

WORLD FOOTWEAR

JULY/AUGUST 2014 • VOLUME 1

THE MAGAZINE FOR THE GLOBAL SHOE INDUSTRY

Ethiopia can be big in shoe production

Why manufacturing is still working in Europe

3D printing for footwear

All the world needs leather





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Shoes from Bryan Oknyansky's Heavy Metal Series demonstrate the complex structures that can be achieved with 3D printing.
Image: Bryan Oknyansky

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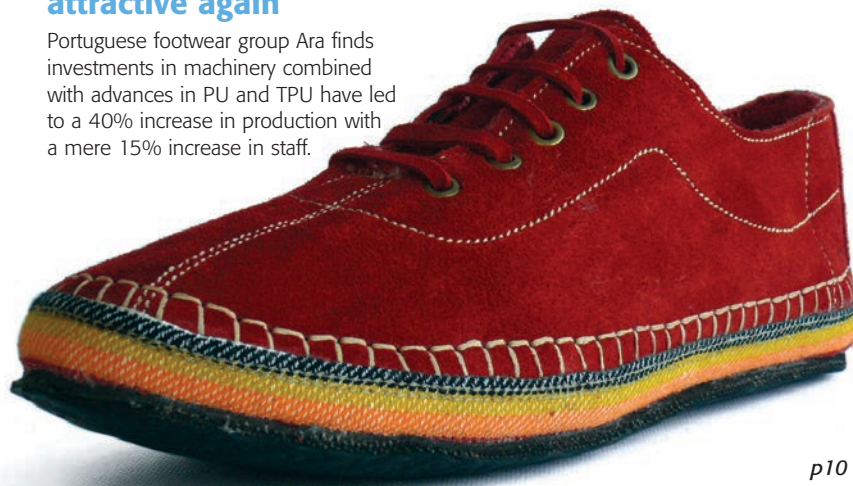
Billions of dollars of investment in its infrastructure, inexpensive labour and proximity to raw material are leading many to consider the African country as a viable footwear manufacturing hub. Chinese shoe giant Huajian is leading the way.



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News

SPAIN Parent company of global fashion group Zara, Inditex, is now Spain's biggest footwear producer. Its shoe producing division, Tempe, employs more than 1,500 people at its base in Elche and, in 2012, produced 52 million pairs of shoes, with a value of €834.7 million, a 12% increase on the figure for the previous year.

● The Spanish autonomous community of La Rioja has bestowed the 2014 La Rioja Medal on the region's footwear industry. La Rioja's government awards the honour to one or two individuals each year in recognition of work they have done to promote the interests of the community. The region had 129 footwear firms in 2013, giving it a 9% share of production landscape.

UK The British Footwear Association (BFA) has warned that funding to help companies increase exports and visit trade shows has been reduced by up to 30% for the coming year. The BFA has responsibility for export grants for Project Sole New York, GDS, Magic/Platform Las Vegas, MICAM, Sole Commerce New York and MICAM Shanghai. "The footwear sector saw a considerable increase in the amount of money available during the latter half of 2013-2014," it said. However, for the financial year from April 2014 to March 2015, the increases will not be sustained.

ITALY Assocalzaturifici, the Italian footwear manufacturers association, has widened its remit to include leathers and component makers, a move it says provides a "tangible chance of recovery for the industry". The association represents over 700 footwear manufacturers, and its board unanimously approved the request received by 140 manufacturers of footwear components and accessories.

SWEDEN Haglöfs says it is the only consumer brand participating in a major research project, SUPFES, in which industrial and academic partners are working to find alternatives to perfluorinated compounds in textile finishing. It is also working with materials developer OrganoClick and the University of Borås to find fluorocarbon-free water repellency treatments.

PORTUGAL Portugal's footwear industry brought in export earnings of €481.3 million in the first quarter of 2014, according to the country's national statistics institute, the INE. This figure represents an increase of 10.1% compared to the export value the industry achieved in the same period last year.

MEXICO The country's footwear exports in 2013 totalled 26.1 million pairs. This is lower than the unofficial figure of 26.8 million pairs suggested by the industry association in Guanajuato, CICEG, but still represents an increase in volume of 8.5% compared with 2012. In terms of value, footwear exports brought \$592.6 million into Mexico last year, an increase of 14%. Shoes with leather uppers accounted for 44% of the volume, but for 84% of the value.

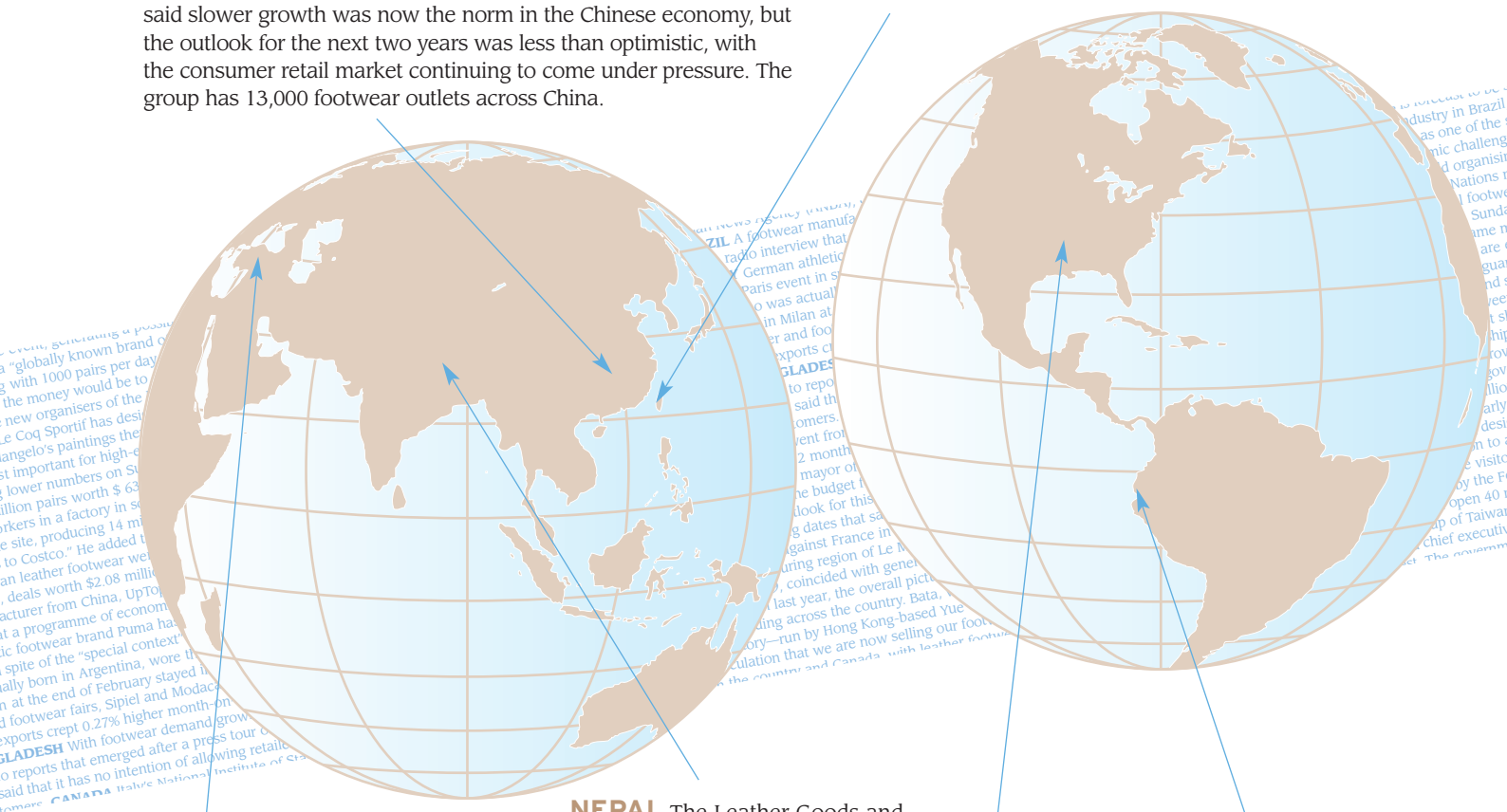
● Exports from the country's biggest footwear-producing state, Guanajuato, fell by 17% year on year in the first four months of 2014, affected by a cold US winter. Over the same period, imports of shoes made in China into all parts of Mexico grew by 91%. Between January and April, Mexican shoe manufacturers shipped more than 7.6 million pairs overseas, bringing in export revenues of close to \$115 million.

SOUTH AFRICA After negotiating a pay rise for leathers workers, the Southern African Clothing and Textile Workers Union (SACTWU) joined a smaller footwear union in strikes which commenced on June 2. SACTWU requested a 10% rise in wages but employers are offering 7.75% – the level agreed by leathers workers. Over 7,000 workers employed in 163 footwear factories walked out in mid-June.

CHINA The Footwear Distributors and Retailers of America (FDRA) has published the fifth edition of its Factory Survey Analysis, providing analysis of social compliance issues in China. The FDRA said it reveals “a strong sense of optimism” among manufacturers about their business prospects, but it also indicates they are facing challenges related to seasonal production fluctuations, raw material costs and shrinking labour pools.

● Footwear group Belle International has reported growth of just over 4% in its operating profit between the end of 2012 and the end of February 2014 – “significantly lower” than in previous years. It said slower growth was now the norm in the Chinese economy, but the outlook for the next two years was less than optimistic, with the consumer retail market continuing to come under pressure. The group has 13,000 footwear outlets across China.

TAIWAN The head of an organisation that works to maintain strong commercial links between Taiwan and mainland China has said recent labour and land disputes are discouraging Taiwanese companies from investing in manufacturing projects. Kuo Shan-hui said the relationship between companies and employees has changed in recent years and Taiwanese investors were being forced to pay higher fees than mainland-based business groups when bidding for land.



TURKEY Dieter Kasprzak, chief executive of Ecco, has suggested the group might consider opening a footwear factory in Turkey. During a recent visit to the country, Mr Kasprzak said Ecco will have 15 stores in Turkey within three years, compared with the six it has currently in and around Istanbul.

NEPAL The Leather Goods and Footwear Manufacturers' Association of Nepal (LGFMAN) has launched a trademark for its footwear manufacturers. “We have been receiving complaints that manufacturers are selling imported products as their own by labelling them with Nepali brands,” said LGFMAN president Homnath Upadhyay. “This trademark will help maintain the quality of Nepali footwear as manufacturers will have to abide by the code of conduct set by the association.”

ECUADOR The government has given priority status to 14 sectors within the footwear and leather value chain: tanneries, hides and skins, training, machinery, metalwork, lasts, heels, soles, components, accessories, textiles, synthetic materials, chemicals and service organisations. Last year, Ecuador produced 32 million pairs of shoes.

UNITED STATES The Footwear Distributors and Retailers of America (FDRA) gave out a series of Annual Achievement Awards at a party to mark its 70th anniversary. Outdoor footwear group Wolverine Worldwide had a double reason to celebrate. The group received Advocate of the Year for its efforts to advance “the footwear industry’s cause” before the federal government, while one of its brands, Merrell, was given the Brand Focus award for its “ability to cultivate the industry’s strongest following among its customers”.

● Quabaug, a US-based manufacturer of Vibram soling, has celebrated a new Department of Defence ruling that new military recruits must purchase domestically manufactured athletic footwear with the announcement that is investing \$1.2 million in research and development and expanding a plant. “This is a rebirth of an era of athletic shoe production in New England that ended over 30 years ago,” said Quabaug CEO Mike Gionfriddo.

Footprints

JIMMY CHOO PRESENTS CORDWAINERS AWARDS

Couture shoe designer Jimmy Choo was the guest of honour at the Cordwainers inaugural Student of the Year Awards.

Tutors from the London College of Fashion, De Montfort University and the University of Northampton put forward their top five students designs which was judged by an independent panel of industry experts.

Helen Kirkum of The University of Northampton, whose entry was described as “exceptional”, took first prize. “This unique footwear competition really pushed me to create a product that was both innovative and commercially viable,” she said, adding that her ambition is to launch a men’s footwear brand.

Representatives from Marks & Spencer, Pentland Brands, Schuh and Spring Line were among the guests at the ceremony.

The Worshipful Company of Cordwainers has long been a supporter of footwear students in the UK, providing scholarships and bursaries, but it is the first time it has spearheaded a national award.

Cordwainers Clerk **John Miller** said: “We believe this will help Britain to maintain its position as the world leader in the design and manufacture of footwear.”

Mawuenam Agbenu of De Montfort University (left); Bethany Conway of De Montfort University (second left); Zuzana Vitamvasova from De Montfort University (third from left, behind Jimmy Choo); Florence Turner of the London College of Fashion (second from right); Helen Kirkum of The University of Northampton (far right). CREDIT: THE CORDWAINERS COMPANY



FOOTWEAR BRANDS VOLUNTEER 15,000 HOURS

Employees from outdoor brands Wolverine, Timberland, Rocky Brands and ECCO were among 6,500 from US footwear companies that dedicated 15,000 hours to helping communities during Footwear Cares month.

Two Ten Footwear Foundation, the charity which organised the event, put a figure of \$330,000 on the value the hours were worth.

It said 517,549 meals were prepared

and served; 11,000 pairs of new shoes were distributed to children; and 20 environmental projects were completed to enhance coastlines, nature trails and recreation facilities.

Two Ten Footwear Foundation president **Neal Newman** said: “Two Ten Footwear Foundation was founded 75 years ago by shoe people who came together, rolled up their sleeves and helped raise money for the war effort and footwear families struggling to make ends meet. I’m proud to say that

75 years later, shoe people still lead the pack when it comes to volunteerism and community service.”

Sports brands Puma, Under Armour, Skechers and Converse also took part.

NIKE ANNOUNCES A STRING OF IMPORTANT MANAGEMENT CHANGES

Nike has announced a number of management changes across its global business. The changes are designed to continue to drive the company’s global growth while further strengthening and diversifying its leadership “bench”, it said on making the announcement.

Marc van Pappelendam, currently the company’s vice-president and general manager for the UK and Ireland, will become general manager of Central and Eastern Europe. He has held various commercial and general management roles in Europe during his 15 years with Nike and oversaw the company’s efforts during the London Olympics in 2012.

Jim Reynolds becomes vice-president and general manager for the Japanese market, moving from carrying out the same role in Russia, where he has “led the brand, accelerated marketplace development and leveraged key sports moments including this year’s Winter Games in Sochi”, Nike said.

Craig Zanon will now lead an “expanded and elevated role” in the men’s training category. He is currently vice-president and general manager of global basketball and has held a range of senior management roles in the US during a 23-year career with Nike.

Michael Jackson, who is currently vice-president and general manager of basketball in North America, will take over as global head of basketball.

KOBI LEVI IS WORKING ON A MORE “FACTORY-FRIENDLY” COLLECTION

He’s famous for designing shoes that look like swans, toucans, violins, bananas and coffee pouring from a pot, but Israeli designer **Kobi Levi** has confirmed a more accessible collection is on the way.

Within the next year, a more “factory-friendly” Kobi Levi collection could go into production. They will be artisan-made and will be far from cheap, but they will be easier for the public to buy.

Speaking at an event in Northampton to mark the start of an exhibition of his work, Mr Levi said the move was not about making his shoes more commercial. He said the shoes would be no less creative and no less fun than his previous work. “But they will have to work on a production line,” he said, “so they have to be technically less challenging.”

He told *World Footwear*: “Two factories are testing the ideas right now, one in Portugal and one in Spain. Lots of footwear producers looked at my shoes on the website and were scared off, but these two were not, so it’s been interesting.”

The exhibition, entitled ‘Kobi and the Playful World of Shoes’, runs at the Northampton Museum & Art Gallery until July 20.

ABICALÇADOS PRESIDENT HONOURED FOR COMPETITIVENESS

The president of the Brazilian Footwear Industry Association (Abicalçados), **Heitor Klein**, has been named as ‘International Competitiveness Personality of the Year’ for the state of Rio Grande do Sul for 2014.

Mr Klein, a well-known figure in the international footwear sector, received the accolade at the Rio Grande do Sul Export Awards.

WOLVERINE WORLDWIDE ANNOUNCES LEADERSHIP CHANGES

Footwear group Wolverine Worldwide, whose Performance brands include Merrell, Saucony, Chaco, Cushe and Patagonia, has announced important organisational changes to strengthen its senior leadership team with a view to accelerating global growth.

James Zwiers will become president of international (non-US) business. Mr Zwiers has held various leadership roles during his 16 years with the company, including spells as the president of Wolverine’s Performance group, its Outdoor group, of Hush Puppies USA, and as senior vice-president with responsibility for strategy, business development, consumer direct and legal. **James Gabel** will succeed Mr

Zwiers as president of the Performance group, which comprises the Merrell, Saucony, Chaco, Cushe and Patagonia footwear brands.

Chief executive, **Blake Krueger**, commented: “Jim Zwiers is uniquely qualified to lead the international group as the company expands the reach of its brands around the world.”

For his part, James Gabel comes to Wolverine from serving as president of adidas Canada, where he was responsible for the adidas, Reebok, Rockport, Ashworth, Adams Golf and TaylorMade brands in that market. Prior to that, he was president of Reebok North America and also previously served in a variety of key roles with

other performance brands including Champion and Mizuno.

Wolverine has also announced the appointment of **Andrew Simister** as president of its Lifestyle group, which is comprised of Sperry Top-Sider, Hush Puppies, Keds and the Stride Rite brands. Most recently, Mr Simister was president of the Lacoste Footwear brand for Pentland. Previously, he worked at Puma.

Bill Brown, a 27-year veteran of Wolverine, is to retire. In addition to being the first President of the International group, set up in 2011, Mr Brown has held many key leadership roles within the company during his career. 📞



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Products & Services

HIGH-LEVEL MEETING DEBATES EU FOOTWEAR CLASSIFICATION

The details of a meeting to discuss Ecolabelling for footwear in the EU have been made public.

Representatives from Geox, Inditex and Hugo Boss joined industry bodies including COTANCE, Centro Tecnológico do Calçado Portugal, SATRA Technology and INESCOP at the seminar in Brussels.

Points raised at the meeting included:

- The problem of possible pesticide content in leather. Best Available Technologies (BAT) thinking for tanning hides and skins suggested hides and skins should only be sourced from Europe and countries with similar regulatory regimes for pesticides; or to use supply chain contracts specifying that only hides or skins free from these materials shall be supplied.

However, stakeholders pointed out that pesticides are applied on individual animals therefore tracing back by footwear manufacturers would be complicated and impractical. Other stakeholders stated that pesticide content in leather is doubtful, and unnecessary testing should be avoided. One stakeholder said the restriction on pesticides content does not refer to finished leather and skin-contact risk, but rather to control the possible pesticides leaching into the tannery wastewater. Testing on finished leather was perceived as inappropriate.

- The approach to improve material traceability was supported by stakeholders but also considered costly, which might lead to a rise in raw material prices and thus convert EU Eco-labelled products into luxury goods. The leather industry was considered too complex for full traceability to be achievable.
- In general, stakeholders supported harmonisation with the Commission Implementing Decision of February 2013 establishing BATs on industrial emissions for the tanning of hides and skins. It was nevertheless pointed out that the document refers only to



Greenpeace found many of the brands at the 2014 World Cup, including adidas, use none-degradable products. CREDIT: ADIDAS

GREENPEACE CLAIMS TESTS SHOW PERFLUORINATED CHEMICALS IN WORLD CUP MERCHANDISE

Campaign group Greenpeace has announced the results of third-party laboratory tests on 33 products that Puma, Nike and adidas are selling to football fans for the 2014 World Cup in Brazil.

Produced in China, Indonesia, Cambodia, Bangladesh and Argentina and purchased in 16 countries, the shopping list consisted of 21 styles of football boot, four types of goalkeeping gloves, seven shirts and the replica version of the official tournament ball, the Brazuca from adidas.

The tests found substances such as perfluorinated chemicals (PFCs), nonylphenoethoxylates (NPES), phthalates and dimethylformamide (DMF) in products from all three companies, Greenpeace said. Seventeen out of 21 styles of football boot and two of the four of types of goalkeeping gloves tested were found to contain PFCs, including perfluorooctanoic acid (PFOA). The adidas Predator boot was found to contain 14.5 microgrammes per square-metre of PFOA in the upper material, Greenpeace said, pointing out that adidas's own in-house limit is less than one microgramme. Nike's Tiempo boot contained 5.93 microgrammes per square-metre of PFOA. At the time of the announcement, Greenpeace said it had still received no reaction to its "very specific questions" from the brands concerned.

Greenpeace 'detox' campaign leader Manfred Santen told *World Footwear* that, while manufacturers have consistently drawn distinctions between long-chain PFCs such as PFOA and short-chain ones, with support from bodies such as the US Environmental Protection Agency, his organisation does not accept that short-chain PFCs are a valid alternative. "We are not saying the brands should stop using these materials," he said. "Just that they do not need to apply durable water repellent finishes that are based on fluorinated chemicals."

tanneries where production exceeds 12 tonnes of finished product per day. For small- and medium- enterprises, the requirements were perceived as challenging.

- One member proposed that chrome-tanned leather in children's products should be restricted, to promote chromium-free tanning technology. However, it was pointed out that chromium-free tanning represents a

relatively low market share, and that resulting leather has different technical specifications. BATs suggest the process is run efficiently with minimised environmental impact.

Stakeholder feedback from the meeting will be used to develop the proposals to be presented to the EU Ecolabel board. The study is carried out by the Joint Research Centre's Institute for Prospective Technological Studies

(JRC-IPTS) and being developed for the European Commission's Directorate General for the Environment.

Interested parties are encouraged to visit the Ecolabel website to fill in the questionnaire. Entries will make up part of a wider stakeholder consultation process.

AAFA ADDS TO RESTRICTED SUBSTANCES LIST

The American Apparel & Footwear Association (AAFA) has published its 14th edition of restricted Substances List (RSL), which it describes as a "helpful resource for the industry as we pursue collaboration and harmonisation of complicated rules and restrictions".

Chemical usage is one of the topics being discussed as part of the Transatlantic Trade and Investment Partnership, which will reduce or eliminate import taxes on clothing, textiles and footwear between the US and EU.

"In a complex global supply chain, the US apparel and footwear industry will find the updated AAFA Restricted Substances List to be a helpful tool as part of an overall robust chemical management programme," said John

Eapen, AAFA environmental committee chairman and vice-president sustainability at thread manufacturer American & Efird.

The recently launched AAFA app turns the RSL into an interactive tool designed to help users navigate the 200 chemicals listed.

'MILESTONE' FOR ZDHC

The Zero Discharge of Hazardous Chemicals (ZDHC) Group has reached what it describes as a "significant milestone" by issuing a manufacturing restricted substance list (MRSL), after more than two years of collaboration between the brands.

The MRSL applies to chemicals used in facilities that process textile materials and trim parts for apparel and footwear for members including Nike and adidas.

ZDHC programme manager Cheryl Kreindler said: "By delivering the change that we would like to see in all parts of the supply chain, we hope to motivate dyehouses, chemical suppliers, other brands and key stakeholders to adopt ambitious chemical management standards. Our

goal is to encourage them to innovate and establish new ways of reducing and eliminating hazardous chemicals."

The list will assist the brands and supply chains in adopting a harmonised approach to phasing out/substituting hazardous substances potentially used and discharged into the environment during manufacturing and related processes.

MOBILE-FRIENDLY UPDATES FROM DELCAM

Footwear technology provider Delcam Crispin has updated its ShoeMaker CAD program so images can now be shown to buyers on laptops, tablets or smart phones.

The program integrates the 3D design of lasts, uppers and soles and is particularly useful for sports shoes, it says.

The 2014 version offers improved visualisation with a KeyShot rendering engine, the ability to create lasts for boot designs, more options for heel design, and additional items in the accessories library.

It has also revamped its pattern making software Engineer Pro. 

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Backtrack

World Footwear's publishing cycle and limitations on space make it impossible for us to run more than a carefully selected sample of news from across the industry. However, we publish hundreds more stories on **www.footwearbiz.com**. The site is updated every day with news from every continent and every part of the industry, making footwearbiz.com one of the most

comprehensive archives of news anywhere on the web for the global footwear industry.

We list below just a few of the headlines that have appeared on the site in recent weeks — **www.footwearbiz.com** allows you to read those you have missed.

23/06/2014

Fresh retail concept for Cole Haan
Italian actor Luca Argentero shines for Cuoio di Toscana

19/06/2014

Strong growth for India's leather exports
Artisan shoes from a Ghanaian garage

18/06/2014

US snow halts Mexican footwear exports in their tracks
Footwear brand Munich has its eyes on Asia

17/06/2014

All adidas materials will have to comply with bluesign
First glimpse of spring-summer 2015 collections on show at Expo Riva Schuh

16/06/2014

New MD in France for Lectra

11/06/2014

Double celebration for Pentland Group
Double-digit sales growth for Church's
Prada blamed for Parlanti closure

10/06/2014

Maquinol development means "anybody" can make PU foam

09/06/2014

'Milestone' for ZDHC as it publishes restricted substance list
Manufacturers urged to make brands pay the cost of labour disputes in China

06/06/2014

BFA offers vote of confidence to GDS

05/06/2014

Deckers licenses Teva's wholesale in US

04/06/2014

Why Julien Farel is a Tod's man
CTC to hold official opening ceremony for Delhi laboratory
Fly London founder uses anniversary to make two key announcements

03/06/2014

Men strike back with new Spanish shoe brand
Dow Corning celebrates progress on hazardous waste target

02/06/2014

Great start to the year for Foot Locker

30/05/2014

Polyurethanes conference is a sell-out

29/05/2014

Chinese shoe group moves production to US
Vibram stands by FiveFingers

28/05/2014

GDS organisers say the fashion landscape without shoes and accessories would be "unthinkable"
New Balance asks young baseball athletes how they would change the game

23/05/2014

Nano-technology helps Turkey develop new military boot

UK conference to address fraud in the leather supply chain

22/05/2014

Pentland named among top workplaces in UK
Anpic gets under way in León

20/05/2014

Flat first quarter for Puma

19/05/2014

Geox founder says company is "on the rise"
Mismatching boots revealed as Puma's World Cup offering

16/05/2014

Gore aims new technology at 223 million hikers

15/05/2014

Good timing for new ISA Tan Tec tannery in the US

14/05/2014

Jalisco leads for women's shoe production in Mexico
WL Gore announces its first major footwear development in more than a decade
Speedo partners Orthloite for 'aquatic' running shoes

13/05/2014

AAFA calls for increased transparency
Kobi Levi shoes to go on show in Northampton

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It has been described as a “win-win” situation: could the signing of multi-billion dollar contracts to improve infrastructure catapult the African country into the big league of footwear manufacture?

Ethiopia: The next big thing?

A military-style march around a dusty courtyard looks a little out of place in an Ethiopian factory, but this is one of the techniques Huajian has employed to instil an “industrial mind-set” into workers at its Dukem-based facility. It has been two years since the Chinese footwear group launched its first production line in Ethiopia, and it now employs 3,200 people, churning out 10,000 pairs per day for global brands including Guess and Zara. A “lack of discipline and team work” was one of the worries when first investing, says its vice-president, Helen Hui. “In China, we have developed the remedies to overcome this. It is important to help Africa to develop this industrial mind-set,” she adds.

Ethiopia’s economy is growing at around 8% per year, and has surpassed Kenya as Sub-Saharan Africa’s fastest-growing economy. The government’s five-year Growth and

Transformation Plan (GTP), outlined in 2010, aims to crowbar the country out of poverty and into middle-income territory. It has been actively encouraging outside investment, offering tax breaks and incentives and touting the country’s resources to overseas investors. Although it has fallen short of the targeted 11% to 15% GDP growth per year, it still expects to export goods worth \$1 billion this year.

Key to this growth is China. Chinese investors ploughed \$21 billion into the economy in 2012, of which potentially the most significant investments have been in infrastructure. A Chinese group has advanced loans of more than \$1 billion to build the lines and substations that link power generated from the Grand Ethiopian Renaissance Dam to the national grid. The China Export Import bank has loaned \$250 million to expand the country’s main airport, while a new rail link between the capital of the landlocked country, Addis Ababa,



and the port of Djibouti, 750 kilometres away, is now under construction using \$3 billion of Chinese money. "China has proved itself to be dependable friend of Ethiopia, helping Ethiopia in its fight against poverty," said Ethiopian President Mulatu Teshome at the recent inauguration of a six-lane expressway.

It is this investment in infrastructure that led footwear industry analyst Peter Mangione to describe Ethiopia as "the next big thing" for footwear manufacture and Ernst & Young analyst Zemedeneh Negatu to call it a "win-win" situation: "Matching global supply chain knowledge and capital with Ethiopia's resources—the cattle and young Ethiopians who are affordable, eager to work and easily deployable—is win-win for everybody."

Work ethic

It took only three months from Huajian deciding to set up in Ethiopia to seeing the first shoes roll off the production line. "The willingness of the government to attract foreign investment was very attractive," says Ms Hai, who was approached by former Ethiopian president Meles Zenawi on a trade mission to China in 2010. "They also recognise the current difficulties and are willing to partner with the private sector to make changes."

Before the factory opened, Huajian invited Ethiopian graduates to its training school in China to learn the company's work ethic, and pays for "hardworking" employees to travel to the country to learn the language, to communicate better with management, who are mainly Chinese. However, local people are increasingly being recruited into senior roles. "At the beginning, we were looking for a way to adapt the new environment to us," says factory manager Song Yiping. "Then



Proximity to cattle is an advantage to manufacturers, with the leather industry growing 10% per year

CREDIT: TREVOR KELLY / SHUTTERSTOCK



CREDIT: OLAF SPEIER / SHUTTERSTOCK



Addis Ababa

CREDIT: DEREJE / SHUTTERSTOCK

we divided the company into separate departments so they could manage the process themselves. We found this was the best way for the company to be successful."

It is not just Chinese companies eyeing Ethiopia. British retailer Tesco is reportedly in talks to import footwear from Ethiopian companies Tikur, Abay, Peacock and Anbessa, while Italian footwear group Consorzio Toscana is planning to source £5 million of products in the next year, according to reports from the All African Leather Fair.

Japan-based footwear and leathergoods manufacturer Hiroki started to manufacture leather shoes, garments and bags in Addis Ababa at the start of this year to export back to Japan. "We decided to open a factory in Ethiopia because of the availability of quality leather raw material," says Youngil Song, president of Hiroki Addis. "We are confident that our trekking shoes and sneakers made of Ethiopian leather will boost our market all over the world."

Hides and skins

The proximity to raw material is a big draw, and the country is home to the largest livestock population in Africa – 101 million in 2013 – according to the Ethiopian Leather Industry Development Institute. The leather industry is growing at a rate of around 10% a year, and brought in \$100 million from exports in the first nine months of fiscal 2013/14. However, this falls short of the target in the GTP – \$500 million per year by 2015 – despite it being one of eight priority sectors. Tanners have complained about a lack of material, as raw skins can achieve higher prices in international markets, meaning some tanneries have been forced to import from neighbouring countries to meet production needs.

A number of footwear companies have decided that buying or building their own tanneries is a way to secure supply and makes them less dependent on locally owned businesses. Taiwan's George Shoe is building three factories and a tannery in the country, investing \$50 million in the developments in Mojo, Adama and Addis Ababa. The group will have a capacity of 4,000 pairs of shoes a day, with exported shoes expected to sell for around \$250 per pair. Similarly, Indian footwear group Farida has established a tannery about 70km from the capital, according to local reports.

The recent investments in infrastructure will also boost the sector. Chinese-owned and run tannery China-Africa Overseas Leather Products reports that it takes more than 40 days to bring chemicals from China to the tannery owing to "poor and highly inefficient transport infrastructure". At recent meetings with Kenyan and Korean investors, President Teshome described the leather sector as "ripe for investment" and offered various incentives, including land, to companies willing to take the plunge.

Domestic brands will also benefit from the investments and are achieving global success in their own right. Oliberte based in the capital exports handcrafted leather shoes, made with goat leather lining and locally sourced rubber, and follows an ethos of 'trade not aid'. Similarly, Sole Rebels, which makes shoes from recycled materials including car tyres, now ships to more than 55 countries and is targeting \$15 million in annual revenues by 2015. Its founder, Bethlehem Alemu, told *World Footwear*: "I wanted to show people that if we all

worked hard we could start to feel the pride that comes with financing ourselves and not waiting for hand-outs. My success has also served as a powerful counter to generations of media that has attempted to show Ethiopians as helpless passive recipients of aid."

Shoe city

The most ambitious project in terms of footwear manufacture is the \$2 billion 'shoe city', spearheaded by Huajian, which will be constructed over the next 10 years, 30km south of Addis Ababa. The Chinese group has already ploughed several million dollars into the Ethio-China Light Manufacturing Special Economic Zone. The "fully fledged civic entity" will house 200,000 and come complete with social areas, retail, its own transport systems, schools and offices. Ms Hai estimates the zone will produce \$4 billion in annual export revenue, and create 100,000 jobs. "We want to help the country to accumulate foreign reserves through export," she says.

As traditional footwear manufacturing regions in China become more expensive due to wage rises – growing at 10% per year – coupled with the appreciating renminbi, government clampdowns on environmental practices, and increasing water scarcity, multinational brands will be considering which manufacturing locations offer the highest margins and the most convenient supply chains. The African Growth and Opportunity Act enables tariff and quota-free access for imports from sub-Saharan Africa to the US while overseas Ethiopia-based companies are also able to import into Europe without the duties they would face if they were based in their own countries.

"Our strategy is win-win and about value creation for our stakeholders, who are the governments, employees and shareholders," adds Ms Hai. "We want employees who come from poor backgrounds to fulfil their dreams and help them out of poverty. In my generation in China, we have experienced changes we never thought would happen, and we strongly believe the current young generation in Africa will also experience changes they never thought possible in the next 30 years." 🌐

Ethiopia-based Sole Rebels, whose workers earn three times the national average, is also set to benefit from better transport links, enabling faster lead times

CREDIT: SOLE REBELS



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Ara's shoes are created by production processes requiring intensive hand-crafting and up to 130 individual operations.

CREDIT: ARA



Expensive Europe attractive again

German footwear company Ara has expanded its manufacturing operation in Seia in central Portugal. Its workforce there will increase from 320 people at the start of this year to around 370 and the facility is upping its production from 1.4 million pairs per year to two million.

As well as the increase in personnel, Ara has also invested approximately €3 million in new technology at the Seia factory, installing the DESMA D522 direct soling machine to inject polyurethane (PU) soles straight onto uppers. It is technology such as this that will allow the company to achieve a production increase of more than 40% with just a 15% increase in people at the factory.

You are not alone

This important investment in innovation came after careful consideration, but Ara is convinced its commitment to high-tech footwear manufacturing solutions will pay off. Plus, it has not had to make the transition alone.

Ahead of the opening of Ara's new production line in

Footwear manufacturers are making major investments in innovation to automate production. As the example of Ara's factory in Portugal shows, new technology is transforming operations in high labour cost western Europe, making it attractive again as a manufacturing location.

Portugal, the European footwear team at chemical products manufacturer Huntsman helped the shoe company develop a series of PU-based prototypes. The samples were created at Huntsman's footwear development centre in Everberg in Belgium, using a DESMA RGE 400 roundtable TPU casting-injection unit, equipment that the Huntsman team in Everberg invested in last year, specifically to help footwear



Huntsman invested in direct soling technology from DESMA in 2013 to help it show footwear clients the way forward in automation. CREDIT: HUNTSMAN



Huntsman's research and development centre for footwear at Everberg in Belgium. CREDIT: HUNTSMAN

producers make their European operations more efficient. Huntsman had the equipment and the expertise to allow Ara to create a replica manufacturing environment ahead of go-live and together the two companies were able to identify and resolve any potential production issues up front, ensuring that Ara could put its new, high-tech production line into operation quickly and efficiently.

A move to direct soling

Alfons Tremml, commercial manager for footwear at Huntsman Polyurethanes, explains that the two companies have enjoyed a positive relationship for almost 20 years, with his company supplying Ara with PU and TPU. "Ara always used unit soles before," he says, "so this move to the direct soling process was new and the company was not so used to the technology. It was a big investment and using our facility for the prototypes was a good idea."

There was another important benefit: five or six members of Ara's production team were able to travel to Belgium to have in-depth training and hands-on experience of using the DESMA machinery during prototype production and take the skills and knowledge back to Portugal. It is this small team that is now leading the running of Ara's own PU casting-injection unit in Seia. The machines are "roughly the same", Alfons Tremml claims. Huntsman has four stations compared to Ara's 30 because its DESMA machine is in a laboratory rather than a factory environment like Ara's. "The focus for the prototypes was on ladies' shoes," Mr Tremml continues, "but the technology has a production capacity of 500,000 pairs per year, so I think they will look at different types of shoes in the future."

Ara makes a wide range of sporty, casual styles for women, under the banner of Ara Modern, and for men, too, as well as fashion shoes for women under its Jenny brand. Last year, it exported 950,000 pairs from its factory in Portugal and registered earnings of €25 million. The German footwear brand has been producing shoes in Portugal since 1974 and, since 2003, it has been selling its collections there too in a mix of multi-brand stores and Ara outlets.

The attractions of Europe

Its story and its commitment to innovation make Alfons Tremml optimistic about the future of shoe production in Europe. He says the continent is, once again, becoming an attractive footwear manufacturing location, particularly for high-end production projects. "China remains the biggest shoe manufacturing country in the world," he continues, "producing around 13 billion pairs per year. But labour costs there have increased dramatically in recent years. Chinese wage bills are now around four times higher than they were eight years ago. While costs have been creeping up in China, European suppliers to the footwear industry have adopted a more automated approach to manufacturing, narrowing the cost differential between the regions."

He says that Ara's deployment of TPU casting-injection equipment is just one example among many. "I can't list all our customers' names without their approval," he explains, "but I can say that I have a dedicated footwear team here that knows the European market very well and I can tell you that there is lots of investment in new footwear machinery going on. Yes, it's partly to replace old machinery, but there are more than 10 companies that I can think of who are increasing capacity here in Europe. The trend of moving to Asia has stopped and some capacity is certainly coming back."

Deciding the best place to set up a shoe-manufacturing operation is not a black-and-white matter today, the Huntsman commercial manager contends. The type of shoes you want to make, using which technology and in what volume are all major factors, he says. But he insists the gap in costs between Asia and Europe is now narrowing, and European producers have the advantage of being closer to important consumer markets close to home.

"Something else I think is interesting is that it's in western Europe that technology providers such as DESMA, Main Group and others are installing their latest machinery, not in the cheapest countries. Everyone talks about higher labour costs there, but there is no doubt that if companies can automate, or partly automate, their processes in expensive countries, these locations will become attractive again. It's happening." 

3D printing has become an increasingly widespread and fashionable topic of discussion as more and more people begin to appreciate its potential. Having said that, few know much about the remarkable technology involved. The fact that it perfectly matches the concept of digital manufacturing, an approach that looks at digital technologies from the very first step of product development with 3D CAD systems to the direct manufacturing of the object, executed by machines that can understand digital data and then transform it into physical artefacts, can seem rather like magic to the uninformed.

In this, the first of two articles on 3D printing, World Footwear outlines the current state of the technology, how it works and the results that can be achieved. A second part that will be published in the near future will examine its potential for applications in footwear manufacture and how it might radically change the industry in the future.

Advances in 3D printing

SERGIO DULIO



We have already mentioned this '3D revolution' in previous issues of *World Footwear*, one that is considered by some commentators as an enabler of a possible forthcoming industrial revolution, highlighting the enormous democratisation of power it would bring with it. Potentially, every designer could become a 'maker' provided they had access to the right design and manufacturing tools that enabled them to completely bypass traditional pipelines and thus force manufacturing companies into reinventing their role.

This is what is happening in the so

called FabLabs (fabrication labs), facilities where inventors with a design skill and products they want to develop clearly in mind, have access to a wide range of manufacturing technologies that would normally be confined between the well-guarded walls of a factory, on a time-share or service charge basis to bring their concept to reality. While in the past these kinds of labs were relatively large structures, with technologies ranging from NC milling to water jet cutting of metal, they are now becoming smaller and are increasingly equipped with just one kind of machine: 3D printers.

A shoe from the Heavy Metal Series, designed by Bryan Oknyansky amply demonstrates the complex structures that can be produced.

CREDIT: BRYAN OKNYANSKY

ADDITIVE MANUFACTURING

Let us therefore focus on these machines and the correct terminology involved as the description '3D printers' is itself an imprecise and generic definition. The proper name that should be used for them is 'additive manufacturing machines' and, in general, the process they perform is called either 'direct' or 'digital' manufacturing.

It is also essential to remember that what all these technologies have in common is that, rather than creating the final object by removing material from a raw block of metal or plastic, they add-layer by layer-only the exact amount of material that is needed to produce the finished object. They are therefore inherently more efficient and 'lean' than any other manufacturing approach that we know of. Keeping this in mind, it is easy to understand how all these machines work because the fundamental steps of the creative process are basically the same for all different vendors and producers. What does change from system to system, however, is the way the material is added or, more specifically, solidified one slice after the other and the nature and range of materials they can deal with.

Incidentally, the one and only prerequisite these machines ask of the object they must produce is that the 2D contour of each slice to be added (solidified) is geometrically defined. This, in turn, again implies that a complete digital 3D model of the same object is available. Additive manufacturing calls for digital modelling and the latter finds in these technologies a perfect match in exactly the same way that a laser or ink jet printer is the ideal match for any Word document or spread sheet.

So this is what makes additive manufacturing (AM) unique and

potentially disruptive for traditional manufacturing concepts. However, not all AM technologies are the same, so it is worth analysing in more detail what the market offers today. To do this, we must consider several relevant factors, among which three are of great importance: the application target, the process technology and the materials involved, highlighting in each one of these areas the most recent advances.

APPLICATION TARGET

AM machines have different application targets and, in relation to that, different costs. We can identify three main classes of system: desktop, office and production.

Desktop machines are a relatively new category that appeared only recently, following the expiration of the patent rights filed by the first pioneering companies in the sector more than a decade ago. This has fostered the proliferation of a number of producers of small machines such as the MakerBot that connect to any laptop and cost anywhere between €1,000 to around €10,000 for the most expensive models. They are ideal for home or small office use, where the most important requirement is obtaining rapidly and inexpensively a solid, conceptual prototype of the object to be later produced. Printing time is normally the driving factor, while accuracy and quality of finish and the size of the

objects that can be produced (normally small) are not so relevant for the specific application.

Office systems address a different category of user and are more suited to professional applications. Typically designed from every angle to be installed in office environments, these machines are bigger, can deal with a much wider range of materials and produce parts with very high dimensional accuracy and a good level of finishing. It is not unlikely that the components they manufacture can be used in production, since the final quality these parts can have is very similar to what is achievable with other production means. Their cost ranges between €30,000 and €100,000 depending on the additive technology involved, the size of the working area and the type and variety of materials they can process. These machines are ideal for exploring new technologies, prototypes and unique component manufacturing and for producing small runs of special parts that would be either uneconomical or impossible to build by any other means.

Finally, we have production systems. The investment required to purchase one of these is very similar to buying a top of the range CNC multi-axis milling machine or equivalent piece of manufacturing equipment, with purchase prices ranging from a minimum of €200,000 to well in excess



Fashion clogs produced on a 3D Systems machine showing the design and colour potential that is possible with additive manufacturing systems. CREDIT: 3D SYSTEMS

of €500,000 for the most expensive models. A large working volume, high accuracy and surface finishing are the most important features of these machines. They can also be regarded as true alternatives to traditional manufacturing systems as many models in this category can solidify metals as well as plastic powders.

There are specific sectors in which AM systems are becoming the main manufacturing approach, allowing the manufacture of specially featured parts that cannot be made in other ways. For instance, turbine blades and other parts of jet engines for aircraft are increasingly produced using AM machines.

PROCESS TECHNOLOGY

This refers to the way in which each single layer of material is solidified in order to create step-by-step the final object. In the twenty and more years these machines have been in development since the time when they were referred to as rapid prototyping systems, many different solidification processes were conceived, patented and implemented. The very early devices were called stereo lithographers and used a laser source selectively beamed onto a photosensitive polymer that then solidified when hit by the laser light.

These are now part of history, their memory being found in the STL (stereo lithography) format used today to describe the data to be sent to all different kinds of AM machines. In the past LOM (laminated object manufacturing) was also popular as a relatively simple way of creating digital objects but lacked the accuracy and finishing needed to move from prototyping applications to production objects.

The term 3D printers was originally coined for the reason that machines actually existed (some still survive) that, instead of spraying inks onto a sheet of paper, sprayed coloured glue onto a layer of powder of varying kinds and gluing the particles together. These first generation machines suffered from a number of limitations, the most relevant being the fragility of parts obtained with a process that required several steps of post-treatment in order to be able to handle the parts safely.

The situation today is one where three main process approaches dominate the market: fused deposition



EOS M290 metal additive system can be used to produce complex structures such as the ladies heel in the title image. CREDIT: EOS

modelling (FDM), PolyJet or MultiJet Printing, and selective laser sintering (SLS). Others exist such as wax deposition modelling (WDM) that produces extremely precise wax-ups with incredibly fine detail and smooth surfaces in a casting material which is subsequently burnt away. It is most commonly used in dental surgery.

3D printers that run on FDM technology build parts layer-by-layer by heating thermoplastic material to a semi-liquid state and extruding it according to computer-controlled paths. Although the simplest models only work with one material, FDM normally uses two materials to execute a print job, a modelling material, which forms the finished piece and a support material that acts as scaffolding. Material filaments are fed from the printer's material bays to the print head which moves in X and Y coordinates (the 2D coordinates of the plane each layer is drawn on), depositing material to complete each layer before the base moves down the Z axis (the vertical axis of the machine that provides the third coordinate) and the next layer begins. Once the printer has finished building, the user breaks the support material away or dissolves it in detergent and water leaving the part ready for use.

PolyJet or MultiJet 3D printing is similar to inkjet document printing but, instead of jetting drops of ink onto paper, these special printers jet layers of liquid photopolymer onto a build tray

and instantly cure them with UV light. The fine layers build up to create a precise 3D model or prototype. Models are ready to handle and use straight out of the printer, with no post-curing needed. Together with the selected model materials, the printer also jets a gel-like support material specially designed to uphold overhangs and complicated structures. This second material is later removed by hand or water. This technology offers many advantages, including fine detail, smooth surfaces, speed and precision. It works with a vast array of materials, in hundreds of colours including clear and tinted translucent shades and also with rubber-like materials, simulated polypropylene and specialised photopolymers for 3D printing in the dental and medical industries.

SLS is very different and uses high power carbon dioxide (CO₂) lasers to fuse plastic, metal or ceramic powder particles together, layer-by-layer, to form a solid model. The system consists of a laser, part chamber and control system. The part chamber consists of a build platform, powder cartridge and levelling roller. A thin layer of build material is spread across the platform where the laser traces a two-dimensional cross-section of the part, sintering the material together. The platform then descends a single layer thickness and the levelling roller pushes material from the powder cartridge across the build platform, where the

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next cross-section is sintered to the previous. This process is repeated one slice at a time until the part build height is completed. Once the model is done, it is removed from the part chamber and finished by removing any loose material and smoothing the visible surfaces. The unsintered powder that surrounds the part during processing provides support.

This technology portfolio can be found in the product ranges of all the most important producers and vendors of AM machines. As stated, with the liberalisation of patents rights, a plethora of small manufacturers has appeared. Despite that fact, the market is dominated by three major players: the American companies 3D Systems and Stratasys and the German company EOS. All three offer a large number of different machine families, covering a range of fields, technologies and materials.

MATERIALS

Materials form an important ingredient in the success of 3D printing. When these technologies were first developed, the materials that could be solidified were only opaque and rigid. Nowadays they range from metals to plastics, rigid to flexible and transparent to opaque. In the rigid plastic families we find materials such as ABS (acrylonitrile butadiene styrene), PC (polycarbonate) and nylon, all of which are well suited to FDM machines.

If we are looking for flexible products, we must move to PolyJet or MultiJet technologies (these are the names employed by the two main market competitors, 3D Systems and Stratasys to identify what is basically the same technology) that use ABS-based materials specifically prepared to be compatible with the jetting/solidification process. Here we find simulated polypropylene, rubber-like or even bio-compatible substances that can be used in a variety of applications to produce both rigid objects and flexible ones with different grades of flexibility.

A very important feature of this category of machine is their capability of producing parts that combine different materials to achieve rigidity with differing strengths, rigidity and flexibility or multiple colours, thus opening an incredible range of possibilities in regard to manufacturing objects that are as close as possible to production ones. A special mention needs to be made here

of transparent materials (sometimes used in shoe accessories) and high temperature materials, capable of resisting the temperatures that can normally be found in the shoe manufacturing process.

To complete this survey we must mention powders of various kinds that are processed by SLS machines. The choice here includes nylon powders, high performance polymers to obtain both rigid and flexible parts, metals such as aluminium, steel, titanium, gold and several others. The websites of the major vendors offer a very valuable source of information on the many relevant features of the standard and proprietary materials (all these companies are heavily involved in material science research to constantly enhance the properties of the substances they can process with their machines) that are available, each one described in very detailed data sheets that contain all their most relevant chemical and physical properties. These are useful guides for regular users as well as for beginners to select the most appropriate combination of AM technology and materials.

CONCLUSIONS

It is becoming increasingly clear that these technologies are developing at a rapid pace and gaining increasing popularity in many industries. In the footwear sector, they are no longer seen simply as prototyping systems but as

possible alternatives to other manufacturing approaches. In such an evaluation there are three main process or machine parameters that should be taken into consideration.

First, there is the accuracy with which a geometry is reproduced from its digital model. This is typically around a tenth of a millimetre for office machines and even better for production ones. Second, is the quality of finishing which is determined by the thickness of the layer deposited at each step and can range from 0.015mm to 0.3mm. And finally, the working volume that should be big enough to accommodate a large shoe, i.e. a minimum 300mm x 200mm x 150mm.

With these basic parameters in mind we can start to think about the possible applications for these promising technologies in the manufacture of components, tools and, possibly, even finished shoes. Many experiments have been carried out in the past in these areas and a few industrial implementations mostly led by big brands in the sportshoe sector are on the verge of appearing on the market. Nevertheless, a great deal more still needs to be understood and clearly assessed through a carefully designed set of manufacturing benchmarks. This will form the content of the second part of our review of this important topic and will provide an analytical and quantitative assessment of the possibilities for applying AM to modern shoe making. 🔗



StratasysS Eden 260v office printer for rapid prototyping.

CREDIT: STRATASYS

Restricted substances in leather

JOHN HUBBARD, SATRA

Managing restricted substances policies and getting the best out of testing budgets is becoming an increasingly important factor for footwear retailers, manufacturers and material suppliers as the range of chemical restrictions increases. As part of this process, it is important to focus testing on the appropriate substances and materials, for example, the testing for azo dyes on dyed linings. It is also important to understand which restricted substances relate to the specific materials involved and how to focus testing on realistic risks.

LEGISLATION

Many countries around the world have legislation in place to restrict the use of certain chemicals and materials that are considered to cause harm to humans, animals or the environment. The European REACH Directive 1907/2006 is probably the most comprehensive of global restricted substances legislation and, as such, is complex and far-reaching.

'REACH' is an acronym for the Registration, Evaluation, Authorisation (and restriction) of Chemicals. The legislation is designed to improve the protection of human health and the environment by ensuring that exposure to potentially harmful chemicals is kept to a minimum. Each identified chemical is assessed and, over time, the most harmful

chemicals will be removed from use. In addition, members of the supply chain are provided with more information on how to use chemicals safely and minimise exposure when necessary.

There are two distinct sets of requirements within REACH that are relevant to those who are manufacturing goods in or importing finished goods into the European Union. This includes components, footwear and other consumer goods, which are covered by Annex XIV and Annex XVII. It is important to remember that there are also additional requirements to consider within other European legislation (such as the General Product Safety Regulation) and also country-specific legislation.

Where decisions taken by the European Commission will restrict the use and presence of certain chemicals in consumer products, these substances will be listed in Annex XVII of REACH. These decisions are often applicable to specific materials or processes. Products which do not meet the requirements in Annex XVII should not be placed on the market in the European Union. The relevant substances associated with leather are as follows.

AZO DYES

Leathers that are dyed and will be in direct and prolonged contact with the skin should be assessed for the presence of certain restricted carcinogenic

aromatic amines, which can form from the breakdown of certain azo dyes. For footwear, the most obvious area for skin contact will be unlined uppers, linings and insoles. Other less obvious areas to consider are any decorative trims such as on women's or children's footwear which may come in direct contact with the foot.

European legislation views 22 aromatic amines as being problematic. These must not be present in concentrations over 30 parts per million (ppm), as specified in REACH 1907/2006 Annex XVII Entry Number 43. The primary method for analysis is EN ISO 17234-1:2010. Each coloured leather in contact with the skin should be assessed separately; undyed leathers should not require testing.

PENTACHLOROPHENOL (PCP)

Pentachlorophenol is a bioaccumulative anti-fungal agent that has been restricted for sale in preparations since 1991. The requirements in REACH 1907/2006 Annex XVII Entry Number 22 state that mixtures shall not be placed on the market which contain equal to or greater than 0.1 per cent (1,000ppm) of PCP. National legislation in some countries, as for example Germany, restricts the use of pentachlorophenol in leathers to a maximum limit of 5ppm. Many brand or retailer specifications use this lower limit as a basis for their requirement.

ORGANOTINS

Organotins have had a wide range of uses, including as stabilisers, catalysts and anti-microbial additives. Four of these organotin compounds have been restricted in articles under EU Commission Decision 2009/425/EC and phasing dates for these restrictions were introduced in 2010. The restricted organotin compounds concerned are Tributyltin (TBT), Triphenyltin (TPT), Dibutyltin (DBT) and, for certain articles including footwear, Dioctyltin (DOT). These compounds shall not be present in leather greater than 0.1 per cent (1,000ppm) by weight of tin.

DIMETHYLFUMARATE

Dimethylfumarate (DMFu) is a biocide that has been included in footwear packaging to prevent mould growth during transit. This chemical was restricted in the European Union by an emergency ban (Commission Decision 2009/251/EC) in 2009. However, during 2012 a permanent ban was placed on the chemical under REACH 1907/2006 Annex XVII Entry Number 61. This chemical has been linked to a number of serious skin reactions, including that due to contact with leather furniture which contained sachets of DMFu. Sachets of DMFu have also been found in footwear packaging.

The DMFu in sachets can sublime (change from a solid to vapour state and condense back to solid state) during transport allowing the chemical to migrate into the consumer product it is intended to protect, in our case footwear. REACH Annex XVII Entry Number 61 restricts the maximum amount of DMFu in consumer products to 0.1mg/kg (0.1ppm). DMFu should not be confused with silica gel, a desiccant that is often found in sachets within footwear packaging.

CHROMIUM VI

On 25th March 2014, the European Commission published regulation 301/2014 to extend the REACH Annex XVII restriction on chromium VI to include leather articles and other articles containing leather parts which will come into contact with the skin. This regulation amends entry 47 of Annex XVII of the REACH regulation (1907/2006) by the addition of the following paragraphs:

5. *Leather articles coming into contact with the skin shall not be placed on the market where they contain chromium VI in concentrations equal to or greater than 3mg/kg (0,0003% by weight) of the total dry weight of the leather.*

6. *Articles containing leather parts coming into contact with the skin shall not be placed on the market where any of those leather parts contains chromium VI in concentrations equal to or greater than 3mg/kg (0,0003% by weight) of the total dry weight of that leather part.*

7. *Paragraphs 5 and 6 shall not apply to the placing on the market of second-hand articles which were in end-use in the Union before 1 May 2015.*

These additional requirements will apply to all products within the scope placed on the market from 1st May 2015.

The regulation cites EN ISO 17075 as the reference test method to be used with 3mg/kg being the determination limit of this method and the basis for monitoring and enforcing these requirements. However, this limit is higher than the 'lowest-observed adverse effect' level quoted in the Committee for Risk Assessment (RAC) opinion. Therefore, there is pressure for a more sensitive test method to be developed in order to allow this level to be determined accurately.

The regulation is aimed at reducing the occurrence of chromium VI related allergic dermatitis from leathergoods, and it has been claimed that the instance of such reactions will drop by 80% when the regulation is in place.

If it does not bring about the required reduction in incidents of allergic dermatitis or a more sensitive method becomes available, this regulation will be reviewed.

FORMALDEHYDE

Manufacturers and suppliers should also include chemicals which are known irritants such as formaldehyde in their restricted substance policies.

In leathers, formaldehyde may be present in some synthetic tannages, dyeing auxiliaries, fatliquors or finishes. Exposure to formaldehyde may result in irritation to the skin, eyes and respiratory tract. Even a low level of formaldehyde can cause an allergic

reaction in people who are sensitive to this chemical. Although not necessarily restricted in all national legislation, formaldehyde is included in the European Eco-label standard and SATRA's Restricted Substances List.

Formaldehyde in leather is measured using the EN ISO 17726 method, which uses a colourimetric method to determine any formaldehyde present in the leather.

TOTAL LEAD

The use of lead and other heavy metals is restricted in many countries. For instance, in the USA, the Consumer Product Safety Improvement Act (CPSIA) of 2008 has specified stringent requirements for the total amount of lead in products for children up to the age of 12. This includes footwear. Third-party laboratory testing is required to confirm that products do not contain lead that exceeds the specified levels. Lead has been linked to irreversible brain damage in children and, in extreme cases, fatalities.

The maximum requirements set by the CPSIA are 100ppm for lead in products intended for children 12 years old or younger and 90ppm for lead in paint or similar surface coatings. An accredited third-party laboratory must carry out this testing, and certificates are required to prove safety compliance.

THE FUTURE

It is anticipated that the number of substances being restricted will increase in the future. For example, the REACH Candidate List to Annex XIV known as the 'Substances of Very High Concern' (SVHC) list has expanded from the first version (which contained 15 substances in 2009) to a current total of 151. No doubt, some of these will become subject to increased restrictions at some stage. It must be noted, however, that many of the substances on the SVHC list are not used in the production of leather and so manufacturers need only concern themselves with a smaller group of chemicals.

Although not necessarily bound up in one piece of all-encompassing legislation, many other parts of the world have statutes that restrict the use of certain substances. Suppliers will therefore need to take care that they are aware of all the requirements which apply in each of their markets. 



Tanners turn material that might have gone to waste into colourful, sensual, durable, flexible, vibrant, beautiful leather. CREDIT: LE CUIR A PARIS

All the world needs leather

The volume of hides and skins coming as a by-product from the global meat industry is truly enormous. Figures suggest the meat industry generates no fewer than 240 million cattle hides a year, together with 540 million sheepskins and 425 million goatskins. The leather industry buys up this by-product, which would otherwise mostly go to waste, and transforms it into one of the most versatile and attractive materials on earth, a material that is also the mainstay of the world's footwear industry.

The weight of the hides and skins the meat industry casts off each year is likely to be around 7 million tonnes for cattle hides, 375,000 tonnes for sheepskins and 300,000 tonnes for goatskins. This means that the meat industry generates almost 7.7 million tonnes of waste per year in the form of animal hides and skins. The consumption of meat shows no sign of decreasing despite the demands of some environmentalists. On the contrary, rising global living standards

are creating greater demand, so this volume of waste is likely to increase rather than decrease.

Disposing of this waste would cause severe problems for all cities and countries where animal slaughter and meat processing takes place. In the developing world, it would exacerbate an already serious municipal solid waste situation. Municipal solid waste has almost doubled so far this century to reach 1.3 billion tonnes a year in 2010. It is expected to reach 2.5 billion tonnes a year by 2025. At the moment, around 15 million of the poorest people in the world scrape a living by picking out from municipal solid waste things they can sell. The presence of large volumes of perishable waste material from the meat industry could have serious consequences for their health.

At the same time, the meat industry would need to consider how much money it would have to spend in order to manage its hides and skins in the same way as other waste; an increasingly costly business. The UK, for example, imposed a landfill tax of £80

per tonne of waste from April of this year, an increase of 25% on the 2012 figure. At these rates, putting its by-product into landfill would cost meat companies more than \$1 billion per year, without factoring in the transportation and labour involved. This cost would, in all likelihood, be passed on to consumers, making a valuable food source more expensive and less accessible.

The size of the world's cattle, sheep and goat herds is greater than many consumers might imagine. Demand for meat around the world remains high and is growing in developing economies. The meat and livestock sectors are important and lucrative parts of the global economy; meat means money. An inevitable consequence is the high volume of hides and skins that abattoirs have to find a home for. Turning the meat industry's waste into leather is, in the eyes of most of humanity, the best way of dealing with it. It adds value to the animal, creates jobs and wealth and enhances the lives of people everywhere.

In any case, few alternatives exist. Landfill sites fill up quickly these days and are becoming increasingly expensive. Many governments want to impose steep rises in landfill tax as witnessed by the recent dramatic increase in the UK. Where one government leads, others will soon follow. The authorities have also said specifically that they want to encourage new uses for old material. As far as discarded hides and skins are concerned, people have known since the earliest times that there is no better way of doing this than by turning them into leather.

HERD SIZES

Across all breeds of cattle, the global herd size in 2013, according to the US Department of Agriculture, was 1.03 billion head. It identified the countries with the largest cattle populations, showing India in first place by a long way with 329.6 million head, followed by Brazil on 209.8 million, China with 104.2 million, the US with 89 million and the 27 European Union states with a combined total of 84.8 million (*Figure 1*). For its part, the US Hide Skins and Leather Association (USHSLA) calculates 27 main regions for cattle farming, slaughter and meat production around the world and states that, together, they generate 240 million hides a year.

As far as weight is concerned, there are large variations. However, for the purpose of illustration, it calculated that hides from bulls, halfway through the year in the northern hemisphere, might

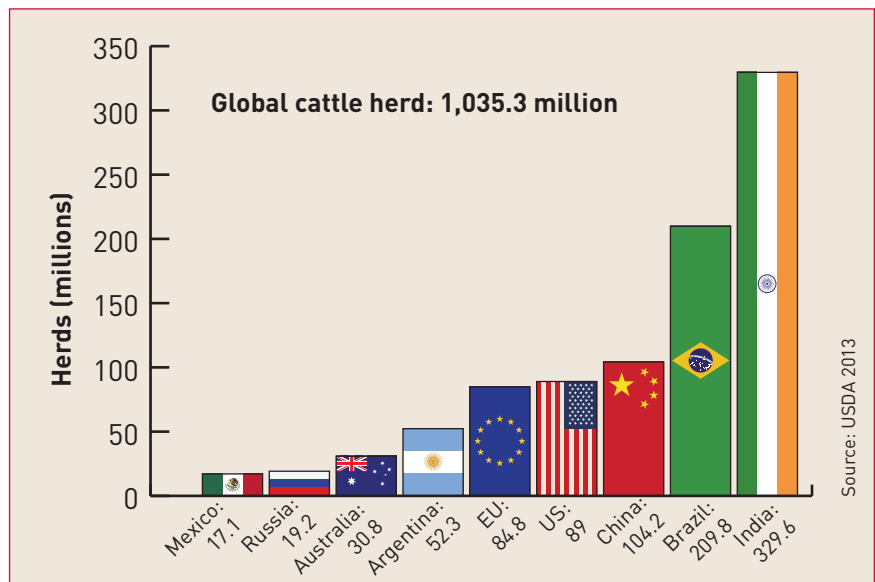


Figure 1 – Cattle herds 2013.

weigh an average of 35 kilos, those of dairy cows an average of 29 kilos and heifers an average of 25 kilos, with all weights relating to green hides. The average across all three is around 30 kilos. If we take 30 kilos per hide for this calculation, the 240 million hides a year that USHSLA states abattoirs have to dispose of would weigh 7.2 billion kilos.

Again, for this illustration, we can calculate the cost of putting these hides into landfill in countries charging the same rate of landfill tax as the UK at £576 million (\$963 million). In this scenario, without factoring in transportation costs and other expenses, it would cost the meat industry more than \$950 million per year just to dump the hides it generates into landfill sites.

As matters stand, of course, rather

than being an almost billion-dollar cost, the raw hides can earn the meat industry revenue as a result of tanners' willingness to buy the material, even at the record-high prices seen during this decade, and transport it to leather-making facilities around the world for processing. No one denies that it is in tanners' interests to have access to this raw material. It is equally clear that the meat sector also gains by earning money from this by-product and by avoiding the need to take care of disposing of it as waste.

UPWARD TREND

One reason why hide prices have been so high is that herd sizes and slaughter levels are reducing in important markets such as Europe and North America. According to the United

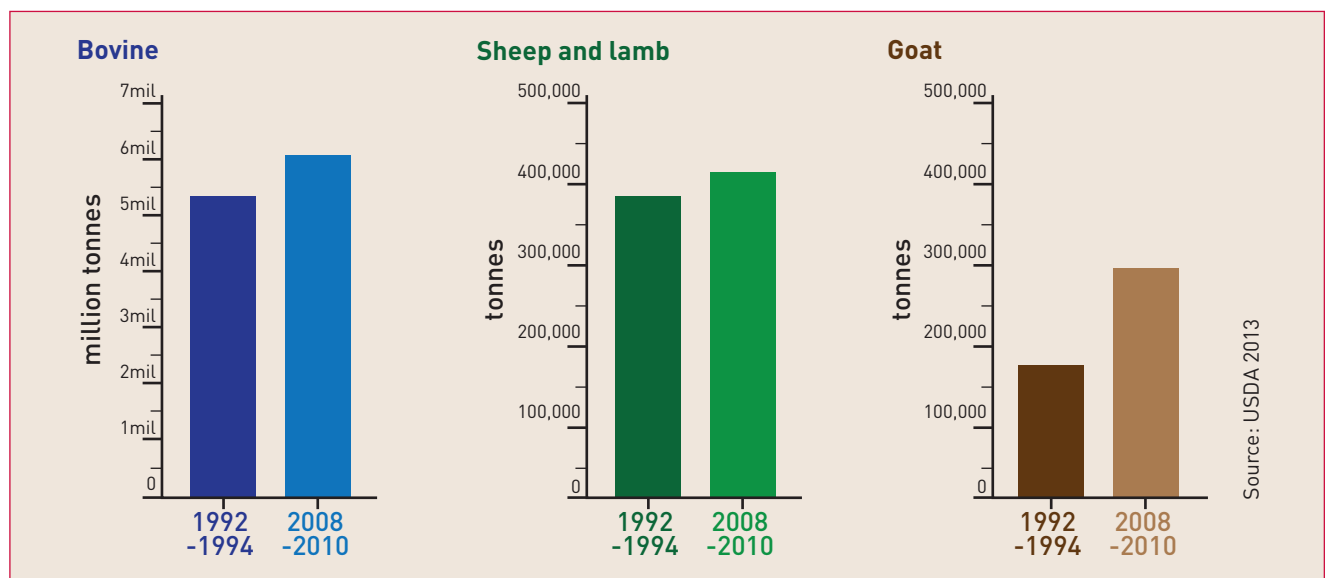


Figure 2 – Raw material as hides and skins available to the global tanning industry on average 1992-1994 and 2008-2010.

Nations Food and Agriculture Organization (FAO), the global cattle herd size was closer to 1.6 billion in the years between 2008 and 2013. The same source gives figures of 1.1 billion head for the world sheep population at that time, with the goat herd size at 881.6 million.

These figures are cyclical and seasoned industry observers have said that the national herd in the US, for example, should begin to build back up again during this year or 2015 after standing at 89.3 million head on January 1, 2013, the lowest level since 1952. Over time, trends show a steady increase in herd sizes and in the volumes of hides and skins the meat industry is producing from them (Figure 2).

To return to a specific examination of sheep and goats, there is growing demand for dairy products from sheep and goat milk, but demand for cow's milk is still much higher so incentives for farmers to hold back sheep and goat from meat production are therefore fewer. A higher proportion go to slaughter. The FAO put the total annual slaughter for sheep over that period at 542.5 million (almost 50% of the herd) and for goat at 424.6 million (over 48% of the total). In the case of both sheep and goat, the figures include young animals.

Sheep and goat skins are a lot smaller than cow hides, but each still weighs around 700 grammes, giving total skin weight of roughly 675 million kilos. Under a similar scenario to the one described above, disposal of these skins into landfill would, in theory, cost farmers or meat companies a total of \$90 million a year. An added consideration is that a large proportion of these skins come from slaughter that

takes place in the developing world. In the case of goats in particular, the FAO puts developing economies' share of annual slaughter at over 95%. This is particularly significant due to the fact that few up-to-date waste management strategies are in place in these parts of the world.

SOLID WASTE DOUBLING

According to a 2012 report from PROPARCO, a financial institution, partly owned by the Agence Française de Développement, that aims to promote private investment in developing countries to help societies achieve the Millennium Development Goals, municipal solid waste has almost doubled in volume already this century, reaching 1.3 billion tonnes a year in 2010. This volume is expected to almost double again to reach 2.5 billion tonnes per year by 2025. The organisation's chief executive, Claude Périou, has said that fast growing urban populations and changes in consumption patterns are driving this increase.

PROPARCO goes on to say that as open waste dumps remain the dominant processing mode in developing countries, so this growth in solid waste will have a serious impact on both the environment and on people's health. Every year developing nations spend more than \$45 billion on managing their municipal solid waste and this figure could exceed \$150 billion by 2025. Imagine the impact on this situation of adding millions of animal skins to the material that already goes into these open waste dumps. Imagine the effect on the estimated 15 million people in the poorest countries in the

world who scrape a living by combing these dumps for material they can sell.

CONCLUSION

The leather industry is clearly providing the world with a major service by taking the hides and skins the meat industry generates and saving them from going to waste. Without this raw material, the leather industry would be unable to continue. Without the leather industry, the world would have to find a new way to cope with the expense and the trouble of getting rid of the material while, at the same time, losing out completely on its potential value. Despite all the attempts to find a truly viable substitute for leather, it remains the material of choice for the global footwear industry and its billions of customers. The world needs leather. 

The information used in this article has come from two principal sources.

The International Council for Hides, Skins and Leather Traders Associations (ICHSLTA) is an international body that works to promote global trade in hides and skins, with a specific focus on quality and on environmental issues. It sets out guidelines and gives advice on production, grading and marketing to improve reliability and understanding throughout the world.

The Food and Agriculture Organization of the United Nations (FAO) has as its aims the eradication of hunger, food insecurity and malnutrition; the elimination of poverty and the driving forward of economic and social progress for all; and, the sustainable management and utilisation of natural resources, including land, water, air, climate and genetic resources for the benefit of present and future generations.

A herder in Africa looks after his goats. The FAO says more than 95% of goat slaughter around the world takes place in developing economies. CREDIT: ANDRZEJ KUBIK/SHUTTERSTOCK



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Chrome tanning is a fast mechanised process.

CREDIT: WTP

Footwear Fundamentals

Chrome or vegetable?

There has been much debate in recent years over chrome versus vegetable tanning and the risk of chrome VI (hexavalent chromium) being present in footwear. The fact that it remains ongoing only goes to show how complex a subject it is. Now, several new tannages have appeared, the producers of which claim have all the benefits of the chrome process without the potential risk of chrome VI. While these new systems may well solve the problem, it will take some time for chrome to disappear so, until it does, the fundamental choice between it and vegetable tannage is likely to remain.

WHAT IS CHROME?

Chromium is a metal salt that in itself is harmless and also in compounds involving chrome III, which is the commonly used tanning agent. It has been found however that under some conditions that are still being studied, this chrome III can change into chrome VI which is both toxic and health risk. So, if there is this risk, why is chrome used to tan leather? The simple fact is that it is only comparatively recently that this factor has been recognised. We have in fact been wearing shoes made from chrome leather for over 100 years seemingly without any problems and, today, an estimated 80% of all leather

produced globally uses chrome tanning.

Tanners and shoemakers have worked hard to eliminate the formation of chrome VI and salts containing this form of the metal have almost entirely disappeared from the tanning industry. There remains the possibility however that some countries or companies may have been less than rigorous in eradicating it or that exposure to air, heat and light during the footwear manufacturing process or the aqueous-based adhesives that are involved may be causing the change. A further complication lies in the fact that there appears to be a genuine possibility of chrome VI suddenly appearing in



Most leather is now tanned to the wet blue state and sold on to be finished to specific needs. CREDIT: WTP

leather that has already been tested and approved. No one is as yet quite sure of how this can happen.

WHY USE CHROME TANNAGE?

Leather was traditionally processed in pits and vats using vegetable tanning agents and natural oils. It was essentially a rule of thumb craft procedure which produced extremely variable results. While shoemaking remained essentially a hand process, this could be accommodated. The mechanisation of the industry towards the end of the 19th century, however, called for more uniform materials in order to produce shoes of consistent quality. Fortunately, it also coincided with the emergence of the modern chemical industry which soon discovered how to convert chrome ore into a tanning agent that produced more consistent upper leather at a faster rate and a lower price.

Chrome also provides flexibility in manufacture. Most skins and hides are chrome-tanned to the wet blue state and sold on as a commodity material from which finishing tanners produce specialist leathers for the full range of end applications. This is not possible with vegetable tanning where the process has to be continuous from raw hide to finished leather. Chrome tanning is also much faster than vegetable tanning and uses much less water both of which make it a cheaper process.

Although only chrome III is used in

tanning, it can change into chrome VI through oxidation due to some fatliquors such as sulfited fish, lard and vegetable oils containing a degree of oxidising agent. These have been shown to act as 'starters' for the change to chrome VI. There is, however, no need for any of these oils to be used when producing upper leather. Furthermore, if chrome III should for whatever reason change into chrome VI, it will start to reverse itself after a three-week period. Chromium is itself a transition metal that can exist in a number of different oxidation states each of which have distinct properties:

Metallic chromium is a steel grey, hard metal found as chromite ore (it does not occur in the metallic state naturally). It is used to harden steel, manufacture stainless steel, to form alloys and produce corrosion resistant plated surfaces.

Trivalent chromium or chrome III compounds occur naturally in rocks, soil, plants and volcanic emissions. Chromium salts are also present in foodstuffs and form a key role in the metabolism of fats and sugars in the human body. Nutritional supplements are currently on sale containing chromium picolinate and chrome III is considered safe for use in leather manufacture.

Hexavalent chromium or chrome VI is the hazardous form of this element. It can be formed when trivalent chromium is oxidised. This usually occurs in the presence of oxygen combined with other factors such as

extremes in pH (hydrogen ions). The salts have a characteristic yellow colour, are classified as carcinogens and chrome VI is therefore not used in the tanning of leather.

WHY NOT USE VEGETABLE TANNAGE?

As stated, before the development of chrome salts as a tanning agent, all types of leather were produced using vegetable tanning agents. These agents were derived from a variety of trees and plants and exhibited a broad range of properties that dictated the type of leather that could be produced. Today, the main one used is mimosa, followed by quebracho and then chestnut.

Used as the main tanning agent, they produce firm leathers that vary in base colour from the pinky-beige of mimosa to the dark, nut brown of chestnut. They all tend to be light-sensitive and to redden or darken further on exposure to natural light. While they are eminently suitable for the manufacture of leathers for goods, belting and saddlery, they are less so for footwear uppers other than traditional products such as clogs.

Mimosa is however playing an increasingly important role in the retanning of chrome leather as the swing to more 'natural' leathers continues to grow, particularly for automotive seating. Used in this way, it would more easily find a place in footwear manufacture provided of course enough could be produced.

It is extracted from the bark of the Black Wattle tree which is found in the



Slow vegetable tannage in pits.

CREDIT: CONCERIA RIUNITE GB SPA

cool, mist-belt regions of Southern and Central Africa at altitudes in excess of 1,100m above sea level which limits where it can be grown commercially. Other than in South Africa, there is little commercial growing so that supply is strictly limited whereas chrome, on the other hand, is both plentiful and widely spread.

ARE THERE ALTERNATIVES?

Spruce also provides an extremely effective tanning agent and Russia and Scandinavia have vast spruce and birch forests that could be used as raw material. Unfortunately, the forestry industry in general has yet to be convinced that there is a sufficiently large and profitable demand for the product to justify the investment that would be necessary.

There are further disadvantages. First, up to five times the amount of spruce or birch tanning agent is required compared to mimosa, with a corresponding additional cost. This makes it an even less commercially viable proposition for mainstream tanners. Second, vegetable tanning of all types also leaves a residue or 'sludge' that, unlike chrome salts,

cannot be so readily recycled. While this does not create a serious problem in the quantities currently involved, it certainly would if it became a major player. And, finally, there is the matter of logistics. A major proportion of tanneries today are located in Asia and China, which is a long way from either South Africa or Scandinavia in terms of additional freight costs.

However, there are some specialist tanners using spruce or birch extracts and footwear manufacturers that use their leather. It is very small scale however and aimed at the top end of the market where price is less important. It is a classic chicken and egg situation where uncertainty over demand prevents the forestry industry from investing and no guarantee of supply stops tanners from considering a change from chrome.

WHERE VEGETABLE DOES SCORE

Vegetable tannages can, however, offer ideal properties for shoe lining leathers. The leathers feel warm, are naturally inclined to softness and exhibit a high resistance to perspiration. They readily absorb high quantities of

water vapour without becoming wet or losing their insulation properties, while moisture release is fast.

Applied to calf leathers, vegetable tanning provides excellent extension, compression and shape retention properties, making it very easy to last. Vegetable tanned leathers also cut easily and leave a tight clean edge. This is a particular advantage on under-edge trimmed toplines. They are also easy to skive and take a good seam, both from the point of view of stitch tear strength, as well as the actual set of the seam.

With the correct blend of tanning agents and the right processing, calf lining leathers in particular have a light natural tone. This is also uniform and, as no dyestuffs are used, there is no risk of any colour leaching. In addition, the relative lack of fatliquoring involved means there are no problems with migration or discolouration. Furthermore, due to the absence of any finishing, the grain surface remains intact to give the leather a fine classic appearance. This combination of properties makes vegetable tanned calf skin the perfect shoe lining and remains the material of choice for top quality footwear. 🍷

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CREDIT: GORE-TEX



Gore claims “all-round breathability” breakthrough

Waterproof, breathable technology provider for footwear and textiles WL Gore has announced a new solution aimed specifically at making hiking footwear more breathable.

Named Surround, Gore said on introducing the new technology that it would provide breathability below as well as above the foot, giving shoes what it calls “all-round, 360-degree breathability”. It works by means of incorporating a new construction into hiking shoes or boots.

This construction consists of five components: ventilation outlets in the side of the upper, a layer of Gore-Tex’s already established Extended Comfort membrane technology underneath the upper material, a breathable, removable insole, Surround the new form of Gore-Tex membrane underneath the insole, and finally a Surround ‘spacer’ component underneath that.

WL Gore has announced its first major footwear development in more than a decade. It involves incorporating a new version of its membrane technology into a specific shoe construction to deliver what its says will be breathability *under* as well as *above* the foot.

The new technology had an advance launch in a limited number of casual, open-sole footwear ranges in 2013, but, following extensive laboratory and field testing, 25 outdoor footwear brands are incorporating the technology into their



spring-summer 2015 hiking footwear collections. Many of them will have first examples of hiking shoes and boots with Surround on display at the 2014 Outdoor exhibition in Friedrichshafen this July. Brands preparing Surround shoes and boots for Friedrichshafen include Meindl, La Sportiva, Mammut, Salewa, Chiruca and Zamberlan. Outdoor footwear, with a more complex sole construction, took longer.

A long time coming

Gore has said Surround is the result of around seven years' discussion and research and development work and represents its most significant innovation in footwear since its launch of Extended Comfort some 12 years ago. "We take our commitment to innovation seriously," says Jürgen Kurapkat, the company's head of footwear public relations by way of an explanation as to why this project has been so long in the development. "Our research and development people work hard to prove every new idea and sometimes it takes a while. All products need to be fit for use when they come to market."

It's a component brand, of course, rather than a maker of finished product, but his company has its own, dedicated footwear research and development team, focusing not just on membrane technology, but on footwear construction too. "We care about the whole shoe," is how business leader for sports footwear, Achim Loeffler, puts it.

Specifics on how to use it

Global product specialist for outdoor footwear, Marc Peikert, backs this up. "We deliver the laminate to the brands," he explains, "but we give specifics for the entire shoe, and brands have to fulfil that; it's not a gimmick." He explains that extending the use of membrane technology to the bottom of the foot is a good way to increase

Zamberlan is one of the brands that will have hiking footwear with Surround on show at the 2014 Outdoor exhibition in Friedrichshafen. CREDIT: ZAMBERLAN

breathability because it makes between 25% and 30% of the surface of the foot more breathable than before. And he insists that "multiple field tests" have shown that this can make a big difference.

Tests took place in Europe and in North America among diverse groups, ranging from people who were working at the Oktoberfest in Munich to serious hill-walkers in Switzerland. "The people in Switzerland complained of cold feet when they got to the top of one of the mountains," Mr Peikert recalls. "That was good; it helped to prove the concept." Laboratory testing was part of the preparation for market launch, of course, with the Jožef Stefan Institute in Ljubljana, Slovenia, providing its services for the project. Tests over several hours on shoes with and without Surround technology below the foot (although otherwise the same) in a warm chamber showed a difference at the greatest point of 20% in relative skin humidity.



There are five components to the footwear construction Gore-Tex specifies for hiking shoes with Surround.

CREDIT: LA SPORTIVA

NEW TECHNOLOGY IS AIMED AT 223 MILLION HIKERS

At its launch of Gore-Tex Surround, WL Gore said its focus for the new technology is hiking.

"Hiking is a huge market and a very exciting one," said WL Gore's business leader for sports footwear, Achim Loeffler, at a launch event near Munich on May 12.

He explained that, after a series of different studies, WL Gore has calculated that there are 223 million hikers in its target markets worldwide, which excludes South America and Australia. It used what it says is a widely accepted definition of a hiker as someone who takes part in the activity at least five days per year.

"We believe that Gore-Tex Surround will offer hikers increased breathability and, as a result, drier, cooler feet," Mr Loeffler continued. "We think around 15.5 million hikers per year will be interested in shoes that offer this. There is a common perception that people often feel too hot and too sweaty in hiking shoes."

Focus groups his company has run on the subject helped convince it the hiking market was worth pursuing. Not everyone aspires to reach the mountain peaks, Mr Loeffler continues, but just wants to have a pleasant day out with family and friends, spending some time in nature. Often, this involves waiting to see what weekend weather is like and taking a late decision, sometimes around the breakfast table, to go. "These are the consumers that we believe will be interested in Gore-Tex Surround," he says.



Gore-Tex puts the number of hikers worldwide at 223 million.

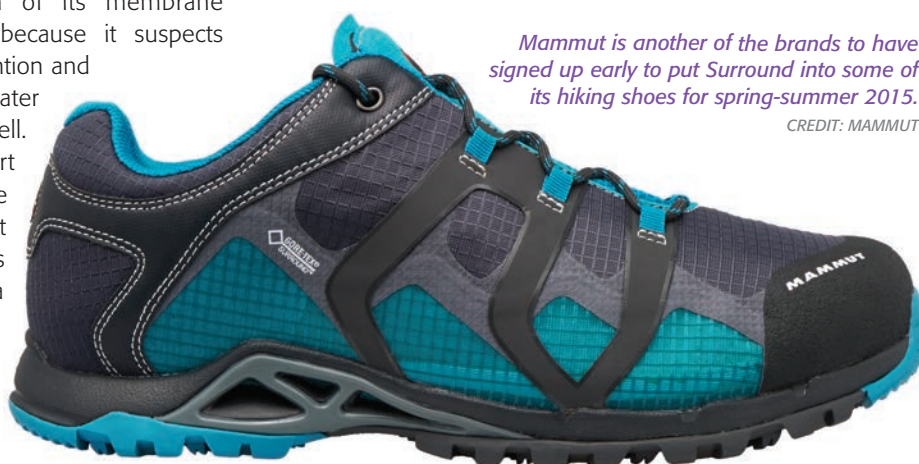
CREDIT: RED BULL MEDIA HOUSE

Close attention

Gore said at the time of the launch of the new technology in outdoor shoes that it has decided to incorporate a second, more durable, new form of its membrane technology underneath the insole because it suspects Surround will be subject to close attention and it believes this extra step will give a greater guarantee that the idea will work well. "We are conservative," Marc Peikert says. "The Extended Comfort laminate may work under the foot, too, but because this part of the new idea is likely to attract a lot of scrutiny, so a more durable laminate, the Surround laminate, is going in there for now."

He explains that the breathable, removable insole is also part of the specification because Gore fears that a

non-breathable one could compromise the performance of the technology. "But we are not going into the footbed business," he adds quickly. 🌀



Mammut is another of the brands to have signed up early to put Surround into some of its hiking shoes for spring-summer 2015.

CREDIT: MAMMUT

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Puma and Saitex are helping children close to their Vietnamese bases by donating all profits from recycled-denim footwear collection Re-Cut to the Be Tho Orphanage in Bien Hoa.

Double benefit for Re-Cut project



Some of the 140 orphans, housed in Be Tho, play in donated Puma kits.

CREDIT: PUMA

Denim offcuts are diverted from landfill and used to create panels for the uppers.

CREDIT: PUMA



Puma describes Saitex as a good fit – the denim manufacturer has made significant progress in its environmental goals over the past two years and has become the only laundry globally to receive bluesign accreditation.

Its credentials attracted the German brand for its latest project: a footwear collection made from recycled denim.

"Both companies saw this as a great opportunity to both benefit the local community and create product from factory materials that would have otherwise have gone to waste," says a Puma spokesman.

Increasing orders of jeans from clients such as G-Star and Walmart meant Saitex almost doubled its workforce in 2012 to 4,000, outgrowing its factory and creating a need for a new, state-of the art facility. Located in Phong Phu, 30km from Vietnam's capital, Saitex's new sewing facility was built with environmentally sound features such as solar panels on the roof, skylights to reduce the need for lighting, vines on exterior walls to absorb heat and a rain collection system on the roof to provide extra water.

The company switched to a system of ozone washing for the denim which reduced its water consumption from 80 litres per pair to six litres per pair, amounting to savings of 270,000 cubic metres per year.

"No water is sent out of the factory," says managing director Sanjeev Bahl. "94% is recycled back into the processing; the remaining 6% is converted to sodium hydrochloride and donated to the central effluent treatment plant."

The effluent treatment plant and an electro coagulation system reduce chemical oxygen demand and biological oxygen demand in the water by 70% and suspended solids by 99%, says the company. Even the sludge leftover from the water recycling system is compressed and fired, and turned into bricks to build houses in a nearby community.

To make Puma's 'casual lifestyle' shoes, leftover panels – which are used to test the fabric's colour and shrinkage and might previously have ended up in landfill – are collected by Puma and delivered to one of its footwear manufacturers in the country. This fits in with the company's 'Reuse, remake, rethink' ethos that it has been promoting for the last few years, and of which the recycled trainer, InCycle Basket (see WSA July/August 2013) is part.

Benefiting children

"Not only is the Re-Cut project sustainable, it is also zero profit," says the spokesperson. "At the heart of the project is the Be Tho Orphanage."

Money raised from sales will be donated to the orphanage, close to the offices of Puma and Saitex and an important part of the community. It cares for around 140 children ranging from newborns to 16-year-olds.

The profits will help to fund recreational activities, meals and medical care: \$500 will cover meals for one child for a year, which includes daily food items such as rice, bread, fruit and eggs as well as desserts for special events; \$20 funds activities such as football, swimming, reading, dancing and painting for one child per year; while \$1,000 covers health and dental check-ups and medicine.

"This means every pair of shoes sold will provide access to education, meals or medical care for the kids," says Puma. Before the money filters through, Puma delivered sports equipment to the orphanage: 130 backpacks, 100 t-shirts, 50 pairs of shorts and 25 footballs.

The new men's collection is available to purchase online and in select retail locations worldwide. "The Re-Cut Project footwear has only been in the marketplace a few weeks but engagement on our social media channels has been positive thus far," adds the spokesperson. ♻️

In a new twist to an old partnership, Brazilian designer Sarah Chofakian has recreated an updated version of an old Repetto shoe, the Tango.

Chagall-inspired shoe collaboration



Sarah Chofakian and Jean-Marc Gaucher with the Brazilian designer's new take on the Repetto Tango.

CREDIT: SARAH CHOFAKIAN

The Sarah Chofakian Tango in chéri red and black distressed goatskin leather. The shoe is based on Repetto's historic Tango line.

CREDIT: SARAH CHOFAKIAN



Brazilian footwear designer Sarah Chofakian has launched a new collaboration with French high-end shoe brand Repetto, for which Ms Chofakian has reinterpreted a historic Repetto model called Tango. In an announcement at the launch of the Sarah Chofakian campaign, both brands said they shared a commitment to "handmade, timeless creations and excellent quality".

The Sarah Chofakian Tango shoes will be available in Repetto boutiques across Paris as well as in Printemps Haussmann, Galeries Lafayette and Bon Marché stores in the French capital. In Brazil, they will go on sale in the Repetto boutique in the Cidade Jardim mall in São Paulo, as well as in Sarah Chofakian stores throughout the country.

Ms Chofakian explains that she feels she has had a hand in helping Repetto make an impression on the Brazilian market. Since 2008, she has kept a little space on her own-brand store shelves for a limited number of Repetto shoes. "For five years," she continues, "we had exclusive rights in São Paulo to stock Repetto. This gave me a great chance to see just how customers personally reacted to the famous ballet flats and to build up ties with the brand."

A slow introduction to footwear

To build up a relationship over a number of years is often the best way in business. Repetto's chief executive, Jean-Marc Gaucher, only became involved in the footwear business slowly. He was a sound recordist for a well known television channel, TF1, when he took the opportunity to start distributing footwear from Reebok, then a new brand in France. He introduced Reebok to the French market without giving up his media job and was still involved with TF1 when the athletic footwear company had 27 employees in France. He took up his present position in 1999 (by which time his sound recording days were behind him).

Patience paid off in this instance for Ms Chofakian too because, when Jean-Marc Gaucher, decided 2014 would be a good year to add the name of a Brazilian designer to the short and exclusive list of fashion names he has invited to make shoes for his brand, Sarah Chofakian was quickly in the frame.

Pictures full of magic

Something less expected helped her seal the deal, however. She relates that when she and Jean-Marc Gaucher met for an initial discussion, he was intrigued by her current collection, autumn-winter (in Brazil) 2014. For this, Ms Chofakian took her inspiration from the painter Marc Chagall, who was born in Belarus, but became a French citizen and spent most of his long life there. "Marc Chagall was moved by emotions," the Brazilian shoe designer said upon launching the collection. "He used his art as a channel for expressing the force and intensity of his own story, which included surviving the Bolshevik revolution and the Nazis. He showed that, for people who allow themselves to dream, the imagination is the only limit there is. His pictures are always filled with magic." There are shoes in the collection called Chagall, Bella (the painter's wife's name), Cubism, Modern, Artistic and other names reminiscent of his life and work.

Ms Chofakian says that when she and Jean-Marc Gaucher got talking about this, they discovered they shared a passion for art and "ended up as good friends". From an initial discussion about the possibility of a collaboration between Repetto and a Brazilian designer (perhaps her, perhaps not), she says they were soon discussing the format the partnership should take.

She describes the new Tango as a classic Sarah Chofakian style, produced in the Repetto factory in the small town of Saint-Médard d'Excideuil in the Dordogne, using the same leather as Repetto uses in its ballet flats. She joins a select band: previous contributors to the brand's capsule collections include Issey Miyake, Karl Lagerfeld and Mary Katrantzou. She says she is proud to see her name beside theirs. ♡

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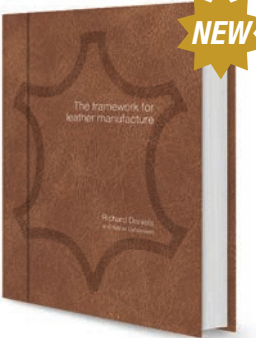
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