

FOOTWEAR TECHNOLOGY: ISPO

ISPO goes outdoors

by Penny Leese

The outdoor segment of the ISPO exhibition is getting stronger, with more exhibitors, especially from Scandinavia. Ski and snowsports remain an important category of this winter sports fair. In footwear, sustainability is an important and growing trend, as is technology. Here **Penny Leese** reviews some of the footwear highlights from February's exhibition.

Sustainability

Doghammer is a new brand at the fair, with comfortable fluffy slippers hand-made in Portugal but designed in Germany's Bavaria region. The uppers are made from offcuts of climbing ski felt; when ski felt is cut the skis are long, so there are leftover pieces. Inside there is wool, while the sole is made from a cork-rubber mixture.

The Vivobarefoot Bio range uses materials harvested by DuPont and Tate & Lyle. They have created a renewable high performance yarn with

a good deal of stretch for comfort. The shoes feature DuPont's plant-based Sorona textile. Vivobarefoot's Bloom model is made of algae foam. Harvested algae not only cleans and restores the environment but it is an ingredient for a super lightweight foam that likes to get wet. The algae is mixed with EVA on the body, and the textile parts are made of Sorona. The outsole is made from a mix of natural rubber and Bloom algae. Each shoe in the new line is nearly 50% plant based, making it part of the brand's aim to use 90% sustainable materials across its entire shoe range by 2020.

There are always new materials at ISPO and the plant-based carbon material Triporous from Sony is totally new. It is a porous material made from rice husks, a waste product, and has anti-odour and breathability properties. Once converted into a yarn, the company claims it has applications in footwear.

Keen has collaborated with the designers from

Garmont's G-Radikal GTX mountain boot with innovative ergonomic and construction solutions.

 Garmont



VivoBareFoot unveiled their new Bio shoe line featuring the Primus Bio at the ISPO show.

 Vivobarefoot

Sherpa and made a capsule collection of shoes featuring the Sherpa knot symbol. For every product sold, €25 are donated to the Sherpa Adventure Gear Fund, which aims to provide a better future for the children of Nepal through empowerment and education.

HICE makes sealskin boots in Italy, often with a claw sole for grip on ice, which makes them popular in Russia. The sealskin is sustainable as it comes from Greenland, where the Inuit still hunt seal for food. The skins are a by-product but the availability is falling, due to lifestyle changes. There is a growing demand for these beautiful skins, so the company has been forced to look for alternatives that look exactly like sealskin. The new products are so similar that it is impossible to tell the difference.

Saola shoes is a new brand making sustainable shoes. They are made from between 40% and 60% recycled PET bottles, with the outsole made from recycled EVA. Up to 20% of the shoes is made from Bloom's algae foam. The insoles are made from a mix of algae foam and natural cork and the laces are made from organic cotton. Production is in Vietnam and 1% of sales goes to help the wildlife in drought-stricken Kenya, including funding water trucks to fill the watering holes from which the animals drink.

Kavat is a traditional Swedish shoe company renowned for its children's shoes; it has received the EU Eco label for its factory in Bosnia and Herzegovina. It has a successful collaboration with the Swedish Winter Olympic team and has collaborated with Swedish female skier Frida Hansdottir on a new warm, lined leather casual winter boot.

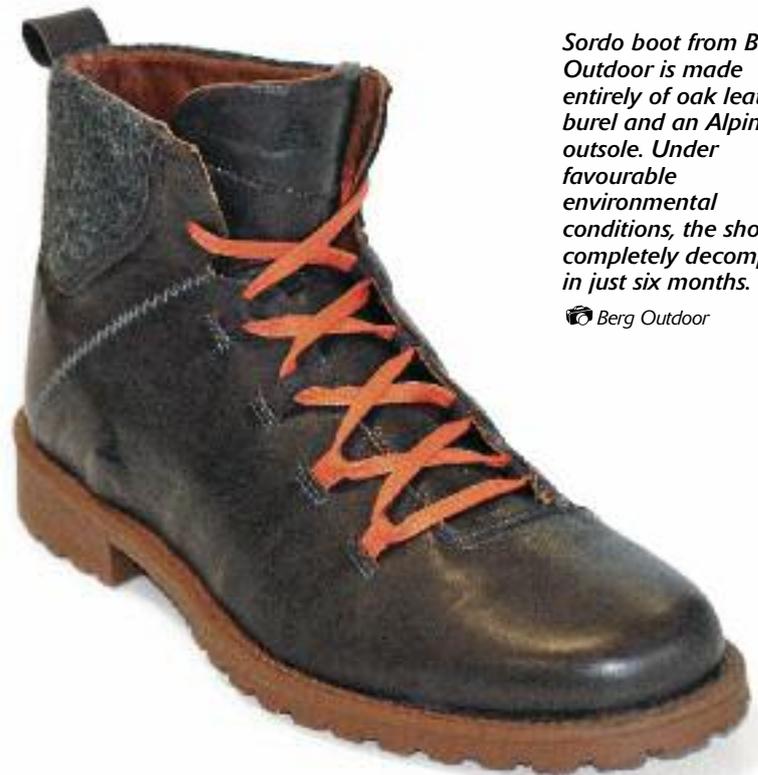
Berg Outdoor won a prize at ISPO for Sordo, a 100% biodegradable boot. It can fully decompose in six months in the right conditions. It is made in Portugal from oak-tanned leather bionature and burel, with an Alpinat outsole.

DriTan is a new tanning process from Ecco that is said to save one litre of water per pair of shoes. Ecco's aim is to create a saving of 25 million litres of water a year by the end of 2020.

Technical

There is increasing emphasis on technology, from product to selling. ISPO again held a wearable technologies seminar, concentrating mainly on clothing and materials.

Garmont showed new technology for its G-Radikal GTX performance mountain boots. They are made on an ergonomic last with a naturally curved edge and bottom for added comfort. The construction of the sole is double layer with a PU internal midsole. The new boots have a removable liner, which is open at the toes. This is because most footwear membrane linings only go as far as the toe area, and the open-toe insock means that the toes have free movement, which is important in cold and tough conditions. The liner has a firm base; it dries faster and can also be washed. It creates airflow inside the boot



Sordo boot from Berg Outdoor is made entirely of oak leather, burel and an Alpinat outsole. Under favourable environmental conditions, the shoe completely decomposes in just six months.

 Berg Outdoor

which means humidity is dissipated faster. The boots also have a dual lacing system. One lace goes across the instep, and a second system across the collar area so they can be quickly and easily adjusted when walking on steep slopes. The laces have a heel lock system that gives added support across the instep as it blocks the heel. The upper is made of Lenzi Putek material, which is highly abrasion resistant.

The Ecco Innovation Lab showed a new product called The Connected Shoe. It covers a couple of basic styles from the Ecco collection at the moment, but is expected to expand soon. The biomechanical data of the customer is collected via a scanning process that takes less than a minute. Since the Ecco shoes are direct-injected, new plates are made for the top of the moulds which means that the soles are hollow inside. This allows for a personalised insole, which is 3D printed from silicone and placed inside the shoes. It is customised according to the 3D scanner software. The silicone midsole is made to fit the feet, with left and right perhaps different. Since it is silicone, made with an open structure, it is stable, odour-free and non-microbial. The insole is printed instore so can be ready in less than an hour. A regular insock is then placed on top of the midsole insert for added comfort.

Comfort

Comfort is an important feature, too. Woolly uppers keep the foot's inner climate warm in winter and cool in summer. Knitted footwear is here to stay, and many footwear brands mix merino wool with synthetics for comfort and durability.

Fit is an integral part of comfort and HP showed its FitStation foot-scanning and individualised shoe production system. It works almost instantly, creating a 3D image of the feet that can be viewed on a smartphone application. The app can then recommend the shoes that would fit best, and the size to choose from various vendors or brands, according to the country in which the customer is located. The scan and measurements stay on the app, meaning they can be used for future purchases. What is smart about the app is that you can actually see the fit of a shoe on the foot. If the wearer chooses a size that is too small, they can see a red mark on the toe area where the shoes would hurt. FitStation is producing 3D insoles and Superfeet is piloting the project in 4,000 retail stores. Steitz Secura, which makes safety shoes in Germany, will be using FitStation to aid its focus on comfort and safety.

Also with FitStation, Superfeet has created personalised recovery slides using Syncro recovery foam, calibrating customised comfort zones using the data collected. The



Viking Hero GTX boot with 360 degree reflectivity won the Scandinavian Outdoor Kids Award.



ME3D Recover is designed to help runners recover better.

X10D is a new product, a high class training shoe for everyday use, designed in Switzerland. The sole has a special design where there is no support under the arch area, which trains the feet to control pronation and naturally feel how to get an upright walking pattern. These shoes must be worn gradually to train the muscles and take some getting used to.

Protection

Skinnners are revolutionary sock shoes with a sort of asphalt coating made of two layers of mixed anti-abrasive Swedish polymers. They can

The X10D shoe features a sole design that offers no support under the arch of the foot. The aim is to train the feet to perform in a more natural manner.



be used for all sorts of outdoor sports as they are non-slip. They also pass the “Lego test”. It means that you can actually walk on pieces of Lego without hurting the feet – the ultimate test. The socks are made in Europe and come in two shaft lengths, new is the increased colour availability.

Being seen in the dark in winter is important and many brands showed LED clothing for winter runners. Viking of Norway had children’s shoes with reflective uppers, which had won a Scandinavian Outdoor award.

Traditional

Amundsen is a traditional Norwegian clothing brand. It now has handmade leather boots with attached gaiters. They are traditionally made with a Norwegian welted stitched sole construction and in oily leather to repel the water. The gaiters come in various types, such as waxed cotton or boiled wool. They have an integrated system with the Amundsen knickerbockers. These boots are inspired by the mukluks worn by the Inuit people and have a layer system. There is a removable inner shoe made from wool, which can be dried out in the cabin after a trek. The Nanga Litebase sole from Vibram makes them also suitable for crampons. The outsole is a traditional one from Vibram. They were road tested by wearers on long hikes in the Dolomites, in Italy during the summer of 2018.

Non slip on ice and waterproofness

Waterproofness is taken for granted today, in winter and summer footwear. Non-slip on ice is an important selling point for winter boots. Reima of Finland is one of the few companies offering it on children’s winter boots. Vibram’s patented technology has been available for two winters now and has been successful. Icebug has another technology with retractable spikes for running and walking on icy surfaces. It won a Scandinavian Outdoor award for its winter boot.

VJ is from Finland, where the climate is tough. It has winter running shoes with spikes and water repellent uppers, which are partly made of Kevlar for added protection. The styles that do not have spikes have very sticky butyl rubber soles that give excellent grip in wet conditions.

Moddo Inc from South Korea showed at ISPO for the first time. It has a patented rubber compound with water draining technology, good on ice but also on any slippery and greasy surfaces. The company calls it Gecktoegrip and it is tested on oiled quarry tiles. It tested normal sports shoes from major brands like adidas and Nike on the slippery tiles, and then added sections of its patented rubber sole at the toe and heel, which dramatically improved grip. As well as selling the system, Moddo is producing shoes for summer and winter in South Korea.

GripWalk is a system for ski boots that makes it easier to walk without skis. It consists of sticky rubber inserts in the heel and from part of the sole. The system is used by Head and Nordica.

Sympatex introduced its design concept for the waterproof shoe of the future made of recycled materials. The functional textile specialist displayed its thermal-moulded waterproof bootie construction, known as Utmospheric, inside a 3D printed upper. Its aim was to show how a closed-loop shoe prototype could work in the future. The upper was made of recycled PET bottles collected at an event just before the show. 



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