of polyamide 6, made from textile waste. Another thing about our new fabric is that polypropylene never gets wet and is always water-resistant and if brands use it, they will have no need to use durable water repellency (DWR) finishes with perfluorinated compounds. Also, polypropylene is lighter and warmer than polyester. So, for example, if you use polyester fabric that weighs 260 grammes per square-metre to make a fleece garment, you can achieve the same functionality with polypropylene that weighs only 180 grammes per square-metre. In many ways, polypropylene is the perfect material for outdoor and winter sports brands. The market is very interested in this. We have been a fabric supplier to Patagonia, for example, for a long time. It is one of the brands that are interested in this new material. Another aspect of this is that we think we have the ability to go from thicker to thinner yarns to make the fabric, possibly using yarns with a thickness of as little as 30 denier. This development is really exciting. We aim to move forward with it in the next few months.

Outdoor jackets have become very popular in China, with Arc'teryx one of the best loved brands.

CREDIT: ARC'TERYX

Footnote: Andy Dong spoke to WSA at Intertextile Shanghai Apparel Fabrics in spring 2024.