

Workers enduring hot conditions are gaining extra comfort from temperature-regulating fabrics.

Kone Corporation

An array of new applications in specialist workwear projects is proof that performance textiles are more in demand than ever in industrial environments.

Performance textiles are fit for work

Fitness and sports fanatics are pushing performance textiles into an increasing number of workwear applications by taking knowledge gained in their leisure time into their professional lives. Engineers, police and military officers, and others who now wear clothing with moisture management, thermal regulation and antimicrobial qualities to carry out their daily duties first experienced these functionalities while taking part in sports during their free time. And having worn the best to play, they do not want to settle for second best at work.

According to Jordi López, apparel marketing manager at specialist polyester yarn and fabrics manufacturer Advansa, this has been one of the main drivers of a spate of contract-wins his company has celebrated in recent months. There have been big breakthroughs among police forces, in particular, for Coolmax freshFX fabrics. Clothing incorporating these materials can offer evaporative cooling qualities, with moisture being pulled away from the skin to the surface of the fabric, allowing it to evaporate quickly and helping to maintain a balanced body temperature. The product also suppresses the growth of bacteria which can cause unpleasant body odour, meaning it can help wearers feel cool, dry and fresh, even in extreme working conditions. For similar reasons, moisture management and temperature regulating ThermoCool is another Advansa product in demand in these markets.



The Blue Steel tactical police vest allows workers to generate 70% less sweat.

Point Blank Solutions

Sartorial revolution

Spain's federal police force, the Civil Guard, is one of the company's latest customers. Famous for its traditional uniform, including distinctive three-cornered black hats, Mr López explains that a sartorial revolution is under way at the force, which includes substituting classic olive green tailored shirts with polo shirts made from Coolmax as part of the new warm-weather uniform. The garments are already made and should be turning heads in every province in Spain next summer. Similar projects are under way with other police forces in Spain, notably the city police in Barcelona, as well as in the Netherlands and France.

Other Advansa successes in this area have come in the shape of cabin crew uniforms at Turkish Airlines, which have Coolmax woven into the fabric, and through specialist workwear manufacturers, including Fuchshuber from Germany, who are offering the fabric in a range of baselayer products to various clients.

"The process is that the development and take-up of these products happens in sports first," Jordi López says. "The elite people in organisations like police forces are sportspeople themselves in their spare time so they know and understand what makes garments comfortable. What is also true is that, when a police or military customer buys our products, the level of demand on the functionality increases. They are buying with public funds

and need independent evidence of the benefits, such as tests from independent laboratories, which can cost us thousands of euros to commission. But it's necessary because these clients have to justify every cent they spend."

Thanks to the experience of sports enthusiasts among the purchasing teams, the realisation has grown that, in terms of clothes, cheapest is not always the best and that the public purse can be better served by pushing the technical properties of garments higher.

Emergency situation

Breakthroughs are also coming in the medical industry. A range of apparel called Do No Harm is making a name for itself among hospital professionals across the US.

Produced by Texas-based Greenology, the range (tunics and trousers for now, with lab coats to follow in the near future) is made from 75% recycled polyester and 25% cotton, with SmartSilver antimicrobial additives from NanoHorizons throughout. Dr James Delattre, vice-president of global marketing at NanoHorizons, says the wash durability of the garments is "excellent" because his company has the binding technique "down pat", meaning that the garments keep the antimicrobial functionality for the duration of their lifecycle. "They're good quality products," he says. "Greenology took the time to airloft to ensure they have a lovely hand. They are comfortable, which they need to be if you want them to be adopted widely in a hospital. But they also have the right professional look and feel and I know of one big dental practice that has bought Do No Harm for all 60 of its employees. The clothes could be applied to spas, too; they have a professional look with the benefit of silver. Price-point is important, too, of course."

He explains that the reaction among hospital staff in particular to SmartSilver has been positive. They work with silver on a daily basis because it's been a mainstay of fighting infection, especially in treatments for burn victims, for years. "But to take it into clothing and make it price-efficient is very exciting," he says.

There are clinical reasons for putting silver in clothing as well as creams. Dr Delattre quotes an unnamed chief wellness officer at a big hospital in Ohio who says the medical industry needs to put silver in all its textiles because hospital-acquired infections are a big concern and there is evidence that clothing is a key carrier. "It's quite a visionary thing for that executive to say," James Delattre continues, "for him to see that the technology can work in textiles. Textiles are a serious problem as a transporter of germs around the hospital."

Field work

Colorado-based OEL Structure Wear specialises in workwear for extreme outdoor conditions, including facilities maintenance for energy companies. The company says it found that most workers who have to wear a uniform to do jobs like these believe the clothing (typically overalls or high-visibility jackets and trousers) is too warm to function effectively for any extended period of time. For this reason, OEL has partnered with temperature-regulating phase change materials provider Outlast to help it "provide a comfortable solution to this



Do No Harm medical scrubs from Greenology now contain anti-microbial SmartSilver.

Greenology



Just a T-shirt and long pants to wear under maintenance workers' uniforms, but the OEL Structurewear Powered by Outlast collection means wearers won't get as hot in summer or as cold in winter.

OEL/Outlast

everyday problem". Together, the companies have developed a new baselayer clothing line called OEL Structurewear Powered by Outlast. The products can be worn under any uniform, as well as under outdoor or sports apparel.

Thinking of people working outside in facilities management, manufacturing, infrastructure maintenance, utilities projects, waste management and a long list of other physical activities, Outlast's director of sales and marketing, Heather Listoe Manuel, comments: "The clothes consist of just a T-shirt and long pants to wear underneath the uniform, 48% Outlast, 48% viscose and 4% spandex. Just white in the first run, although sage is a possibility for the future. But these workers need a way to manage the temperature and this collection gives it to them. In the summer they won't get as hot and in the winter they won't sweat and then get too cold."

She explains that Outlast's technology has also gone into some new products that protective apparel company Point Blank Solutions has recently brought to market, the Vision and Blue Steel tactical police vests. The company wanted to make lighter vests so that officers really would wear them. But tests carried out in a climate chamber, with the test subject moving on a treadmill at an ambient temperature of 23°C, showed that the vests with Outlast were responsible for a 70% reduction in the amount of sweat the wearer produced, going by the weight at the end of several vests that featured in the test.

Companies are striving all the time to improve the clothing critical workers have to wear. Performance textiles are proving a good bet for enhancing every aspect of industrial apparel.



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