SUSTAINABILITY: ADIDAS AND REEBOK



Adidas, Reebok and the Ellen MacArthur Foundation are among those looking to replace fossil-based materials in an attempt to stem the flow of plastic waste

Plenty more fish?

It is startling to think that in 30 years, there could be more plastic in the oceans than fish. Researchers at the Ellen MacArthur Foundation have forecast that plastics production will quadruple by 2050, when the ratio of plastics pieces to fish could reach 1:1.

Adidas is among the brands stepping up its game in terms of tackling the problem. When it announced its Parley for the Oceans initiative in 2014, the shoe it then produced, made from yarn from reclaimed plastic from the sea, was only a concept and it was unclear whether the idea would work commercially. However, last summer, the German group launched its first mass-produced Parley design. UltraBoost Uncaged Parley features an upper made from 95% recycled ocean plastic with the rest of the shoe also made from recycled materials.

"Adidas teamed up with Parley to help spread awareness and transform ocean plastic pollution into high performance sportswear, spinning the problem into a solution," says Eric Liedtke, head of brands at adidas. "We have already taken the first steps to reduce and ultimately eliminate virgin and single-use plastic from our products. In doing so, we have shown that it is possible, and that people care – but now we must accelerate and scale."

Adidas turned to Aquafil for its Parley Swim range, launched in February. The Italy-based textile company has been supplying yarns made from ocean waste for more than four years, with Econyl manufactured from discarded fishing nets. In that time, hundreds of tonnes of nets have been recycled into new polyamide, with Reebok, Finisterre, Speedo and Volcom among the brands making swimwear ranges from the yarn. In June, designer Stella McCartney introduced a range of bags made with Aquafil and Gucci is also among users.

Total rethink

A graphic illustration of the severity of the problem of ocean plastic has come from a paper published by the National Academy of Sciences in the US. Researchers visited the uninhabited Henderson Island in the South Pacific and found 671 items of plastic debris per square metre. They estimated the total amount at 37.7 million items weighing 17.6 tonnes, with 17 to 268 new items washed up on a 10-metre section of beach daily. Australian researcher Dr Jennifer Lavers says the island has the highest density of plastic rubbish in the world and is a wake-up call that plastic pollution is as grave a threat to humanity as climate change.

On learning of the paper, circular economy entrepreneur Dr Gunter Pauli said redesigning plastics is now a matter of urgency. He added that as well as biodegrading in air and soil, they must biodegrade in salt, which acts as a preservative.

Plastics production is forecast to grow from 311mt in 2014 to 1,124mt by 2050. One third could find its way into the sea.

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Reebok's Cotton + Corn project uses organic cotton and plant-based Susterra in the sole.
Reebok

His sentiment has been echoed by the Ellen MacArthur Foundation, which has teamed up with The Schmidt Family Foundation to launch a competition that hopes to address the problem in two ways: creating a new kind of plastic that is easily recyclable or compostable, or redesigning packaging to reduce the use of plastic.

The competition, which closes in October, has a $2 million prize pot and offers the winners access to industry experts to turn their ideas into viable products or solutions. Michiel De Smet, project manager at the foundation, touts a New Plastics Economy: boosting recycling, reuse or composting; reducing the amount of plastics leakage into natural systems (estimated at 30%); and decoupling plastics from fossil feedstocks. He estimates that only 14% of plastic packaging is collected for recycling, with one third escaping collection and ending up in the environment. "We are on the brink of reinventing the future of plastics," he says.

Renewable feedstocks

The idea of moving away from fossil-based plastics has also been seized upon by Reebok for its latest project, Cotton + Corn. The shoe will have an upper made of organic cotton and a sole made from DuPont Tate & Lyle's Susterra propanediol, which is derived from field corn, a non-food source.

The corn is harvested, dried and transported to DuPont's manufacturing plant in Loudon, Tennessee, where it is wet milled and separated into its components including starch, fibre and protein. The glucose derived from the starch is the raw material for the 1,3 propanediol.

"It is used in so many industries because it can be polymerised or paired with an acid to make a polyol, which then gets paired to make a TPU or a PU," explains Laurie Kronenberg, global marketing director at DuPont Tate & Lyle Bio Products. "In terms of footwear, it can be used for the foam, coatings, the sole, the midsole and insole, based on how the different value chain partners play with the different chemistries."

Many companies blend the Susterra for footwear to achieve different properties. In Reebok's case, it wanted a "high-level" plant-based sole – however, it is unclear whether it is 100% Susterra.

"When people think 'green' they assume it's not going to perform as well as something that is petroleum based, but in our case we have the opposite," says Laurie, commenting that it remains flexible at low temperatures, has excellent resilience and compression and is cost comparable. She gives the example of snow boots' soles, which need to remain flexible when cold, US military boots that need good slip resistance or for coating outdoor apparel that is exposed to extreme conditions.

The manufacturing process is also 'cleaner' – from 'cradle to grave', the 1,3-propanediol produces 56% less greenhouse gas and uses 42% less non-renewable energy than petroleum-based 1,3-propanediol – the equivalent of taking 40,000 cars off the road per year when the factory is running at full capacity.



UltraBoost Uncaged Parley is one of three designs that incorporate recovered waste.
adidas

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"Because of the performance advantages, a lot of major brands are using it as a 'secret ingredient', but following Reebok there will be more people willing to say they use the product as they can see the advantages," says Ms Kronenberg. She adds that from a lifestyle perspective, consumers are increasingly engaged in the sustainability message.

Bill McInnis, head of Reebok Future (Reebok's innovation team), says of the project: "We're using materials that grow and can be replenished, rather than the petroleum-based materials commonly used today. We care about what happens to the shoes when people are done with them. So we've focused on plant-based materials such as corn and cotton at the beginning, and compostability in the end."

Susterra on its own is classed as biodegradable according to guidelines set out by the Organisation for Economic Co-operation and Development, but it then depends on what it's blended with as to whether the end product will be compostable.

"We like to say we are 'growing shoes'," adds McInnis. "Ultimately, our goal is to create a broad selection of bio-based footwear that can be composted after use. We'll then use that compost as part of the soil to grow the materials for the next range of shoes. We want to take the entire cycle into account; to go from dust to dust."

Reebok president Matt O'Toole comments: "Most shoes just end up in landfills, which is something we are trying to change. As a brand, we will be focusing on sustainability with the Cotton + Corn programme as well as other initiatives we have in the works."

The shoes will be available later this year.

Ocean run

At the start of June, 60,000 joined adidas' and Runtastic's Run for the Oceans, a global virtual running event covering a collective 572,000 kilometres. Each participant signed up via an app to log their mileage, and ran listening to a podcast by Parley about the problems of ocean waste. Organised to coincide with World Oceans Week, the flagship run took place in New York City, with 500 athletes and celebrities such as supermodel Karlie Kloss helping to promote the cause. "The run is done but the race is not over," said a spokesperson. "The finish line is just the start."

Adidas promised in 2014 that the Parley project would be expanded and last November unveiled the first apparel products made using recycled plastic from the ocean. It worked with Taiwanese textile group Far Eastern New Century, which converted the recovered plastic into yarn, to produce adidas x Parley football jerseys printed with water-based dyes. Players from Bayern Munich and Real Madrid football clubs wore the shirts on the field, a demonstration of the fabric's technical qualities.



Actor Diego Luna, Parley founder Cyrill Gutsch and adidas' Eric Liedtke at Run For The Oceans in New York.

adidas

"This represents another step on the journey of adidas and Parley for the Oceans," says Mr Liedtke. "We have not only managed to make footwear from recycled ocean plastic, but have also created the first jersey coming 100% out of the ocean." He added that the company "won't stop there": "The ultimate ambition is to eliminate virgin plastic from the supply chain."

The Parley Uncaged shoe collection, now expanded to three designs, has grown from an initial 7,000 run to being on course to surpass one million by the end of this year, an adidas spokesperson confirms to *WSA*. He adds that Parley Ocean Plastic will be integrated into more footwear models and apparel lines into 2018 and beyond.

"Our efforts won't stop with product – we want to create a global movement to help save the oceans from the threat of plastic waste," adds Mr Liedtke. "At the heart of our brand is the belief that through sport, we have the power to change lives."

We will look at the issue of microplastics in more depth in the next issue of WSA.

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