

RISE TO THE CHALLENGE: XTEP AND DOW MICROBIAL CONTROL

Dow partnered Chinese sportswear manufacturer Xtep to find an odour control solution that that would work for the Chinese consumer.

A fresh approach to athletic footwear

The best partnerships, it has been said, are those in which the parties are stronger working together than they would be working separately. Judged against that standard, the partnership between Xtep International Holdings, a China-based manufacturer and marketer of sports apparel and footwear, and Dow Microbial Control clearly defines success. The case that proves the point illustrates how the two companies overcame numerous challenges to enable Xtep's recent introduction of antimicrobial performance in a wide array of its athletic footwear and related products.

The use of silver-based antimicrobial systems in sportswear, footwear and other apparel products is hardly front-page news. In recent years, the trend has been fuelled by the growing demand among consumers for reliable odour control and long-lasting freshness.

However, meeting this consumer demand has not been without its issues for mills, manufacturers and brand owners. In 2010, partners in the apparel industry expressed concerns to Dow Microbial Control, a business unit of The Dow Chemical Company, that many traditional antimicrobial systems affected the colour of fabrics, were limited in their durability and were costly and difficult to handle in textile mills. In an industry where customer loyalty hinges on consistent product quality and performance, and streamlined operations are critical to business success, these were not



Artist's impression of the shoes in action.

Shutterstock/Click Images
/WTP



Consumers put the shoes and socks treated with Silvadur through their paces.

 XStep

inconsequential concerns. Dow's technical experts were asked to provide solutions to their issues based on the company's decades-long experience in the antimicrobial marketplace. However, the world of textiles and apparel was entirely new to Dow.

"Since we had never participated in the textile and apparel space, our learning curve was steep," says Karel Williams, global strategic marketing manager at Dow. "We had many discussions with key players in the apparel industry, trying to learn more about their operations and their most pressing problems with traditional antimicrobials. The more we knew about their businesses and their concerns, the better we were able to assess our ability to help them."

Based on these discussions, Dow accepted the challenge of developing a silver-based antimicrobial that would provide long-lasting performance, would not discolour apparel and textiles and would improve the efficiency and effectiveness of the antimicrobial application process. After 18 months of development work and extensive independent testing, Dow introduced Silvadur Antimicrobial to the marketplace in October 2012.

Its key feature is a patented technology that "intelligently" controls unwanted bacteria by providing silver ions only at the surface of the shoe or fabric and activates them only in the presence of the bacteria. As the silver is consumed in the process of eliminating the

odour-causing bacteria, more silver is released and the process continues. In addition to its high degree of efficacy, Silvadur addresses all of the manufacturing, durability and other shortcomings of traditional antimicrobial systems.

Perfect timing

The timing of Silvadur's launch could not have been better. It coincided with Xtep's search for an effective antimicrobial to meet the growing demand in China for long-lasting freshness and odour control in footwear, particularly athletic shoes.

"Improving the long-lasting comfort of our shoes has been a priority for us and we had been looking for a reliable odour-control product for years," explains Li Xia, director of the Footwear Commodities Center at Xtep. "When Dow introduced Silvadur last year, we thought it might be the answer we'd been looking for. But our challenge was to prove to ourselves, under a very tight timeline, that it would perform as well on footwear as it did on apparel."

Soon after the product launch, technical experts from Xtep and Dow were working together to evaluate Silvadur's performance on running shoes, both in lab tests and in field trials. The process got off to a fast start, because Dow research and development and marketing teams were already well established in China. Over time, some 10 members of these Dow teams were assigned to work with their Xtep counterparts on the project.

“China has established much higher standards for antimicrobial performance than other countries, particularly for running shoes,” claims Williams. “Our challenge from day one was to partner with Xtep to validate that their athletic footwear treated with Silvadur would consistently meet or exceed the Chinese standards, as well as Xtep’s, which were even higher.”

Validating brand promises

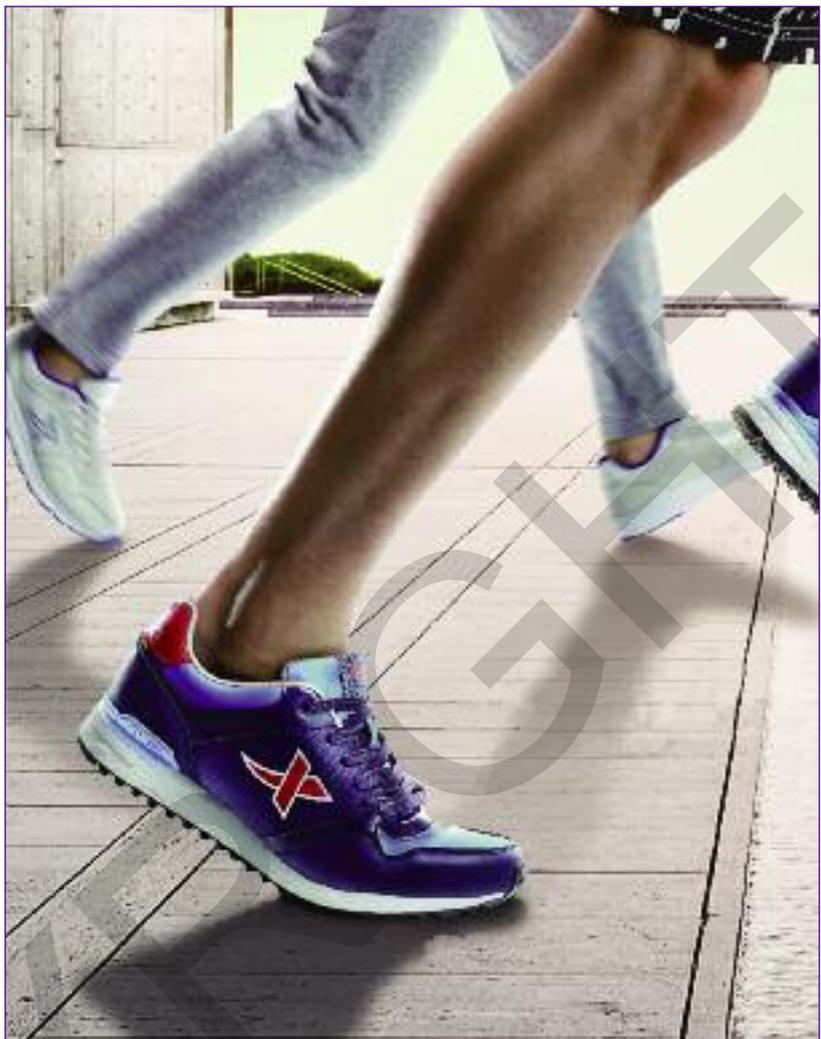
The validation process was far reaching, and it essentially focused on three broad areas: odour control and freshness, effectiveness and durability and consistency of performance.

Based on its extensive consumer research and experience in the marketplace, Xtep understood the importance to Chinese athletes of odour control and freshness in their running shoes. To deliver this performance, the company’s approach was to treat the linings and insoles of running shoes – rather than the surface – with the new technology.

Odour control and freshness are directly related to the number of bacteria present in footwear and apparel. The fewer bacteria present, the greater the odour control and freshness. So the companies’ technical experts relied on internationally recognised tests to evaluate antimicrobial activity inside running shoes. Test results showed that Silvadur exhibited a high degree of efficacy in controlling a broad spectrum of odour-causing bacteria in shoe linings and insoles. Wear tests were also conducted in the field with similar results. In some ways, the most meaningful and positive feedback came from employees of Xtep, including many of the company’s most senior managers, who personally tested the performance of the treated shoes and socks.

An important issue for the two technical teams was determining the right amount of Silvadur necessary to exceed both China’s standards for microbial performance in shoes, as well as Xtep’s expectations. This played to Silvadur’s strength because its intelligent microbial control technology requires only small concentrations of silver ions to control unwanted bacteria. As a result, less Silvadur is necessary to meet the Chinese microbial control standards than traditional antimicrobial products.

In China, unlike other parts of the world, consumers typically use brushes to clean running shoes, rather than relying on machines to wash them. The challenge for the Xtep-Dow team was to develop a test method that would simulate the frictional effect of cleaning shoes with brushes. They opted to use a protocol that included steel balls with the shoe linings and insoles in the laundry tests to achieve the desired frictional effects. Those tests showed that Dow’s new product had a 99%



antimicrobial control rate against bacteria and fungi after 50 rigorous launderings.

Another challenge for the Xtep-Dow researchers was determining whether Silvadur would consistently perform on all of the substrates and materials used in the linings and insoles of Xtep’s running shoes. “Consistent microbial control performance has everything to do with the even distribution of the antimicrobial on the substrate,” says Li Xia. “Our testing showed conclusively that Silvadur can be much more evenly applied on the substrates in our footwear than other antimicrobials we have tested, because of its liquid formulation.”

Based on the results of its intensive and accelerated evaluation, Xtep is currently treating much of its athletic footwear, including shoes for casual, performance, and trail running, as well as socks and winter shoes, with the technology.

Having successfully cleared so many hurdles in recent months, what is the future of the Xtep-Dow partnership? “According to a Chinese proverb,” says Karel Williams, “the man who moves a mountain begins by carrying small stones’. I believe we have only scratched the surface of what our two companies can accomplish by working together to benefit consumers.”

Xtep, which employs about 6,000 people, is focusing on growing its footwear sales in mainland China.

