

WORLD [®] 35 LEATHER

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Volume 35, Number 1



Can EU labels end greenwashing?

Tannins help reduce methane emissions

The zero-waste generation loves leather

Spray-on leather wins circular award





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The World Leather team has been publishing a new series of original, dynamic podcasts since 2019. The whole series is available on Anchor, Spotify, Apple Podcasts, Google Podcasts, Pocket Casts, Overcast and other podcasting platforms. Just search for the World Leather Podcast on the platform you prefer.



Cover image: Artist and leathergoods designer Nadia Chellaoui has worked with Moroccan artisans to create her new handmade bag collection. CREDIT: NADIA CHELLAOUI



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FRANCE Leathergoods manufacturers in France took part in a recruitment event in the city of Valence on March 8. Organiser, not-for-profit La Plateforme Emploi, has said more than 250 positions were available for people interested in receiving training and building a career for themselves. It said the event was open to people of any background.

SPAIN India's Council for Leather Exports (CLE) and the country's embassy in Spain are to relaunch the India Leather Show Madrid on May 24 and 25 this year. Finished leather and collections of finished products including footwear, apparel and leathergoods from Indian manufacturers will be on show for buyers in the Spanish capital across the two days. CLE began organising events of this kind in Madrid, on and off, since 2005. It last took place in 2019.

UK Luxury brand Burberry celebrated International Women's Day on March 8 by announcing that it will provide further skills and literacy support to young people and making a commitment to be "the best place to work for women in the luxury industry". It said it wanted to continue a legacy of "championing women who have shaped our past, supporting women today to push the boundaries of possibility and helping the next generation create a more equitable and inclusive world".

TURKEY Tanners in Turkey are increasingly viewing the effort and investment required to achieve certification from multi-stakeholder body the Leather Working Group (LWG) as important and worthwhile. Local reports suggest there are already around 60 companies in the Turkish leather industry with LWG certification at gold, silver or bronze level. But as conviction increases that the programme can help leather producers market their products more effectively in overseas markets, indications are that a further 30 will achieve certification before the end of 2022.

TUNISIA The Tunisian Observatory of Economy (OTE) has reported that worsening trade deficits with China and Turkey are having a severe impact on the country's leather sector. It said the leather sector had suffered losses since the signing of a free trade agreement with Turkey [in 2005], which caused the closure of about 7,000 shoe factories.

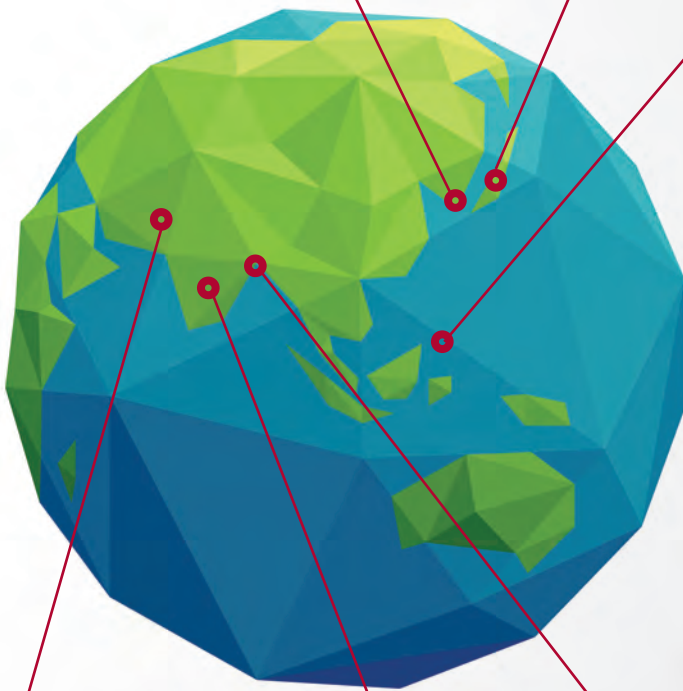
BURUNDI Members of the Africa Leather and Leather Products Institute (ALLPI) have toured tanneries and manufacturers in Burundi as part of an event to promote trade development in the country. Burundi's government identified 24 priority projects for 2022 including research and innovation, revitalisation of the industrial sector and the development of artisans; it invited members of the World Food Programme, UNIDO and others to help with the planning.

UAE Two leather manufacturers travelled to Dubai to take part in the Aircraft Interiors Middle East exhibition in February. Turkish group Uyguner Leather said in advance of the event that it had been supplying leather for a range of transport applications for 85 years and currently runs a network of four tanneries in different parts of Turkey. For its part, Muirhead, part of Scottish Leather Group, said it wanted to present to airline customers the high-performance leather it offers for aircraft interiors as the lowest-carbon leather in the world at 1.1 kilos of CO₂-equivalent per hide.

SOUTH KOREA LVMH-owned French luxury house Dior has entered into a partnership with Ewha, a private women's university in Seoul, according to reports from South Korea. Founded in 1886, the university is reportedly the world's largest female-only educational institute at present. The new agreement will see Ewha students benefit from a raft of Dior-spearheaded corporate social responsibility initiatives, including scholarships, internships, retail management training schemes and leadership masterclasses.

JAPAN Japan's leather and leathergoods industry association (JLIA) has published import and export figures for the first 11 months of 2021. Imports of hides and leather had a value of around \$15 million, up by 75% year on year. Exports of leather brought in \$13.4 million, an increase of 43%. For accessories, imports had a value of just under \$50 million over the 11-month period, 21% on the figure for the same months in 2020. Footwear imports had a value of \$33 million.

PHILIPPINES Stella Luz Alabastro Quimbo, a member of the Philippines house of representatives for the north-eastern city of Marikina, recently filed a bill proposing increased government support for Filipino manufacturers and sellers of leather, leathergoods and footwear. Known locally as the country's "shoe capital", Marikina is located roughly 15 kilometres from the centre of Manila.



PAKISTAN This year's edition of APLF is set to include 27 export-oriented tanners from Pakistan. These will include Akram, Hafiz, HMB, Riaz, Universal Leather and Royal Leather Industries, all of whom are reportedly looking to find new markets in Africa and Europe. Home to around 800 tanneries in total, Pakistan processes roughly 13 million hides and 47.4 million skins annually.

INDIA The Council for Leather Exports (CLE) has reported total export revenues for the sector of just under \$4 billion for the first ten months of the current financial year, from April 2021 to January 2022. This figure represents growth of 33% compared to the same months a year earlier. CLE has stated that, if this trend continues, exports for the full year are likely to be close to \$5 billion this year, which is more or less the same as for the financial year that ended in March 2020.

BANGLADESH Bangladesh's leather industry earned export revenues of \$682.7 million during the first seven months of the current financial year, from July 2021 to January 2022. This represents an increase of close to 30% compared to the same period a year earlier. Bangladesh's export promotions agency has set the leather industry an export target for this fiscal year of just over \$1 billion, which would represent growth of 9.5%.



ARGENTINA Leather manufacturing group Sadesa has launched a social media campaign to highlight its "leather manifesto". It said: "At Sadesa we produce leathers responsibly, in a sustainable way." It explained that the manifesto expresses its feelings about leather, which it described as "a unique, naturally beautiful material". It prepared social media posts for each of the ten points that make up the manifesto and released them one by one.

LVMH to take reskilling opportunities on tour

Luxury group LVMH is set to take its Métiers d'Excellence (ME) concept, meaning "professions of excellence", on a tour of five French cities throughout March and April, in order to engage potential future recruits.

Now in its eighth consecutive edition, this year's You and ME initiative is again geared towards young professionals and those looking to reskill. It has been sponsored by former National Basketball Association (NBA) player Tony Parker and his eponymous education and training-focused organisation, the Tony Parker Adéquat Academy, based in Lyon.

The five cities are Clichy-sous-Bois (with Mr Parker in attendance), Reims, Valence, Orléans and Paris.

Late last year, the company announced plans to recruit almost 8,000 artisans and 25,000 under 30s by the end of 2022.

Leather fibre project enters new phase

Finnish bio-materials manufacturer Spinnova confirmed on reporting its results for 2021 that it has completed a pilot production line in Finland for Respin.

In a joint venture with Ecco Leather and wet blue, crust and split supplier KT Trading, Spinnova launched Respin last year. Respin involves taking fibre from leather waste to spin yarn that can then be woven or knitted.

All three partners are now working towards commercialising the material, using a technique that Spinnova has been using with other fibres since its launch in 2014. Its technique is based on fibre-suspension flows, mechanically pulping the fibres and controlling the flow in such a way as to form a yarn. After going through a drying process, the yarn is ready for spinning.

The Respin joint venture will pay a total €2.5 million to Spinnova for the pilot production line and research and development services in the course of this proof-of-concept phase, which is estimated to take one year.

Leather and glove-making course to launch in Millau

Work continues on a bid from the leather- and glove-making town of Millau in southern France to have its traditions included in the Lists of Intangible Cultural Heritage of the United Nations Educational, Scientific and Cultural Organization (UNESCO).

It will now be March 2023 when UNESCO



Morgan prepares for three-wheel adventure

Iconic British automotive company Morgan is launching a new, open-topped, three-wheel vehicle, the Super 3.

It has said the project presented it with a new design challenge, but the company, that still handcrafts every car, began making cars with two wheels at the front and one at the back in 1909.

According to Morgan, the product will give twenty-first century drivers "a mechanical connection" to the machine and a high-level of exposure to surroundings.

It describes the interior as spacious and upholstered with technical fabrics with a high level of resistance to moisture. Leather options are available, too, with the leather in this instance coming from Pittards.

The leather manufacturer has said its materials are also water-resistant because they are engineered with its proprietary WR100 technology.

receives the full dossier on Millau's bid.

Among the important steps the bid team will take before then is one to set up formal training for young people in the local area to learn about small-skins tanning and glove-making.

A leading force for the campaign, Olivier Fabre, said in recent comments he gave to local media that a new course should begin in October. Mr Fabre, a master glove-maker and fourth-generation managing director of high-end glove brand Maison Fabre, said there has never been a formal training course for the industry in Millau, with all knowledge and skills transfer taking place inside local businesses instead.

But he said some of the local workshops are currently being run by people who are close to retirement and have no one to take over from them. If that situation were to continue, Mr Fabre warned, Millau's savoir-faire would be "in danger of extinction".

In response, the UNESCO bid team has worked with France's national apprenticeship body, the CFA, with local adult education initiatives and with a local high school to launch the new course. It will last nine months and Mr Fabre said he was hopeful there would be an initial intake of around 12 pupils.

Milestone for Seta

Brazilian tannins producer Seta recently achieved a significant milestone: 80 years in business. As the company enters its ninth decade, it is celebrating its support of 40,000 families in the south of the country who grow black acacia on 29,000 hectares.

Seta was established in 1941 and now supplies leather manufacturers in more than 70 countries with natural materials from the black acacia plantations, including vegetable tannin products.

Brands will pay more for Zeology-tanned leather, Scan-Hide says

Denmark-based producer of wet blue and wet white Scan-Hide has paid tribute to the help it has received from two of its partners in producing biodegradable leather.

Scan-Hide spin-off Spoor received positive publicity when it supplied biodegradable leather from traceable hides for a collection of handbags that London-based designer Anya Hindmarch brought out at the end of last year.

In making the semi-processed leather, Scan-Hide used the metal-free tanning system Zeology that Smit & Zoon launched in 2020 and has brought to market through

its new Nera division. Finishing took place at German tannery Richard Hoffmans.

The chief executive of Scan-Hide, Michael Søndergaard, has now said he would like to process all of the group's hides using Zeology within three or four years. He explained: "It would be a huge step in the green transition. It is a revolution in our business that we are now able to provide a green tanning method to the customers. We can start phasing out chemicals that have been used for ages in our industry."

His calculation is that tanning hides in this way will add between 15% and 20% to costs, but he said he was confident many brands would be willing to pay extra.

IULTCS names grant winners

The International Union of Leather Technologists and Chemists Societies (IULTCS) has announced the winners of its Young Leather Scientist grants for 2022.

These awards are open to scientists under the age of 35 who work in the leather industry in any part of the world. Winners receive monetary awards to help support their work.

Fitsum Etefa Ahmed from the Ethiopian Institute of Textile and Fashion Technology is the winner of this year's research grant for a project entitled 'The anti-ectoparasitic activity of medicinal plant extracts in reducing cockle damage on sheep and goat skin'. The grant is for €1,500.

In parallel, Louret Atsenga Andalo, from Dedan Kimathi University of Technology in Kenya, has won the sustainability grant, provided by the Leather Naturally campaign in honour of Dr Mike Redwood. This grant is for €1,000 and is for a project entitled 'Extraction of natural dye from beetroot peel and application in leather dyeing using bio-mordant'.

Co-general manager of leather research body FILK, Dr Michael Meyer, chaired the selection committee. He commented: "We look forward to seeing the research outcomes of the projects we are supporting and wish Fitsum and Louret every success as they contribute to expanding our industry knowledge."

Cradle-to-Cradle recognition for Zeology

Nera, the company that leather chemicals group Royal Smit & Zoon set up in 2021 to bring new tanning solutions to market, has successfully bid to secure Cradle-to-Cradle Certified Material Health certification for its Zeology system.

Smit & Zoon introduced Zeology, a new chrome-free, heavy metal-free and aldehyde-free tanning system based on the mineral zeolite, in October 2020.

The Cradle-to-Cradle Products Innovation Institute issues its Material Health Certificate to applicant companies for products that meet rigorous, science-based requirements, based on assessing, optimising and verifying the safety and circularity of the chemicals and materials used to make the products. It has certified Zeology at platinum level, the highest possible.

According to Nera's ventures manager, Pim Wilgenburg, Zeology is the only tanning system so far to earn platinum-level certification. He said: "This is a great reward for our efforts in making the leather value chain, and the tanning process in particular, more sustainable without compromising on leather performance."

ISA TanTec creates quick-drying leather

Tannery group Isa TanTec has launched a waterproof leather for the outdoor footwear sector. Breathe Easy WP SS is breathable and dries up to 30% faster than traditional oiled leathers, measured through a Dynamic Water Absorption test, said the group. 🌱

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IULTCS president's optimism

At the start of his two-year tenure, the new president of the International Union of Leather Technologists' and Chemists' Societies (IULTCS), **Jean-Pierre Gualino**, has said there is much for the global leather industry to be optimistic about this year.

In his first message as president, Mr Gualino, who is the founder of French leather chemicals manufacturer ATC, said the performance of the luxury leathergoods sector is strong and that there has been "a commendable recovery" in the footwear and furniture sectors. He accepted that the automotive leather sector remains uncertain owing, he said, to factors outside its control, but said: "We can be optimistic about the future of our industry."

He warned against complacency, however, and said companies across the industry must continue working to be more sustainable and improve the environmental impact of leather manufacturing. They must increase their use of cleaner production methods, bio-sourced raw materials and recycled products, the IULTCS president said, and at the same time reduce their consumption of fossil fuel-based products and water.

Honorary doctorate for leading industry figure

The founder and director of Milan-based consultancy Spin360, **Federico Brugnoli**, has been awarded an honorary doctorate from the University of Northampton. The university said it had made the award in recognition of Dr Brugnoli's entrepreneurship and commitment to innovation in making the global leather industry more sustainable.

Federico Brugnoli played a critical role in helping the leather industry in Europe put together rules for calculating the environmental footprint of leather and winning official approval for these from the European Commission. He is active in the field of education and is currently scientific director of a Master's course in fashion sustainability at the Accademia Costume Moda in Rome.

In an interview with *World Leather* last year, Dr Brugnoli said there were many different approaches to LCA and insisted the leather industry should instead focus on "lifecycle thinking", which would mean designing sustainability in from the start.

Leather Naturally launches search to replace Egbert Dikkers

Well known industry figure **Egbert Dikkers**, the global director for environmental, social and corporate governance (ESG) at leather chemicals



Pope Francis praises leather chemical manufacturers

Italy's national association of leather chemists, AICC, led an industry delegation to a private meeting with **Pope Francis** at The Vatican on January 29.

AICC president, **Roberto Mariano Mecenero**, led the delegation, which included the AICC leadership team, past presidents and honorary members. Representatives of other leather industry bodies, including UNIC, Assomac, wider chemicals manufacturers' group UNPAC, and the Distretto Veneto della Pelle also took part.

Dr Mecenero presented the work of AICC to Pope Francis, emphasising member companies' commitment to environmental responsibility and highlighting the role it is playing in organising the IULTCS EuroCongress, which will take place in Vicenza in September. He asked the pope to accept a donation of money to help the needy and a series of gifts made from leather. These included a briefcase in white leather for the pope to use on his travels and a representation, also in white leather, of the Tree of Life.

In an address that Pope Francis made in response, he said he was happy to spend time with the group from AICC and other leather industry organisations for a number of reasons. "Yours is a very specific area of work," the pope said, "and you make an original and distinctive contribution to wider society. Your profession involves applying scientific and technical knowledge to an artisan activity. It's an activity with ancient traditions, in Italy and elsewhere, including in my home country, Argentina."

He praised the collective efforts of leather chemicals manufacturers and others in the industry to achieve a lower environmental impact. "This is a critical point," he said, "and it's something I know you care about deeply. You, too, are making your contribution to the care of our common home." He encouraged member companies to continue their work to lower the impact of their products and processes, even if that work often goes unnoticed.

group Smit & Zoon, is to begin a sabbatical period on June 1.

The management board of campaign group Leather Naturally, of which Egbert Dikkers has been an active member since 2016, has said it would welcome expressions of interest from people in the global leather industry who would be interested in taking his place on the board.

It said that, during Mr Dikkers' time, Leather Naturally had experienced strong growth and created "a sound base in education and the promotion of leather, including the global digital platform Metcha".

It added that anyone interested will have to devote a considerable amount of time and energy to the work of growing Leather Naturally further.

First female president for Red Wing Shoe Company

Red Wing Shoe Company has appointed **Rallison Gettings** as its president. Ms Gettings will be the company's first female president and will oversee its operations, marketing, business technology and corporate social responsibility functions. She will report to chief executive, **Mark Urdahl**.

Allison Gettings is the daughter of **Bill Sweasy**, the former chief executive and chairman of the company, which runs the SB Foot tannery in Minnesota as well as footwear brands Red Wing, Vasque, Irish Setter and Worx. She represents the fourth generation of the Sweasy family to hold a leadership position there.

She will begin a transition process immediately and will assume the role of company president in July 2022.

Made In Italy champion dies

Footwear industry leader **Vito Artioli** has died. He was 85 years old and had spent a lifetime in the shoe sector, inheriting the running of his family footwear business from its founder, his father Severino, and providing high-end artisan shoes to popes, politicians and film stars.

Vito Artioli came to international prominence when he took up the presidency of the main footwear industry body in Italy, ANCI (later Assocalzaturifici) in 2007. He also served as president of the footwear industry's representative body to the European Commission, CEC.

Towards the end of the first decade of this

century, the footwear industry in Europe won a hard-fought battle to have antidumping duties imposed on shoes imported from Vietnam and China.

Leather furniture specialist dies

The chief executive of leather furniture group Halo, **Timothy Oulton**, has died.

Halo grew out of an antiques business launched in Manchester in the 1970s by Mr Oulton's father. It developed to become a high-end furniture company with five manufacturing hubs and 350 employees across the world.

Mr Oulton insisted on using "only the purest materials", including hand-softened aniline leathers, reclaimed timbers, natural marble and ancient rock crystal. He launched a retail brand in his own name in 2008. In 2010, he launched his own leather distribution service, Halo Touch.

Northampton appoints new vice-chancellor

The University of Northampton, home to the Institute for Creative Leather Technologies (ICLT), has announced **Professor Anne-Marie Kilday** as its new

vice-chancellor, effective August 1.

She will replace current vice-chancellor and chief executive, **Professor Nick Petford**, who will step down this summer after 12 years at the helm.

Specialising in criminal history, Professor Kilday is an alumna of the universities of Glasgow, Strathclyde and Oxford Brookes, where she has been a member of the university's senior leadership team since 2012, after first joining as a lecturer in 2000.

Hide trade veteran dies at 96

An industry veteran, **Ernesto Moos**, has died at the age of 96. With a family history in the leather industry that stretched back to 1837, Mr Moos, worked, latterly, as a Switzerland-based hide and skin trader.

He was a national representative on ICHSLTA, the International Council of Hides, Skins and Leather Traders Associations, for more than 30 years. He worked extensively for the family company in Brazil, Argentina, Uruguay, Sweden, India and the US prior to opening his own office in Switzerland in the late 1950s, which he ran until his retirement in 2011.

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World Leather'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 *leatherbiz.com*. The site is updated every day with news from every continent and every part of the industry, making *leatherbiz.com* one of the most comprehensive archives of news anywhere on the web for the global leather industry.

We list below just a few of the headlines that have appeared on the site in recent weeks and can still be accessed.

09/03/2022

Ugg makes catwalk debut

08/03/2022

Mipel to take place in a 'complex moment'

04/03/2022

Subsidies available to Wenzhou firms for ACLE

13,000 Lineapelle visitors are 'increasingly selective'

03/03/2022

Improvement in 2021 for Italian leathergoods sector, but worries remain
Senlu reveals \$30 million investment

02/03/2022

FDRA appeals for elimination of shoe subsidies

01/03/2022

Small can still be beautiful
ZDHC combines leather and textiles in wastewater update
Mansur Gavriel: repurposing leather 'felt natural'

28/02/2022

'Significant improvement' for Geox in 2021
Turkish exhibitors happy with Lineapelle visitor numbers
'Leather needs to be touched', says FFTM

25/02/2022

Rust and blockchain set leathergoods brand apart

24/02/2022

Leather sector poised for "vigorous growth", Italy's prime minister insists
Italian tannery promotes graphene-treated leather
Deadstock hides chosen for Patou's first bag

23/02/2022

Cairo opening for footwear brand
Mipel Lab goes ahead at Lineapelle, despite date-change

22/02/2022

Japan: twist on Guidi horsehide boots meets swift demand

21/02/2022

Debag Kimya given highest ZDHC certification
Bonus for all employees after strong Hermès results
Real Leather, Stay Different to continue in 2022

18/02/2022

Veg-tan consortium to make its mark at Lineapelle
Leather UK highlights widespread 'vegan leather' myths

17/02/2022

Consumers' appetite for premium products is strong, Kering says
Thread & Tonic becomes Butterfly Mark-verified
Record revenues for Kering in 2021
Brazil: Export programme fundamental for shoe companies' growth

16/02/2022

Boot brand sees the appeal of PrimeAsia's Dye Free leather
Leather Naturally publishes leather-making guide
Louis Vuitton takes its pricing up a notch
A stronger year for US hide exports

15/02/2022

Leftover leather-loving furniture firm picks up prize in Limburg
Chanel prioritises Seoul and Incheon duty-free
Assomac doubles up dialogue efforts at industry events

14/02/2022

One account on ZDHC Gateway for TFL
Barramundi boost Australian fish skin leather industry

11/02/2022

Investments in digital pay off for Tapestry
CLIA praised for publicising leather laws

10/02/2022

Orders up for Pittards
Hainan duty-free sales roar for Year of the Tiger
US beef exports shatter records in 2021
Investment pays off for ISA TanTec with LWG gold

09/02/2022

Two finalists for leather in Limburg Circular Innovation Awards
Upcycled leather helps 'elevate' Malaysia Airlines
Optimism from Lear, despite covid, semiconductors and inflation
EU Car sales to increase, concerns remain

08/02/2022

Spring-summer 2023 leather trends on display at PV
Beijing 2022 opening ceremony bootmaker revealed

07/02/2022

Australian cattle herd to increase in 2022
Funding continues for India's leather and footwear programme
Beef volumes down but value up for Tyson
Students reinterpret Tod's leather and footwear

04/02/2022

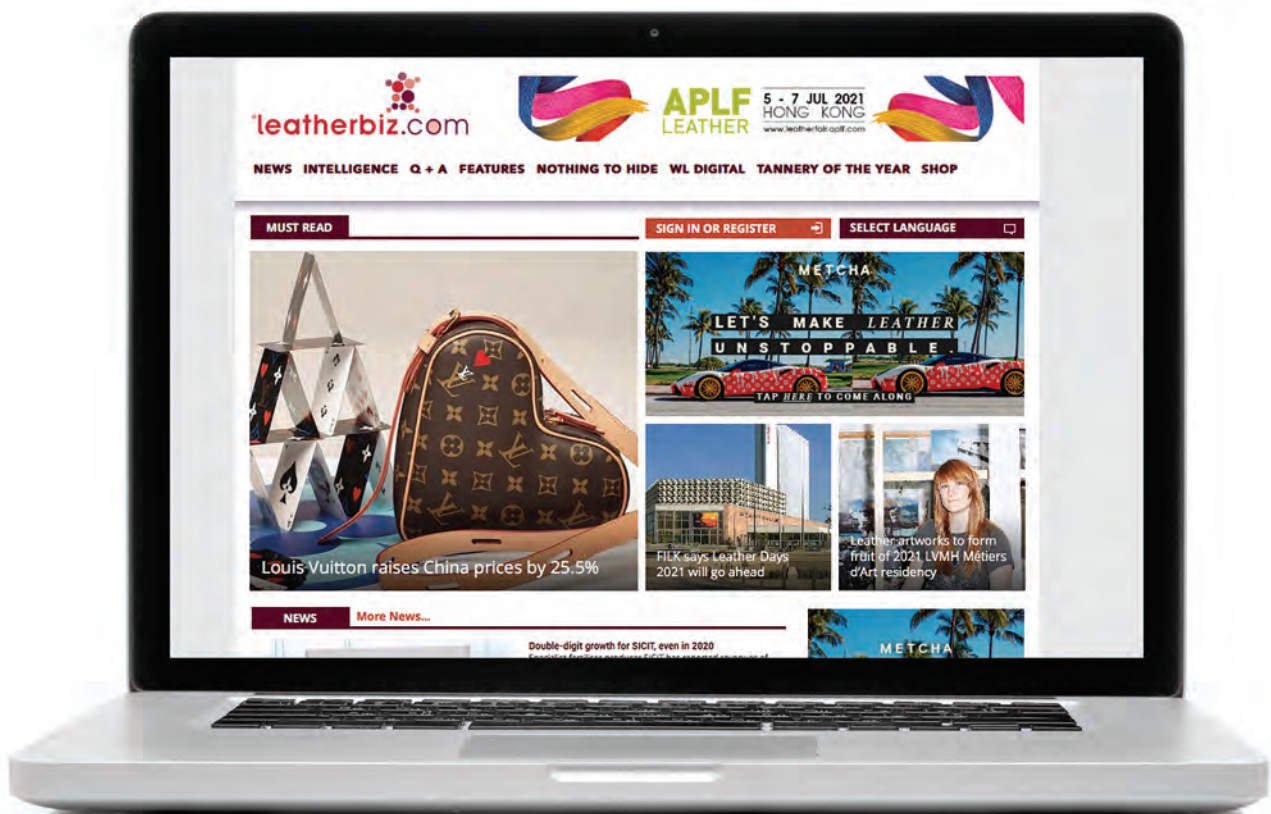
Japanese company revives deer and boar leather
Most Admired Company inclusion for automotive leather maker

03/02/2022

Third annual fundraising round for Metcha under way
Price matters in luxury leathergoods too
Leather lends weight to CPHFW collections
Bright future for Capri

02/02/2022

Secondhand luxury goods arena expands
Danger to leather from "zombie data"
More designers creating luxury from waste



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Franco Gabrielli, president of Assopellettieri, the main industry body for Italy's leathers goods manufacturers, has launched Mipel Lab as a new way to present the talent of member companies to some of the biggest names in luxury.

A share of the spoils

As Italy's leather accessories manufacturers emerge from the covid-19 pandemic, how important is it for them to be entrepreneurial?

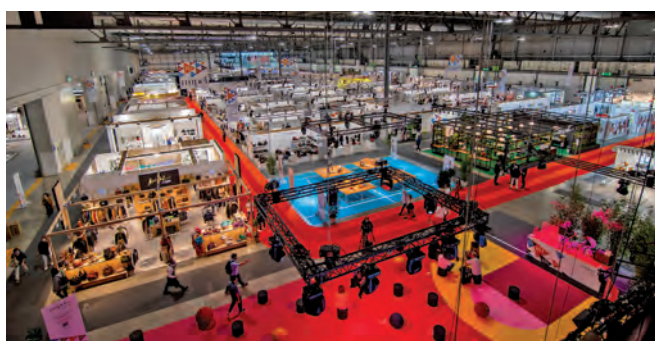
Italy is strong in producing leathers goods for brands and supplying them well. We have the skills and the know-how for making the products for the big luxury groups in France, while what they know how to do is to create successful brands. We are in a time of recovery, but we have the wind in our sails now. The funding we receive from the European Union will be well spent in Italy and this will help us. Our current prime minister, Mario Draghi, is a serious person who does what he says he will do.

If Assopellettieri member companies, especially the smaller ones, want to make recovery a priority, will they find the time, the budget, the vision and the energy to develop a strategy for digitalisation and internationalisation?

Our association is important in this. We have to stay together to achieve these aims. We have just had to confront a big problem, covid-19, and I think people understand now that they can't face these things alone. The recovery fund [Italy will receive more than €190 billion in grants and loans] can help us invest in new, digital infrastructure and new technology. Something I think is really important is that most of our member companies are small. Some of them don't understand digital very well. And, yes, it would be difficult for a small company with a turnover of, say, €3 million to make some of the necessary investments on its own. But the association can drive the development and help these companies become competitive in e-commerce. There can be benefits for everyone.

Mipel Lab is an initiative Assopellettieri launched last year to help Italian leathers goods manufacturers become outsource suppliers to brands at home and overseas. How does Mipel Lab work? Do brands choose specific suppliers to work with or does Assopellettieri conduct a dialogue with customers to understand their requirements and then invite its member companies to bid for the contract?

The idea is to present our best manufacturers to brands, digitally and physically at exhibitions such as Lineapelle. Brands come to Lineapelle to find leather and, with Mipel Lab, they can find a finished-product partner, too, all in the same place. We have a team of five people checking every company to make sure only the best in sustainability and quality are part of this. Two of the five are from Assopellettieri, but three are from outside: one from professional services firm EY, one from Italy's institute for certifying the quality of leather, ICEC, and one from the organisers of the Lineapelle exhibition. We had 13 member companies take part in Mipel Lab at Lineapelle in September and increased this to 16 at the February edition. In time, we want this figure to reach around 50 companies and hope to open it up on the digital side.



The Mipel exhibition has been running for 60 years and will continue. Assopellettieri says that Mipel Lab is something new for a new generation.
ALL CREDITS: ASSOPELLETTIERI

How can you be sure the system will be fair?

It will be fair because we will share the work. Some of our companies are already producing for big brands and are very busy. It's simply not possible for those busy companies to take on all of the new contracts Mipel Lab will generate because they do not have the capacity to take the work on. It's about sharing Italy's status as the best place for the big brands to turn to for the supply of high-quality leathers goods that tick all the boxes.

Will the leathers goods manufacturers in Italy who are already working in this way, as outsource suppliers to big-name brands, want to have competition from other manufacturers in Italy through Mipel Lab?

Mipel Lab will be like a club and the club will provide a service to the brands, but the brands, for their part, will need to show the same commitment to artisanship as our companies have. We can't have a situation in which the brands think they can get away with demanding the quality and flexibility that Italian companies can offer them and paying a pittance for them. Our flexibility will help the brands give a quicker response to consumers. Many consumers don't want to wait three years for a bag.

What reaction has Assopellettieri received already since announcing the Mipel Lab idea?

Our member companies have responded very well and we are happy with the companies we have found. The Mipel exhibition has been running for 60 years, with the 121st edition of the event taking place March 13-15. At Lineapelle in February, we had Mipel Lab number two. It's something new for a new generation and it's good that Mipel can come up with something new after all these years. We want them to continue to exhibit at Mipel, but small companies exerting too much effort to build up their own brands all of the time is misguided. They can split it 50-50. They can spend half their time making good products for good partners for a good price, and the other half working on their own brands. ☺

“Many consumers don’t want to wait three years for a bag”

Franco Gabbrielli, President of Assopellettieri





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Nothing to Hide: Chrome in leather manufacture: part two



Executive summary

The most common method used throughout the world for tanning leather is known as chrome tannage. Approximately 85% of all leather is manufactured using this process, and it has been established for more than 160 years. Essay eight focused on the two forms of chromium compounds that the leather industry must take into account, Cr(III) and Cr(VI), and on the equilibrium between them.

In essay nine, our attention turns more towards the way these two forms of chromium compounds behave and the potential effect they can have on human health.

It concludes that, based on science, Cr(III) is not a hazard to consumers or to the workforce in the concentrations used in leather manufacture.

With Cr(VI), however, the picture is more complicated. There are three hazardous risks for which any chemical manufacturer use must be assessed. It is important to know if they are sensitising, carcinogenic or mutagenic. Hexavalent chromium, Cr(VI), presents all three hazardous risks in certain concentrations, but it is reasonable to say that, based on science, any acute toxicity risk from leather can be excluded. It is far beyond any relevant consumer risk.

Assessments show that Cr(VI) is rated as carcinogenic, but only by inhalation (an important workforce safety factor). And, although it is likely to affect a small percentage of people (smaller than for many other substances) Cr(VI) can also be a sensitising allergen.

All chemicals need to be handled with care. The chromium compounds leather manufacturers use are no exception. 🌱

About this essay

We first published essay nine in the Nothing To Hide series in the June-July 2015 issue of *World Leather*, the second of two essays on the subject of the use of chrome in leather manufacture. Its main author was Dr Dietrich Tegtmeier in his capacity as the then chair of the research commission of the International Union of Leather Technologists and Chemists Societies (IULTCS). Dr Tegtmeier is now the global head of business development and industry relations at leather chemicals group TFL. In 2015, he held a similar position at Lanxess and acknowledged the contribution that his colleague Dr Martin Kleban had made to the original essays. We, in turn, want to acknowledge the input we have received from Eurofins-BLC Leather Technology Centre, and especially from technical manager, Georgina Mawer, in updating essays eight and nine.

PHOTO CREDIT: SHUTTERSTOCK.COM



Chrome ore is extracted from mines like this one in Turkey. The mineral is used by a host of industries including leather tanning.

PHOTO CREDIT: SHUTTERSTOCK.COM

Nothing to Hide:

Specific issues with hexavalent chromium compounds

We set out the chemistry concerning the equilibrium of chromium in the trivalent [Cr(III)] and hexavalent [Cr(VI)] forms in the updated version of essay number eight, the first two in the Nothing to Hide series that focus on chromium in leather manufacture. Based on this, a realistic assessment is set down here in essay nine concerning any risk that chromium in leather could pose to consumers. The original author of essays eight and nine, which we first published in 2015, was Dr Dietrich Tegtmeier, vice-president of the International Union of Leather Technologists and Chemists Societies (IULTCS).

It is clear that trivalent chromium, Cr(III), the form of chromium used in leather manufacture, does not present any risk. This is stated in the REACh Annex XV Report, chapter B 5.8 (ECHA 2011). Cr(III) in the concentrations used in leather is not classified as sensitising, carcinogenic or mutagenic. Hexavalent chromium, Cr(VI), presents all three hazardous risks, even in small dosage amounts. It is a strong allergen, is toxic and is classified as carcinogenic and mutagenic Category I if inhaled. A summary of these details is set out in *Panel 1*.

If leather were to contain significant amounts of Cr(VI) there would be a potential risk, and this needs to be scientifically assessed.

Toxicity of Cr(VI)

It is important to understand the general logic regarding all harmful and hazardous chemicals. Many chemicals are classified as more or less hazardous, but to evaluate a true risk there is always a need to correlate the toxicity with the exposure of the chemical in its specific application. This is not specific to some hazardous chemicals—it applies to all chemicals. This is because, at some point of exposure, all substances can become harmful or even hazardous. This logic needs to be kept in mind when evaluating the toxicity of Cr(VI).

There is the classic example of table salt, sodium chloride. This chemical is necessary for life; however, in excess, it is hazardous to

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health and potentially even life-threatening. The same is true of essential vitamins. So, when considering if common salt or a specific vitamin is a health risk, it depends on the level of exposure. Our bodies cannot survive without salt or vitamins; it cannot survive without chromium either.

Based on animal studies there is always a lethal upper level and a lower “no effect” level, and these levels are defined. The life-threatening level, which is called the lethal dose (LD50 in mg/kg), is set by a 50% mortality rate when rats are fed with this dose level per kilo of body weight. The lower level is called the No Observed Adverse Effect Level (NOAEL), which marks the level of no toxicity concern.

Today, there is a reasonably good database available regarding the toxicity of Cr(VI). Most of this information is generated from studies based on mammals, and it is widely believed that these results are largely transferrable to humans. Based on this information, a simple calculation shows that if a piece of leather were to contain 10ppm of Cr(VI), then the NOAEL and, particularly, the LD50 levels are far above any potential scenario that could be of concern to consumers. Theoretically, a

Panel 1: Cr(III) in leather is not a hazard for either the consumer or workforce

Important human health hazard assessments of Chromium		
Cr(III)	→ Sensitisation	No sensitiser
	→ Acute toxicity	Nothing harmful, depending on exposure or compound
	→ Carcinogenicity	Non CMR
Cr(VI)	→ Sensitisation	Sensitiser
	→ Acute toxicity	Toxic
	→ Carcinogenicity	Carcinogenic and mutagenic

Panel 2: Based on the current state of science, acute Cr(VI) toxicity seems to be far from a relevant leather consumer risk

Chromium (VI): acute toxicity		
- Consumer or worker safety is not the issue of an individual chemical, but of its exposure - Only risk assessment can lead to “safe” data > Lethal Dose (LD) thresholds and No Observed Adverse Effect Level (NOAEL) - There is a reasonably good database available on toxicokinetics of Cr (VI) for animals - Only a few data are available for humans, but there is potential that they are generally likely to behave in a similar manner.		
Model: 1 pair of shoes > ~ 2 sq.ft leather 2 sq.ft leather > ~ 200g weight	LD 50, oral:	74mg/kg* bw (26mg Cr(VI)/kg bw = 1.8g/70kg) > 1.8g = 2mg/pair x900
Reasonable worst case scenario: 10ppm Cr(VI) > 2mg/pair of shoes	NOAEL:	2.5mg/kg* bw (1mg Cr(VI)/kg bw = 70mg/70kg) > 70mg = 2mg/pair x35
	LD 50, dermal:	1150mg/kg* bw (410mg Cr(VI)/kg bw = 28mg/70kg) > 28mg = 2mg/pair x14.000

*Data for potassium dichlorate: ECB, 2005 and EFA Integrated Risk Information System, 2002



An important safety factor for workers in tanneries is that Cr(VI) is rated as carcinogenic Category I by inhalation. This means vapour, dust or smoke containing Cr(VI) is of relevance and care and proper procedures are required.

PHOTO CREDIT: WTP

person would have to eat 35 pairs of shoes with this level of contamination to be in an area above NOAEL and potentially be affected. It is reasonable to say that, based on science, an acute Cr(VI) toxicity risk from chromium-tanned leather can be excluded. It is far beyond any relevant consumer risk, and these details are summarised in *Panel 2*.

Carcinogenic and mutagenic risks of Cr(VI)

A different viewpoint is needed concerning the risk of carcinogenicity and mutagenicity. Here currently no NOAELs are defined, although a discussion around this is ongoing and involves the United States Environmental Protection Agency (EPA) and the European Chemicals Agency (ECHA). However, in the science of today it is simply seen as a “yes or no” fact if a chemical is classified as carcinogenic and mutagenic or not.

Based on these assessments Cr(VI) is rated as carcinogenic Category I, but only by inhalation. This means vapour, dust or smoke containing Cr(VI) is of relevance. This is an important safety fact for workers in the

electroplating industry or for people who perform welding of stainless steel.

Regarding leather, a one-time exposure to smoke containing Cr(VI), such as might come from burning leather, would probably be comparable in terms of cancer risk to smoking a single cigarette or breathing diesel exhaust in a traffic jam. Even in such an extreme case, it is fair to say that, based on the current science, there is a minimal measurable risk of Cr(VI) carcinogenicity from the wearing of or even (in the case of babies, for example) having oral contact with chrome-tanned leather. These details are summarised in *Panel 3*.

Cr(VI) as a sensitising allergen

Finally, there is the important issue of sensitisation, which we must discuss as Cr(VI) is known to be a strong allergen. This is set down in literature (Integrated Risk Information System, EPA: www.epa.gov/iris/subst/0144.htm), where in the first step of a possible contact (induction), Cr(VI) is absorbed into the skin and triggers the next step, an immune response (sensitisation).

Individuals that are sensitised will then exhibit an allergic contact dermatitis



Any leather manufacturer can prevent the formation of chromium (VI) in finished leather using standard technologies.

PHOTO CREDIT: WTP

Panel 3: Based on the current state of science acute Cr(VI) carcinogenicity seems to be far from a relevant leather consumer risk

Chromium (VI): cancerogenicity	
- There is never a NOAEL for carcinogenic and mutagenic substances (CM) - Animal carcinogenicity studies done with Cr(VI) clearly indicate lung tumour in rats and mice by inhalation or intrabronchial implementation - There is a good reason to be concerned about a carcinogenic potential of Cr(VI) by inhalation for humans - Carcinogenicity study data for the oral and dermal routes on Cr(VI) compounds are not available*	
- Chromium (VI) is classified as Cat. I carcinogenic by inhalation - Concerns about cancerogenicity of Cr(VI) do not apply to leather consumer articles, since such effects require inhalative exposure	

*REACH Annex XV Report, Kap. B 5.8 [ECGA 2011]

Panel 4: Statistics show that Cr(VI) is not the outstanding concern for dermatitis sensitisation as often claimed in public

Study in Germany to investigate the Cr(VI) sensitising potential*			
28, 000 patients tested over a period of 5 years 85 with a background in leather and shoes 30 people with special test "leather"			
Findings - From 80 million ca. 6000 report a severe foot dermatitis 350 (<5 ppm of population) reacted to Cr (VI) - Ca. 4 times as many reacted to other chemicals used in leather			
test substance	average population	background leather & shoes	special test leather
nickel sulfate	18	21	
potassium dichromate	6	13	4
glutaraldehyde	5	16	27
formaldehyde	3	5	
mercaptobenzothiazole	1	5	10
phenylenediamine	5	10	
Σ non chromate	100	155	

Source: Information network since early 1990s, 5 year report: Koch et al., Dermatosen in Beruf & Umwelt, 1996

*selected results from the 5 year report; percentage of skin reaction to test substance

response when exposed to chromium above their threshold level. This threshold level (or the non-sensitising effect level) is in a range of several ppm of Cr(VI). This means that a sensitive person can theoretically be affected by leather, which contains these amounts of Cr(VI).

In reality, we can state that leather has been used as the main substrate for shoe manufacturing for millennia and for skin-contact leathergoods such as watchstraps for decades; scientific investigations have shown that the percentage of the population that is hypersensitive to Cr(VI) is low. It appears that there is a mechanism in place so that the risk of contact dermatitis is minimised.

One of the reasons for this could relate to an equilibrium between Cr(III) and Cr(VI), and environmental reduction, where trivalent Cr(III) is formed prior to contact and penetration of the skin. This equilibrium is discussed in Nothing to Hide essay eight. In the event of this mechanism, the remaining amount of Cr(VI) will be below an observed

effect level. This is a possible and logical theoretical explanation based on scientific observations, although it is not yet proven to be scientifically correct.

As mentioned above, according to several scientific studies, the number of people that are hypersensitive to Cr(VI) is low. Official numbers refer to 0.4 % of the population who may react to chromium. This is in the same range as sensitisation against many other metals. For example, allergic reactions to gold and nickel are respectively four times and more than 10 times higher than for Cr(VI). It is also a magnitude lower than allergic cases against certain foods, such as lactose. Known cases in today's population are not a great concern, despite certain media claims. Standard leather manufacturing practices and technologies are known to avoid the formation of Cr(VI), although the subject should always be the focus of further research and development. An overview of this is given in *Panel 4*.



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Based on science, we can exclude the risk of an acute Cr(VI) toxicity from chromium-tanned leather.

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The detection of Cr(VI)

It is the objective of leather manufacturers to protect consumers from Cr(VI) exposure by producing leathers that are free of Cr(VI). Every detection method proposed so far applies to extracts from a sample of leather.

In the test procedures, a phosphate-buffered solution at pH 8, as set down in ISO 17075, has been selected to avoid any reduction of Cr(VI) during extraction. If, however, the leather contains traces of oxidising substances in parallel with chromium it is possible that the oxidation only takes place in the extract. In this event, the result of the determination does not indicate the concentration of Cr(VI) in the leather itself but the concentration of the oxidiser, thus producing a false high reading.

Moreover, these conditions of extraction do not reflect the conditions of consumer exposure. Conditions that would better simulate consumer exposure would be an extraction with an artificial sweat solution of pH 5.5. Under these conditions an oxidation within the extract is much less likely but, if traces of a reducing chemical are present, a reduction of Cr(VI) cannot be excluded.

This means that the concentration in one of those extracts is not necessarily identical to the situation in the leather. Moreover, if the conditions from ISO 17075 are applied to the analysis, it is important that the extractions are assessed at their real concentrations and not diluted. This pre-condition does not change, even if a detection method is applied that is more sensitive than the current means of determination. It is also important to recognise that the minimum detection value from this analysis is 3 ppm, so any values set below this limit are not detectable.

Summary and conclusion

This essay aims to set out a balanced, scientific view on potential risks of chromium in leather, and contradicts many opinions that have been reported. Regarding Cr(III), the report REACh Annex XV Report, Chapter B 5.8 (ECHA 2011), states that there are no reasonable issues with Cr(III) in leather.

According to a scientific investigation by the EU, (Chrome6less project: see Nothing to Hide essay eight), the formation of chromium (VI) in finished leather can be efficiently prevented using standard technologies that are available to every tanner. Even if small amounts of Cr(VI) are found in leather, modelling clearly shows that any consumer risk in terms of toxicity and cancer can be excluded. Moreover, the results from possible exposure scenarios are far below any detectable risk for a consumer wearing a garment made out of a leather substrate.

There remains a potential allergy risk for a small percentage of the population if leather were to contain some Cr(VI). But it should be remembered that leather has remained as a material of choice for consumer applications for many centuries, and throughout this time there has been a high level of direct contact between leather and people's skin. In this situation, the level of chromium hypersensitivity cases is very low and less than the number of cases of a reaction to many other common products, including gold, nickel, some food ingredients, grass, or special organic compounds. ☺

Credits

The two Nothing To Hide essays on chrome are based on a presentation entitled Chromium and Leather Research: A balanced view of scientific facts and figures. This was presented to the International Union of Leather Technologists and Chemists Societies (IULTCS) Congress, Istanbul 2013, by Dr Dietrich Tegtmeier. We also acknowledge and are grateful for the contribution Dr Martin Kleban made to both essays.



There is a risk of allergic reaction among a very small percentage of people, and leather has remained as a material of choice for consumer applications, including shoes for many centuries, with a high level of direct contact between leather and human skin.

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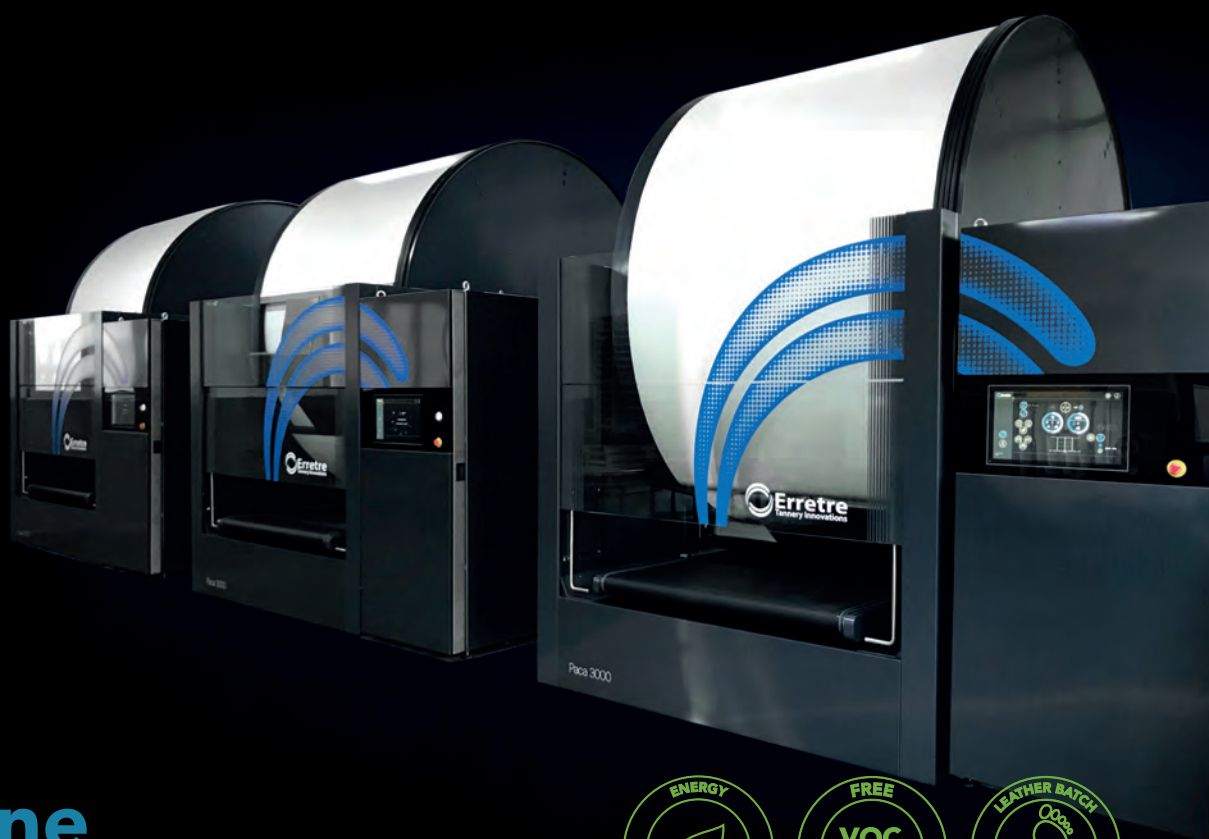
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Examining ways to reduce methane emissions from cattle

A new study initiated by JBS, in cooperation with the Animal Husbandry Institute of the Department of Agriculture and Supply of the state of São Paulo and Silvateam of Italy, is designed to see how tannins could reduce methane gas emissions from cattle.

With the global population set to reach an estimated 10 billion people by 2050, action on climate change with rising populations has pushed the livestock industry to improve their sustainability objectives in reducing greenhouse gas (GHG) emissions. Whilst there is an argument to say that livestock are the tip of the iceberg when it comes to GHGs, ruminants are nevertheless major contributors to the agricultural sector's emissions and, according to the FAO, account for almost 6% of the global anthropogenic GHG emissions.

Towards the end of last year, JBS, the world's second-largest food company, and the Animal Husbandry Institute of the Department of Agriculture and Supply of the state of São Paulo, formalised a partnership with plant-based extracts producer Silvateam. The aim of the collaboration is to contribute to developing studies into the reduction of greenhouse gas emissions in the beef supply chain. One of the first studies will look at tannins, where they are known to reduce methane gas emissions by improving the efficiency of the fermentation process from the animal's diet.

With COP 26 last November highlighting the need to limit climate change, secure net-zero by mid-century and keep the target of 1.5°C within reach, JBS chief executive, Gilberto Tomazoni, mentioned the project during a debate on CNN Brasil at the time of the international climate conference.

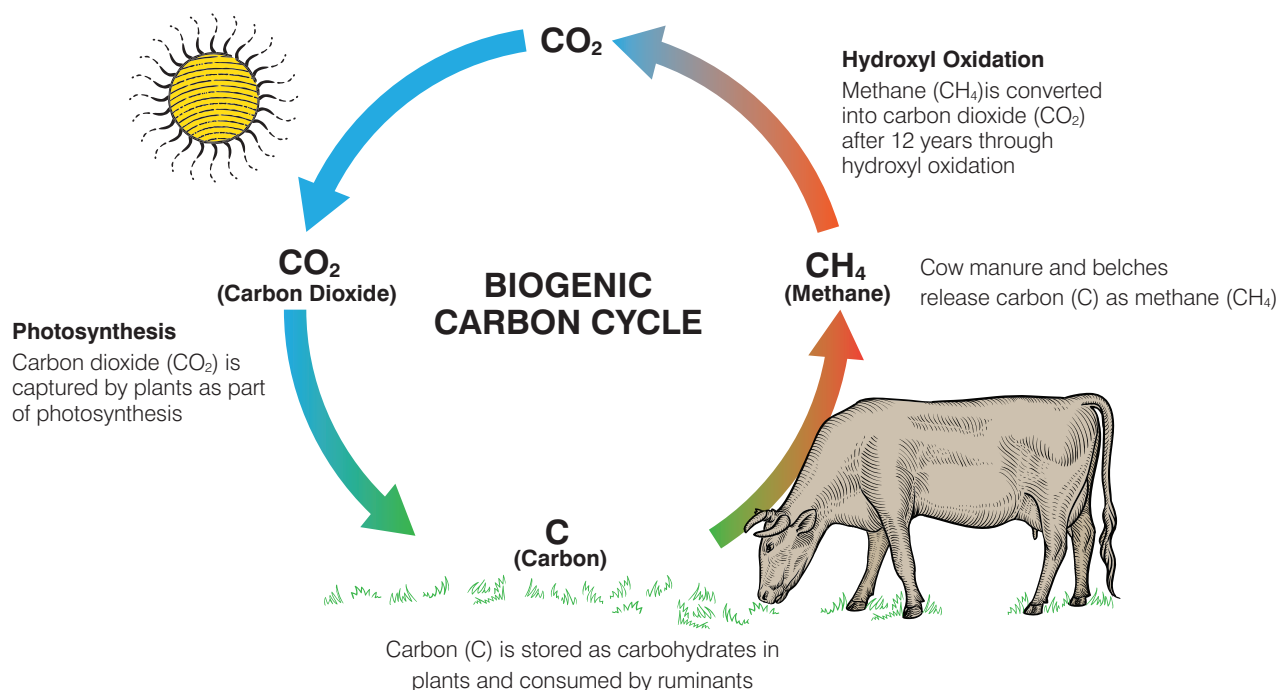
Mr Tomazoni said there was hope that the project could lead to a 40% reduction in methane emissions. He added: "People say that if you want to save the environment you had to reduce your consumption of meat. But that's not necessary. People can continue to have the pleasure of eating meat. Science will deliver the solutions we need."

With global acceptance for the need to limit climate change, no countries have, as yet, set any legally binding targets with specific reference to livestock, preferring to keep flexibility in mind as to how to reach their targets. For instance, the UK's target of net zero by 2050, a binding commitment, sets no specific farming targets, only stating that by 2030, 75% of farmers in England will be engaging with low carbon practices. Scottish plans include reducing emissions from farming to 9% below 2018 levels by 2032 but

It's all a cycle

Greenhouse gases and their planet warming abilities are undeniable fact. What needs careful understanding is that not all GHGs are equal. Whilst the GWP100 standard is used to determine how greenhouse gases warm the planet, it does not take into consideration the timescale that the gases are “active”, nor does it specifically recognise the cyclical nature of them. Whilst

CO₂ is long lived in the atmosphere, methane lasts for around a decade and, being biogenic, is returned to the cycle as CO₂. However, unlike fossil carbon, biogenic carbon (from the breakdown of methane) is not continually adding to the system so, provided herd numbers stay static, in real terms, the overall emissions also stay static. In effect, the cattle are recycling the carbon over time.



again no specifics. The closest any European country has come is Denmark, passing a legally binding target to reduce climate emissions in the agricultural sector by a minimum of 55% by 2030 (as compared to 1990 levels). On the other side of the Atlantic, the US sees agricultural GHGs dwarfed by the sheer volume of fossil fuels that are adding to the nation's emissions. Compared to the global average of 14% “human induced” climate emissions, only 4% are attributable to cattle and other ruminants, with this dropping to just 2% when looking specifically at beef cattle. That said, the state of California has set a target to reduce emissions from the livestock sector by 40% (on 2013 levels) by 2030 – a target it is not currently on course to achieve.

As the statement by the JBS chief executive would suggest, Brazil has argued heavily against UN recommendations for climate change practices through reduced meat consumption, as too has Argentina. This should come as no surprise though, as they are two of the largest beef and animal feed producing nations.

Tannins do not just make leather

World Leather has published many articles in relation to vegetable tannins, the century old cornerstone of traditional leather making, but for three decades, Silvateam, well known for supplying tanneries with their raw materials, has developed a market in the agricultural sector. Utilising the same PEFC origins, a broad range of products, based on

tannins, saponins, polyphenols and pectins, has been developed, specifically for its latest trials, Silvaeed BX.

This natural feed additive, derived from chestnut and quebracho tannins and saponins, is primarily used to improve the animal's gut health but also to increase the animal's productivity. By lessening the production of methane, a process that takes energy, various studies have shown that feed utilisation is increased. It is good news for farmers as this has a direct correlation to increased carcass weight.

Studies of ruminants' digestive systems, the rumen microbial ecosystem, are not totally understood but the methane inhibition afforded by tannins is most likely due to multiple factors, including the inhibition of methanogens and a decrease in H₂ production. For the saponins, these are known to be toxic to protozoa (present in the rumen) and studies have shown that they are symbiotically associated with methanogenic archaea, suggesting a link to methane reduction.

Worldwide studies

Initial work started on Silvaeed BX back in 2007, with a timeline covering participation in several international studies, looking at both dairy cows and beef cattle and the reduction in GHGs that tannins and saponins can achieve. By 2021 specific trials with the product were ongoing at various universities and institutions: an in vitro trial at the CSIC

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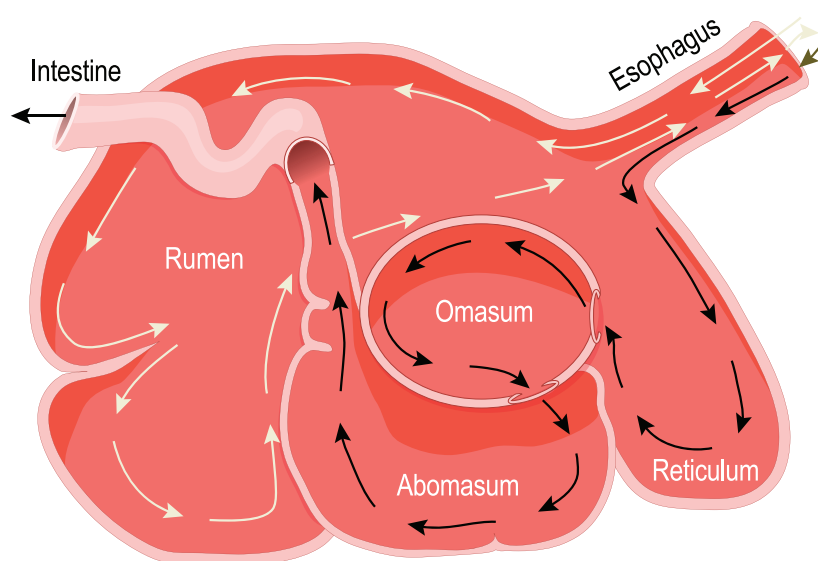
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What is a ruminant

Other than cows, animals such as sheep, goats and even giraffes are classed as ruminants. In simple terms, these animals chew plant-based food and regurgitate it numerous times to digest it. More specifically, these are animals with stomachs made up of four separate chambers. The first, the rumen, is where plants are initially broken down by a complex ecosystem of microorganisms such as bacteria, protozoa and fungi, to break down sugars, starch and cellulose. The second chamber, the reticulum, is where harder to digest material is stored and

allowed to regurgitate to be repeatedly chewed, physically breaking it down. The third chamber, called the omasum, is used to break down food even further and finally the fourth chamber, the abomasum, is where the nutrients are finally extracted from the food.

Through enteric fermentation, the action of the bacteria in the rumen and reticulum breaking down the complex carbohydrates of the plants into simple sugars, gases such as methane and carbon dioxide, are produced, the majority of which are released through belching but also through the manure.



The ruminant digestive system.

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(Spanish Research Council) of Granada, an in vivo trial at the University of Bologna in dairy cows, another in vivo trial at UC Davis in California in dairy cows, plus others in São Paulo, Georgia University, INTA Argentina and Colorado State University. For 2022, further trials are planned at the University of Bologna, an in vitro trial at Clemson University (South Carolina), and two in vivo trials at Colorado State University in beef cattle.

One of the most high profile proponents of animal agriculture and how it can actually play an important role in climate change, is Professor Frank Mitloehner of the University of California, Davis, one of the aforementioned institutions to have studied the feed additive. In previous statements, Professor Mitloehner has acknowledged that a 30% reduction in methane emissions from cattle would have a cooling effect, explaining that if cattle herd sizes remain constant, their methane emissions do not add to global warming as the methane they emit over a ten-year period would be equivalent to the methane that breaks down over that time. Reduce the methane cows emit over ten years and the amount that breaks down will be greater, decreasing the global warming effect of each herd. More recently, though, Professor Mitloehner pointed out that while the reduction in GHGs from agriculture is very much needed, they should not be seen as the silver bullet some would have us believe. Hyper-focusing on animal agriculture emissions at the expense of reductions in CO₂

may still leave us with a warmer planet.

Having been granted a Carbon Trust validation in March 2021, it confirmed that "Based on results from laboratory and on farm testing against a valid baseline, Silvafeed can reduce methane emissions in ruminant livestock". According to veterinarian Marcelo Manella, who is also technical director of ruminants at Silvateam, owner of the Silvafeed brand, the market demand for carbon neutral accreditation is a reality. "We were one of the first additives producers in the country to have this certification, which proves Silvafeed's commitment to cooperate with agriculture, so that there is an improvement in productivity and, consequently, the reduction of the environmental impact", he says. "Now, our goal is to become Net Zero by 2025."

Attempting to put a single figure on the methane reduction capabilities of the feed additive is almost impossible. Variability in breed, diet and dosage all play a part, but from all the laboratory tests and farm case studies, Silvateam, with their Silvafeed product, is confident about achieving up to 30% reductions. Studies have shown no known animal welfare risks or potential food safety risks. And with potential co-benefits from tannin/saponin-based feed additives such as improved protein supply plus a shift from urine to faecal excretion of nitrogen, it reduces the risk of N₂O emissions, another highly potent GHG. Silvafeed could well provide a safer and more acceptable solution over other feed additives — not to mention genetically modified cows. 🌱



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The scent of a new car – a geographical problem!

*Presenting to the XXXVI IULTCS congress, TFL Global Manager Automotive Fatliquors, **Rodolfo Ampuero**, made an interesting observation about interior car smell and why it seems to be an issue for Chinese consumers.*

In a 2019 study conducted by McKinsey & Company, China Auto Consumer Insights 2019, the Chinese automotive market had seen almost two decades of unbroken passenger car sales growth, reaching approximately 24 million units by 2017. Of these, 30% (8 million) were premium cars mostly upholstered with leather. By 2018, the growth pattern was broken but then, in 2021, sales jumped 13.7% in the first eight months when compared to the same period the previous year, as the market recovered from pandemic lows. It had been expected that 2021 growth would be slower than a previous forecast of 6.5%.

New car smell

In 2020, data analysts J D Power carried out the J.D. Power 2020 China Initial Quality Study (IQS). Research measuring initial vehicle quality examined problems experienced by new-vehicle owners, within the first two to six months of ownership. They make interesting reading:

- 10.4% related to unpleasant interior smell
- 7.1% excessive road noise
- 5.1% excessive fuel consumption
- 3.4% insufficient motor power
- 3.2% air conditioning problems
- 3.0% fan excessive noise
- 2.9% lack of soundproofing

- 2.6% USB port issues
- 2.5% front wipers not efficient

Further analysis highlighted four factors influencing the Chinese leather smell problem.

- Chinese pollution health fear
- Chinese cultural smell differences
- Environmental requirements
- Automotive requirements

Why are the Chinese particularly sensitive to odour in cars?

Health concerns: Due to extremely high levels of pollution in the country, lung cancer became the top cause of cancer-related deaths, with almost 50% of all cancer cases recorded as lung related. Further stark statistics claim four deaths every minute from a cancer related illness.

Smell is cultural: different cultures deal with smell and smelling differently. The sense of smell is a very subtle sense in the leather world. Being an almost “background” sense, it seems we do not spend much time paying attention to smells.

In context, the average person breathes approximately 23,000 times per day and circulates roughly 12m³ of air. Smells target the one sense that cannot be ignored, because you cannot stop breathing! However, losing the sense of smell can have a big impact on nutrition. It is an efficient warning device against contamination (recognition of spoiled

food) and brings us many pleasures, such as being able to enjoy our favourite foods. Believe it or not, smell can affect our psychological and physiological state. In biology, our olfactory receptor genes determine how we smell the world, and why we smell it differently to other people. To some extent, what we taste or smell is genetic. Perception of smell consists not only of the sensation of the odours themselves but of experiences, emotions or memories associated with these sensations. In other words, smell is cultural and it is why the Chinese smell things differently.

To summarise, olfactory sense is based on emotional associations through experience. Therefore, the typical leather smell in China is not culturally associated as pleasant.

[Editor's note: In Europe, the smell of leather has classically been associated with luxury and sophistication, including fine leather armchairs; the scent is even used in men's grooming accessories including shaving soaps and after-shave lotions.]

Environment: We have to ask ourselves, what has changed in leather processing over the last few decades to make leather more "smelly"?

There are two major drivers:

- **Ecological issues**, where the leather industry has evolved and become more respectful of the environment;
- Implementing float recycling systems or using water saving drums at slow rotation between 1.5-2 rpm, making the washing process less effective;

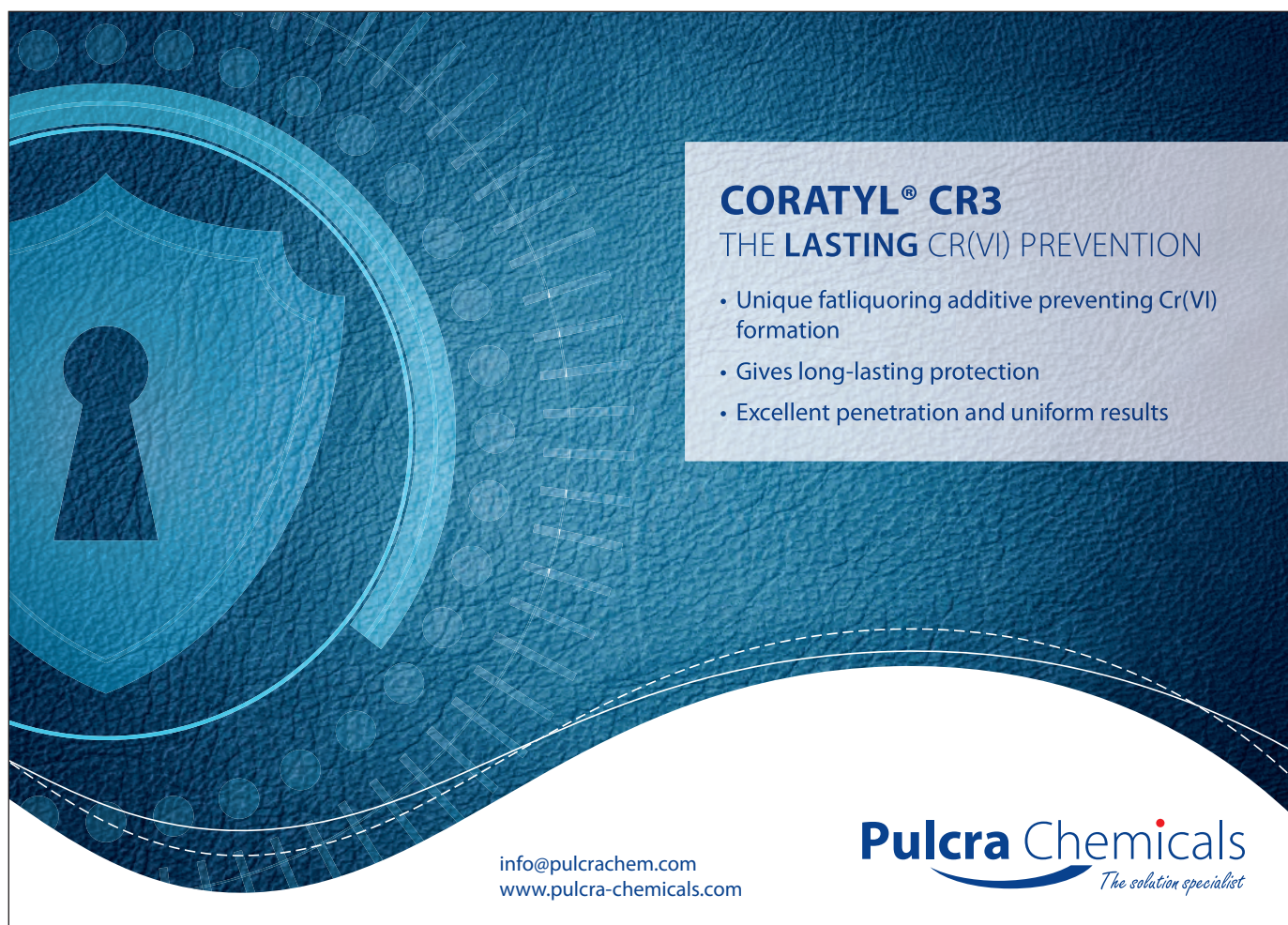
- Reducing energy consumption, for improved carbon footprint, through new technologies such "low temperature" drying systems from which many volatile chemicals are not released appropriately.
- **New automotive specifications**, to improve productivity and gain better tightness, e.g., the switch from lime splitting to full substance tanning in the early 90s. This important change made the degreasing process more difficult. In addition, there is the need to add more chemicals to speed up processes (acids in pickle) and keep to a 24-hour time frame;
- The evolution of car design has caused cars to heat up faster plus reach higher temperatures. Pushing car manufacturers to increase requirements on leather to be more resistant to the heat fastness, in particular on light-coloured articles. This has driven tanners to switch from natural tanning agents and oils to synthetic alternatives, changing the typical leather smell.

What are the typical characteristics of leather smell?

Typical leather smell is a mixture of many individual components, similar to perfume. Leather smell develops slowly after production, changes over time, is long lasting and influenced by humidity.

Leather smell evaluation

Smells in leather are evaluated by trained human panellists. Each car manufacturer has their own smell test specifications and there is very little or no correlation between them. All test



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methods measure the smell intensity rate, but some add the hedonic tone intensity (e.g. Toyota TSM 0505G).

In the absence of a machine that replaces the human nose, a smell test is a highly elusive phenomenon. Odours, unlike colours, for instance, cannot be named, at least not in European languages.

To add more complexity, each car manufacturer has its own criteria. Some of the companies are listed here:

VW:	leather seats have to smell like leather,
BMW:	the best smell is no smell,
Mercedes-Benz:	the only smell is leather,
Volvo:	to minimise all types of smells,
Audi:	"neutral smell",
Ford:	final aim, to avoid any type of smell.

Which are the most irritating compounds in car interiors?

The lower the odour threshold, the more problematical it is. From Low to High (1-8), odour thresholds are:

- 1 *Amines*: used in the beamhouse, such as dimethylamine or mercapto compounds or dyestuffs that have a pungent, fishy garbage odour,
- 2 *Ester compounds*: such as butylacetate used in finishing with an ether-like odour, making people feel dizzy,
- 3 *Aldehydes*: from tanning or the ones generated from fat oxidation with a pungent odour,
- 4 *Benzene compounds*: such as toluene from fatliquors or ethylbenzene, phenols from syntans, anthracene from carbon black-based pigments, naphthalene from

syntans impurities,

- 5 *Ketones*: such as cyclo hexanone used as solvent in finishing with a pungent taste and bad smell,
- 6 *Alcohols*: such as butanol or iso-butanol used as a solvent in finishing or butyl diglycol used in fatliquors with its inherent alcohol like smell,
- 7 *Naphtenic compounds*: such as hexadecane diol adipate used as a finishing binder, almost odourless above C11,
- 8 *Alkyl compounds*: such as di butyl phthalate used as a finishing binder or in fatliquor processing with gasoline-like sweet odour.

Coincidentally, almost all these chemical compounds are detected as volatile compounds in leather after conducting emissions tests.

How can we solve the smell problem?

Currently, automotive leather manufacturers are pushed into a very complex commercial decision. On the one hand, in the European market, the leather smell may be a key competitive advantage and inspire higher overall consumer satisfaction with the entire vehicle. On the other hand, unfortunately, for many of the car manufacturers "the best smell is no smell".

It is a very complex question to answer. Considering the reasons explained in this paper, the only way is to identify off-odours by analytical methods but also to identify the problems in leather processing — and finally to choose the right chemistry and processes in leather production. 🌐



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Spray solutions when space is at a premium

Focusing on a smaller footprint but without compromise on consistency or quality, Gemata's Spraystorm compact spray booth could be the answer.

Efficient use of space should always be a priority in the tannery. As more modern tanneries are built with open plan design, the choice of machines is somewhat endless. Unfortunately, not all tanneries have this luxury, with many needing to utilise the space they have available. Alternatively, the availability of a smaller footprint machine could just add the versatility to production that is needed without a complete tannery redesign.

With an offering of machines capable of tackling all sector requirements, from small skins to sides and full hides, the Spraystorm range runs eight guns in the 1800mm, 2200mm and 2600mm working width machines, moving up to 12 guns on the 3000mm, 3400mm and 3800mm width machines. Coming in at just under 2.25 metres in length for the three smaller working widths, the compact stainless-steel booths can be delivered to the tannery fully assembled, ready to be installed, not only saving space but also assembly time. For the larger machines, a length just a shade over three metres is by no means excessive and represents, on average, an almost 50% reduction in footprint area compared to some of the more traditional spray booths available on the market.

With multiline technology, each gun, running on an independent linear carriage, can be connected to different colours if required and are set up to work with various low-pressure methods, including HVLP and airless systems.

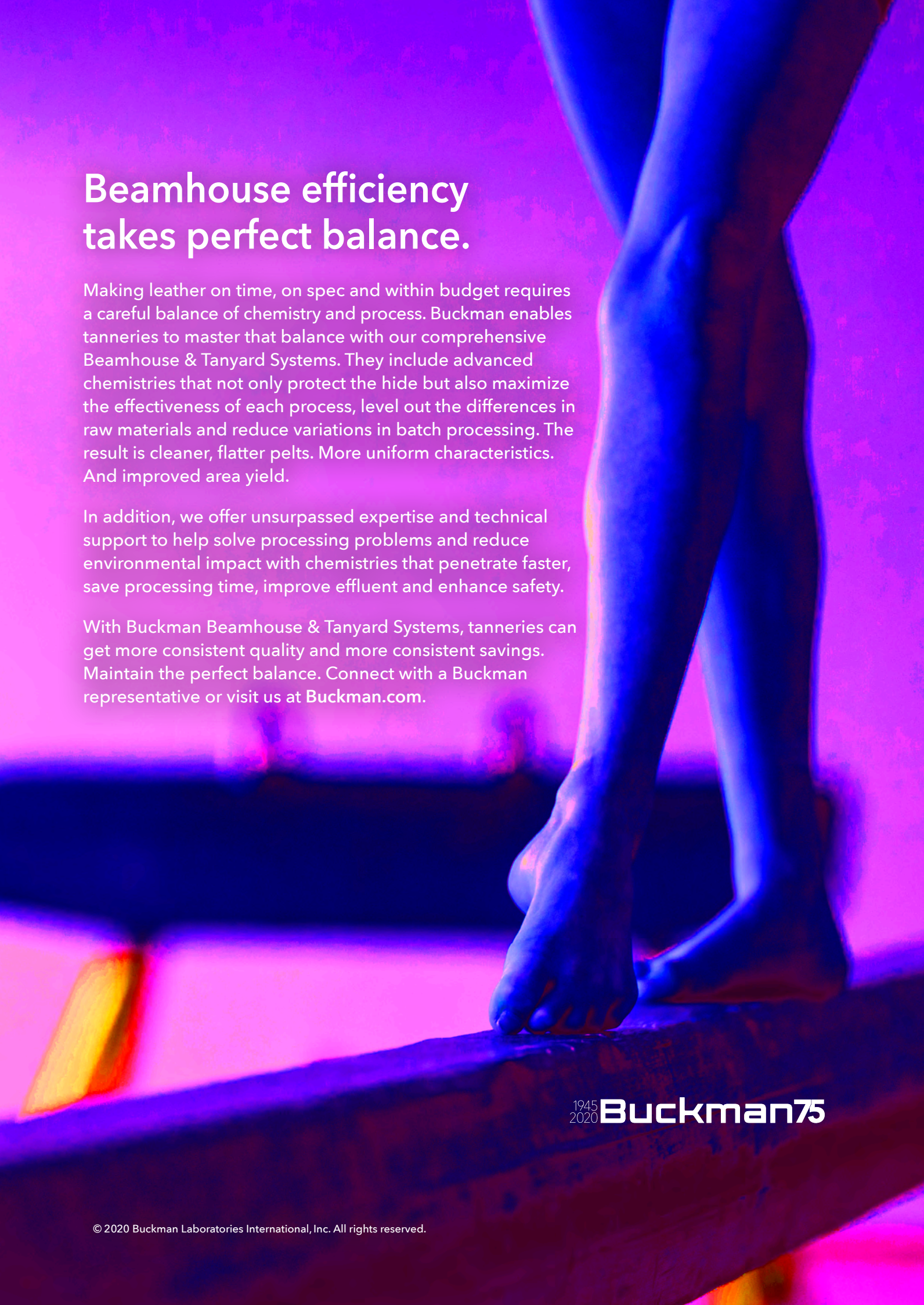
Being of small design, the cleaning operation is much improved as proximity of the guns when the cabinet is open allows for the operator to perform the cleaning operation externally from the cabinet with all guns presented at the same time; the residues collection tank bath is also easy to reach.



Housed in the space saving booth, linear carriage units are controlled by "Brushless" motors. Each arm can hold two guns, each with independent height and speed adjustment. ALL CREDITS: GEMATA

Not only does the smaller size improve its sustainability credentials through reduced wastewater loss, and improved scrubber extraction, the transition speed of the guns on the carriage is 33% slower than those on a traditional rotary spray booth, representing energy savings. Coupled with the absence of centrifugal influences, the working process can also be cheaper for the tannery and more sustainable for the environment.

With an improved economiser, (see *World Leather* August/September 2021) overspray is greatly reduced, helping to reduce both the environmental and economic impact. 🌱

A close-up, low-angle shot of a person's legs walking on a wooden plank. The person is wearing dark pants and light-colored sneakers. The background is a blurred outdoor setting with greenery and a fence. The lighting is bright, suggesting a sunny day.

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With Buckman Beamhouse & Tanyard Systems, tanneries can get more consistent quality and more consistent savings. Maintain the perfect balance. Connect with a Buckman representative or visit us at Buckman.com.

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Transparency in action

Following the model of the UN 2030 Agenda for Sustainable Development, the GSC group in Italy has published its first sustainability report covering the years 2019-2020.

With more than forty years of growth and investments, GSC has established itself on both national and international markets as one of the leading Italian companies for the production and supply of chemical products for the treatment of leather. Founded by Donato Serafini and Giovanni Giancesini in the Arzignano area in 1976, today it covers more than 30,000 square metres, and has an annual production of over 35,000 tons of powders, pigments and liquids (of which 35% is exported to international customers). It now employs more than 200 people and has a network of agents and distributors in 52 countries.

The company tag line of “For leather, for you” encapsulates the company's core business of chemical products for leather, as well as its attention to the customer and respect for the environment. The group's first Sustainability Report covers the three ESG factors (Environmental, Social and Governance) and provides a comprehensive account of progress in sustainable development. It also records all activities in this respect from the beginning of 2019 until the end of 2020, two years that are key to understanding its “green” identity.

2019 saw the highest turnover in the group's history, while 2020 was marked by the outbreak of the covid-19 pandemic, which, we understand, did not halt the race towards sustainable growth. That year saw a continuation of the trend of investment in new technologies and eco-sustainable projects, with new staff being recruited exclusively to carry out these activities.

Environmental responsibility: the carbon footprint Italy programme

In 2020, GSC became the first Italian leather chemicals company to join Carbon Footprint Italy, the Italian programme dedicated to communicating the results of the quantification of greenhouse gas (GHG) emissions of products and organisations and their reductions, by registering the company's ‘Carbon Footprint of Organisation’ or CFO. Companies and products registered can use a specific label developed for each different mode of participation in the programme. (See *World Leather* Dec20/Jan21 – IULTCS Overview). This study comprehensively accounts for all direct and indirect greenhouse gas emissions related to the group's activities, considering both the products’ manufacture and the supply chain, extraction of raw materials, waste management, and consumption in the use and end-of-life phases of items. This has enabled the company to set achievable medium-to-short term targets and to reaffirm its commitment to the European Union, while positioning itself as a major player in the production of tanning chemicals.



GSC group factory nestled in the foothills of Montebello Vicentino, in the province of Vicenza, close to the tanning district of Arzignano
ALL CREDITS: GSC

Environmental responsibility: “sustainable sourcing”

Sustainable sourcing refers to the optimisation of raw materials, energy, and resource depletion without compromising environmental, social and economic aspects. With a commitment to use resources as efficiently as possible, and with the circular economy and life cycle assessment approaches strongly implemented in the value chain, they expect to progressively reduce its environmental footprint as much as possible, with a target for carbon neutral status by the planning and execution of low carbon initiatives and the offset of carbon surplus by funding compensating projects.

The group's environmental management system, based on ISO 14001 and ISO 14067, is constantly evolving through the monitoring of energy and water consumption and the application of BAT (Best Available Techniques) throughout the production process. The sustainable approach, highlighted in the report toward responsible energy consumption, is manifested in investments in renewable energy sources. For many years the company has chosen solar power as an alternative form of energy supply and currently has approximately 5,000 square metres of solar panels that account for about 15% of their electricity needs. The intention is to increase this percentage in the years to come and to be less dependent on fossil fuels.

Aware of the enormous problem of water consumption and all its repercussions such as drought, contamination and depletion of aquifers, GSC is actively engaged in reducing the use of this commodity. With closed-loop systems ensuring the recirculation of water for several operations, and with some of it recycled into products, water consumption over the past four years has seen a reduction in total water withdrawal by approximately 10,000 cubic metres.



Environmentally friendly projects: LIFE GOAST Technology

Included in the report were a number of projects concerning the sustainability of chemical product categories and their application. The LIFE GOAST project (see *World Leather* Dec21/Jan22) is one such illustrated, belonging to the European LIFE programme that supports and promotes research and innovation on environmental and sustainability issues. GOAST — Green Organic Agents for Sustainable Tanneries — demonstrated the effectiveness and benefits, on an industrial scale, of a new metal-free tanning technology to produce leather for the automotive, upholstery and footwear sectors, presenting itself as a more sustainable alternative to the traditional chrome tanning process. GOAST technology is based on the use of a combination of different polymer-based compounds. The entire system aims to achieve a more sustainable tanning process in terms of the overall reduction of potentially hazardous substances, containment of environmental impacts, reduction of consumption of natural sources and simplification of the whole tanning process. This is an innovative tanning process that can be classified as metal-free. The resulting leather waste, being free of chrome and other heavy metals, can be completely recycled.

Low VOC

One research study regarding sustainable leather within the automotive industry concerned the production of low-emitting leather, a major problem that car interior producers are currently facing. The research focused on the study of volatile organic compounds (VOCs) for automotive upholstery leather finishing systems, aiming at their reduction without losing the original performance characteristics and properties of the leather. (See *World Leather* Aug/Sept 2021)



Management Board (L to R) Diego Cisco, Claudio Bartolati, Francesco Serafini, Adriano Serafini, Donato Serafini, Caterina Serafini, Nicola Lombardo, Giampietro Vignaga.

Looking to the future

With an average employee age of just 35, down to 31 in its R&D department, for which almost 10% of total expenditure was allocated in the reporting period, GSC believes there is longevity built into the workforce with a desire to move the company forward. This is further emphasised by the assertion that with their CEO, Adriano Serafini, being only 41, it has a leader who is well under the age of those in similar positions within the industry and, quite likely, below the average of the business sector in general “Our desire is to be the leading Italian company for leather chemicals recognised in the global market. We are investing a lot in R&D and we would like to keep our family and flexible approach,” Mr Serafini said. ☺

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Leather and the circular economy



Leather uses renewable raw materials



Waste from other sectors (meat and dairy) is the input for making leather



The material is long-lasting



Leather products are eminently repairable



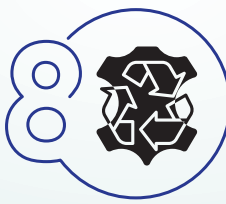
Leather is in keeping with sustainable consumption and sustainable production and, thus, supports the UN's Sustainable Development Goals (SDGs)



Use of leather aids the battle against marine pollution, also part of the SDGs



The leather industry opens up pathways into the circular economy for companies of all sizes, including many thousands of small and medium enterprises



Leather content fulfils finished product manufacturers' desire to use recycled material



Finished products made from leather will meet criteria for green tax relief and for green procurement exercises



Leather manufacturing supports green employment commitments

Credit: WTP/Flaticon

Greenwashing has got to go

The European Green Deal aims to smooth the path of industry towards a cleaner, greener and more circular economy. It underlines the importance of making it easy for consumers to make sustainable choices. This seems to spell the end for greenwashing, the practice of dressing products up to appear more sustainable than they really are. However, to remove the risk of the public being taken in by greenwashing, it is imperative to have reliable, comparable and verifiable information.

There is a story by Jorge Luis Borges, written in 1975, whose title translates as 'Utopia of a Tired Man', in which the narrator stumbles upon a gentleman who lives several centuries into the future. They reflect together on the differences between life in the narrator's time and the world to come. One observation is that in the second half of the twentieth century "people were naive; they believed that a product was good because the company that made the product asserted that it was good and kept repeating the message". Half a century on, it is clear that this tactic still works for many marketing teams, and that consumers need help in shaking off the naivety Borges refers to.

Exciting times

To this end, the European Commission has spent almost a decade now trying to create rules for calculating the product environmental footprint (PEF) of a wide range of consumer goods. The leather industry was an early participant in the

Years of work in the European Union to develop clear rules for calculating products' environmental footprint are nearing their conclusion. The leather industry was an early and ardent contributor to this effort, but there are fears now that labelling systems may still end up being unfair to natural materials.

pilot phase of the PEF programme, signing up in 2013. The industry's representative body in the European Union, COTANCE, worked hard for the next five years to collect data and formulate a method for using that data to calculate leather's environmental footprint. It won the approval of the European Commission for its pilot PEF in April 2018.

This was an exciting time because, using the newly official recognised method for calculating environmental footprint, leather came off significantly better than it does with the calculations that some finished-product brands and campaign groups have insisted on using for years, particularly with



“The positive benefits of natural fibres like leather are always overlooked. Systems that push manufacturing towards fossil-fuel based synthetics cannot be the answer.”

DR KERRY SENIOR, ICT

regard to the upstream carbon footprint of a hide. Some groups have used these inflated figures to argue against the use of leather in finished products or to justify a switch to synthetics. It looked in April 2018 to many in the leather industry that these older methods could never be used in any serious analysis again. Perhaps Borges would call us naive because this has turned out not to be the case.

Message unread

Paris-based footwear brand Veja ignored the European Commission-approved PEF category rules when it reported in 2021 that raw materials account for 71% of its total carbon footprint and that leather accounts for 97% of the impact of all of its raw materials. This is a long way from reflecting the European Commission-approved pilot PEF's attribution to leather of 0.42% of the upstream carbon footprint of a hide.

Likewise, the Sustainable Apparel Coalition ignored it when updating its influential Higg Materials Sustainability Index in 2020. Leather and other natural materials score badly in the index, while plastic-based synthetics are its shining stars. This spurred the secretary of the International Council of Tanners (ICT), Dr Kerry Senior, to say that the Higg re-jig had led to a negative perception of leather that does not reflect its sustainable, circular nature. He added: “We believe that the reputation and viability of leather and leather manufacturers are being unfairly damaged by an assessment that does not reflect the true nature of leather or, indeed, the alternatives.”

Recommendation time

In 2019, the European Commission announced that, with the pilot phase over, it would press ahead and prepare a formal recommendation on PEF category rules for the legislative bodies of the EU to consider and, it hopes, bring into law. The Commission completed its recommendation document in December 2021 and it is now a question of waiting to see when the legislative bodies can fit this into their agenda.

This should be good news. It should help bring the work begun in 2013 to a successful conclusion and oblige companies (not just ask them nicely) to measure accurately and communicate truthfully their environmental performance. As a result, competing in the market using sound environmental information will become part of the price companies from all over the world must pay if they want to sell to customers in the EU.

Open doors?

Putting all of this into the context of the Green Deal, as the Commission does in the recommendation document, it ought to open doors for a material that offers the recyclability, waste elimination, repairability, longevity, sustainability, ocean-protecting, small business-supporting,



The true face of labelling. Artist and leathersgoods designer Nadia Chellaoui proudly tells the world about the Moroccan artisans who make her bags by hand. Not everyone is this transparent.

Credit: Nadia Chellaoui

green procurement-assuring and green employment-stimulating characteristics of leather. But ICT's Dr Kerry Senior harbours reservations, and he is not alone.

In the build-up to the publication of the recommendation document, a new international coalition of organisations representing natural materials emerged, calling itself Make the Label Count (MTLC). At its launch last autumn, it said that the PEF methodology the European Commission is recommending is lacking in a number of key areas. Much has happened since 2013 to increase knowledge of the environmental impact of materials, MTLC has said. It adds that the EU's proposals are likely to set global standards for making clothes, shoes and other consumer products greener, and it insists that, to get this right, amendments to the methodology are needed. “The EU's proposals could deliver positive outcomes if the method behind them is amended,” the campaign group said at its launch. “We must act now and get it right, to ensure the claims that companies will use on their labels are credible and that consumers are not misled.” One clear example of this, MTLC says, is that the environmental impacts of microplastic pollution should be included in the PEF methodology. But the Commission's recommendation document makes no reference to this.

Kerry Senior says MTLC is correct to ask for this inclusion and other updates in the definitive labelling system that will come out of all these years of work. He has expressed concern that the PEF labelling system could even do more harm than good to suppliers of natural materials. Dr Senior concludes: “The positive benefits of natural fibres like leather are always overlooked, while their negative impact relative to synthetics is overstated. Systems that push manufacturing towards fossil-fuel based synthetics cannot be the answer.” 🌱

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Mario Draghi visits Ferragamo's factory near Florence. Leather and leather products manufacturers in Tuscany and across Italy can contribute to the country's green transition.

All Credits: Government of Italy

Road to recovery



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GREEN JOBS

The prime minister of Italy, Mario Draghi, delivered a message of hope to Tuscany's tanners and leathers goods manufacturers during official visits to the leather manufacturing cluster around Santa Croce sull'Arno and the famous area for finished leather products manufacturing near Florence, in late February.

Speaking at a reception in Florence afterwards, Mr Draghi said that production environment the leather industry has in Tuscany was a good example of the benefits that industrial activities can bring if they are properly rooted in local cultures. "This isn't only about links to external markets," the prime minister said, "but also about important links that these activities have with the local area. They are an expression of companies' willingness to invest in technology and in social capital, to take a long-term view."

Centuries of artisan craftsmanship

He went on to say that Tuscan companies' expertise in producing leathers goods exemplified this well. "The quality of the materials this sector uses helps to set it apart," he said,

Italy's leather sector, encouraged by recent comments from Prime Minister Mario Draghi, can be optimistic about contributing to the country's recovery from covid and to benefiting from a share of European Union funding that will aid that effort.

"and this is a benefit of being close to the Santa Croce tanning district. It also benefits from the high levels of skill and artisan craftsmanship that come from centuries of tradition, enriched further by creativity and by the research that the sector's academies and institutions carry out."

“The quality of the materials the leather sector in Tuscany uses helps to set it apart. This is a benefit of being close to the Santa Croce tanning district.”

MARIO DRAGHI, PRIME MINISTER OF ITALY

Mr Draghi said this combination of qualities had allowed the leather sector in Tuscany to almost quadruple its exports in the last 20 years. National leather industry association UNIC confirms this is correct. In 1999, Tuscany’s leather-sector exports brought in €2.6 billion. By 2019, this had grown to €7.9 billion. “And after the slowdown that resulted from the pandemic, this sector is now heading towards a new period of vigorous growth,” the prime minister concluded.

Green light for billions

Just a few days later, the European Commission announced “a positive preliminary assessment” of Italy’s bid to receive funding under the EU’s post-covid Recovery and Resilience Facility, part of its Next Generation EU fund, worth €750 billion in total. Italy will be the biggest single recipient of money from this fund; its share will be worth €191.5 billion in all, €68.9 billion in grants and €122.6 billion in loans. Italy has to meet more than 50 different targets and milestones to receive the whole amount, but the “preliminary assessment” announcement at the end of February cleared the way for the Mr Draghi’s government to receive an initial €21 billion and move forward with the country’s post-covid recovery. The president of the European Commission, Ursula von der Leyen, called this “an important step ahead” in the implementation of the Italian recovery plan. She said: “We consider that Italy has made good progress. So, as soon as this is approved by member states, Italy will receive €21 billion.”

Areas in which Italy must continue to make progress include reforms in public administration, public procurement, and in civil and criminal justice, as well as in helping businesses there advance in digitalisation and sustainability. These last two themes are at the core of how Italy’s leather sector can contribute to the country’s recovery, benefit from some of the funding the EU is providing and achieve the “new period of vigorous growth” towards which Mario Draghi has pointed.

Green transition

As in each EU member state that is eligible to receive recovery-plan funding, it was the authorities in Italy who designed their country’s plan, submitting it for the European Commission to assess in April 2021. In preparing it, they consulted widely with businesses and their social partners, regionally and nationally. The plan supports a “green transition” and the development of the circular economy. It also supports better use of technology in manufacturing and increased training in digital skills for the workforce. Almost 40% of the funding the plan attracts will go into “climate objectives” and 25% will go into projects that support the digital transition.



Prime Minister Mario Draghi has said the leather industry in Italy is heading into “a new period of vigorous growth”.

“Italy is on the road to recovery,” Mario Draghi said after visiting the Tuscan leather sector. “And the government will continue providing help to sectors that are in difficulty.”

An extraordinary opportunity

He spoke about the recovery plan as being something that presents opportunities to address challenges that the Italian economy has faced for decades, including gender and generational imbalances in the workplace, something many in manufacturing sectors believe digitalisation will help eradicate. He said the government would maintain close contact with regional authorities and industry organisations, adding that there was no “single recipe” for addressing the needs of all sectors or all parts of the country. Instead, he identified the need to adapt the measures the government can put in place to the requirements of different industries and different regions.

Italy’s Recovery and Resilience plan gives the government the possibility of carrying out “transformations that come from below,” Mr Draghi said, explaining that this means putting in place ideas for transforming different parts of the country and different industries that have come from the people who live and work in them. “This is why this is a truly extraordinary opportunity,” he said. 🌱

STARSPLIT



Photo: G. Maitan

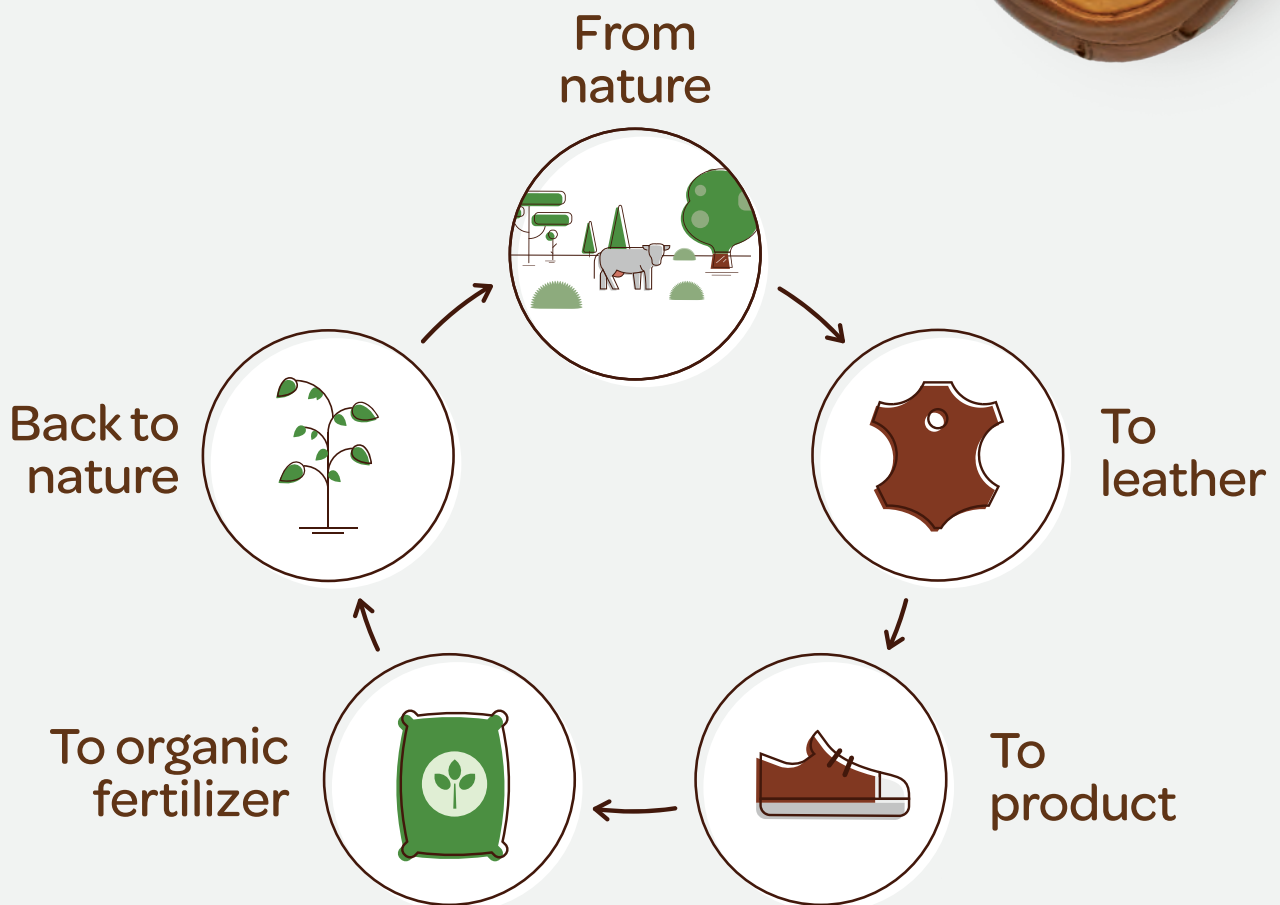
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Cultural ties



Existing links between the leather engineering department at Ege University in Turkey and the Auezov University in Kazakhstan became firmer at the end of 2021 and the start of this year when Ege's professor Eser Eke Bayramoğlu travelled east to teach and carry out technical research in Auezov's product technology and design departments.

In total, Dr Bayramoğlu spent a month there, teaching undergraduate, graduate and doctoral students and spending time with Auezov academics to help them prepare to put new impetus into their own leather teaching. She also ran a master-class in which the Kazakh students made leather bags. She says her visit to the university, which is in the city of Shymkent in the south of Kazakhstan, made her optimistic about the future of leather education in that part of the world.

Cross-border cooperation

There has been an agreement in place between the two universities for some years, with a steady flow of Kazakh students with an interest in leather travelling to Izmir to take part in the leather technology courses that Dr Bayramoğlu and her colleagues teach at Ege. One of those students has gone on to embark on an academic career of her own at Auezov and it was she who invited her former teacher to help the team in Shymkent push ahead. Cultural ties between the two countries are strong.

A one-month secondment to share some of her leather technology knowledge with staff and students at Auezov University in Kazakhstan was enough to convince Professor Eser Eke Bayramoğlu that the industry there has great potential.

The product technology and design departments she engaged with form part of Auezov's light industry faculty and their remit extends beyond leather. There is, for example, substantial interest in textiles, too. "The students there look at a whole range of materials," Dr Bayramoğlu says.

Equal opportunities

Something she found encouraging is that most of the students she encountered in Shymkent were women and, of a faculty staff of around 25 teachers, all but two were women. As Ege's and, she believes, the world's first female



Professor Eser Eke Bayramoğlu of Ege University in Turkey is optimistic that the leather industry in Kazakhstan can soar to new heights.

All Credits: Eser Bayramoğlu.

leather professor, a position she has held for the last seven years, this made an impression on her. Some of her temporary colleagues were involved in companies manufacturing clothing in the region around the city, which is the third-biggest in the country, and the visitor from Turkey was able to visit some of the production facilities.

In the course of the month, she was also able to visit one of the few tanneries operating in Kazakhstan at the moment, Turan Skin, which has offices in downtown Shymkent and a wet blue tannery in the Ontustik Special Economic Zone, 30 minutes' drive away. It specialises in high-quality bovine wet blue that goes, eventually, into footwear. "Kazakhstan could produce a huge amount of leather," Dr Bayramoğlu says, "but it needs more tanneries, good chemicals and skilled technicians."

Raw materials

According to the Food and Agriculture Organisation (FAO) of the United Nations, Kazakhstan's livestock and meat sectors produced just under 3 million cattle hides in 2020, just over 1 million goatskins and 7.5 million sheepskins. With a single-digit number of tanneries across the whole of this, the ninth-largest country in the world by area, and some of those very limited in their operations, there is clearly an excess of domestic raw material to go round.

This surplus would be even greater if there were scope for making Kazakh Cordovan leather from the many horse hides emanating from the country's abattoirs. FAO's figure for 2020 is that Kazakhstan processed more than 800,000 horses. Dr Bayramoğlu is unaware of any company using these hides, although she says she imagines many of them would show substantial cuts and other damage. Nevertheless, she says the frequency with which she was offered the national dish of Beshbarmak during her brief visit, with horse meat as the main ingredient (it can be made with mutton, lamb and other meats too) gave her an indication of how popular horse is there.

Positive outlook

Although leather is only part of the focus of the product technology and design team in Shymkent, and a relatively new part, Dr Bayramoğlu's conviction is that the university's work can help expand the industry in Kazakhstan. And continuing ties with



Dr Bayramoğlu (right) says Kazakhstan's leather sector has potential, but it needs more tanneries, more technicians and better access to high-quality chemicals.

Turkey can help that expansion, the professor says. Doctoral students continue to travel to Ege University from Kazakhstan and Dr Bayramoğlu is very confident of the positive impact these young academics will make when they go back to teach in institutions such as Auezov. "The teachers there are already positive," she says. "Kazakhs are positive people."

Her hope is that this positivity will encourage leather entrepreneurship among the young people these teachers host in their lecture rooms, leading to the setting up of leather and finished leathergoods manufacturers in the

country, the creation of jobs and value-generating new leases of life for the country's hides and skins. If a large proportion of the entrepreneurs are women, Dr Bayramoğlu and many others will view it as a bonus.

The size of the companies they create will not matter. One of the key criteria that support leather's status as an ideal fit for the circular economy is that it opens up pathways into circular-economy systems for all people and for companies of all sizes, including small and medium enterprises. This has happened already in many countries. It can happen in Kazakhstan too. 🌱



Most of the teachers and students Professor Bayramoğlu came into contact with during her month teaching at Auezov University were women.



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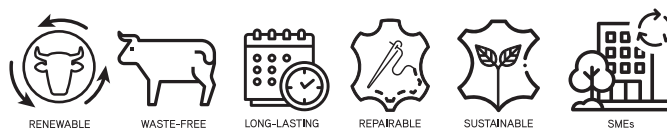


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The zero-waste generation



Designers and artists, especially those with small-scale and start-up operations, are making a commitment to zero-waste an integral part of their strategies. Tanners and many finished leather product brands are proud of preventing hides and skins, by-products of the farming, meat and dairy sectors, from going to waste. However, this is not enough for the bag brands set up in recent years by Bea Recoder in Paris and by Iseabal Hendry in the Highlands of Scotland, to name just two of the new zero-waste champions.

Inner workings

Originally from Spain, Bea Recoder has spent a decade in France building up experience in accessories design and leather sourcing. Chloé and Paco Rabanne are among the



Designer Bea Recoder wants to provide tanners everywhere with a good outlet for their deadstock leather.

Credit: Au Delà du Cuir

A group of accessories designers is emerging now with a commitment to zero-waste that is so intense, they are not just willing to use leather offcuts, but they prefer to use this previously undervalued material.

names on her CV. While continuing to work as a freelance designer and consultant for various luxury brands, she decided in February 2021 to launch her own brand, Studio Reco.

She decided from the outset to use her experience of the inner workings of tanneries and leathergoods brands to select as the raw material of her choice the leather deadstock she knew they had lying around in storerooms and warehouses. She also applied successfully to be part of the 2022 cohort of companies that Au Delà du Cuir (ADC) has taken under its wing for the next three years. ADC is an incubator body for leather-sector start-ups in France. It seeks to help these new businesses grow by tapping into the French leather sector's "knowledge patrimony".

To earn selection, start-ups have to convince the ADC jury that they are ambitious and capable of creating "unusual, desirable and creative" products. The jury's conclusion was that Bea Recoder and her bags tick these boxes. She makes her products by stitching together the pieces of leather she is able to source in a patchwork pattern, producing a slightly puffy effect. She says her commitment to using deadstock means she has no option but to make each style limited-edition. She has started out by working only with tanneries she knows well, but she hopes to expand her sourcing and, eventually, to provide a quality outlet for the deadstock of any quality tannery.

A table full of offcuts

Scottish designer Iseabal Hendry's first experience of working with deadstock leather came when she was studying embroidery as part of her course at Glasgow School of Art. In her second year, nearby leather manufacturer, Bridge of Weir Leather, part of the Scottish Leather Group, sponsored a sustainability project for the students and provided them with material to work with. "We were presented with a table full of leather offcuts," Ms Hendry recalls. "While everyone rushed to secure the largest pieces, I wondered what would happen to all the slivers of leather deemed too small to be useful. My practice originated as a means of using not just offcuts, but



Iseabal Hendry currently sources most of her leather from Tuscany but would like to find suppliers in the UK to lower her carbon footprint as much as possible.

Credit: Iseabal Hendry





Incubator programme Au Delà du Cuir wants participating start-ups to make unusual, desirable and creative products. These bags by Studio Reco fit the bill.

Credit: Au Delà du Cuir

the offcuts of the offcuts.” She worked by weaving and stitching these remnants together, combining the thin strips of leather with cotton. What has emerged from this is a distinctive woven look, inspired by traditional crafts such as basket weaving, roof thatching and even boat building that the designer witnessed and took part in while growing up in the Highlands. And it was to the Highlands she returned after her studies in Glasgow, setting up her business there and perfecting her technique.

Scottish intrecciato

She has now turned this Scottish intrecciato weaving into an interior design practice that centres on bespoke, leather framed panels and a bag collection that has caught the eye of The Crafts Council. This London-based organisation works in a broadly similar way to ADC in France, connecting with craft makers and businesses and helping them to grow. It has named a Top Ten Makers To Watch In 2022, calling them Rising Stars, and Iseabal Hendry is one of them. It also selected the Highland designer for its Crafting Business programme last year, a five-month business mentoring programme that Ms Hendry describes as “truly fantastic”.

She still receives some offcuts from the Scottish Leather Group and finds that these work particularly well in her interior design projects; it’s a good fit because each commission is unique and each of the offcuts is a one-off. Whole hides, though, that she sources from Tuscany make up the bulk of the raw material she uses in her accessories range. But her commitment to zero-waste remains as firm as ever; using her method, she can make use of practically all of these hides, “with almost no wastage”.

The beauty of the process

Tuscan tanners appeal to her because of the traditional commitment of many of them to using metal-free methods

for making leather. “It wasn’t until I found Tuscan veg-tan leather that I fully appreciated the beauty of the process,” she explains. “Working with leather that has no coatings to speak of, other than a natural oiled finish, means there’s no scope for hiding the natural appearance of the hide; the quality truly speaks for itself.” She is a supporter of the region’s veg-tanned leather consortium, the Consorzio Vera Pelle Italiana Conciata, and says she admires its commitment to sustainability, traceability, social responsibility, certification and to the circular economy.

Iseabal Hendry has said she would like, in future, to source veg-tanned leather from closer to home and is in the process of building up her connections with family-run companies from the UK. She has received some samples and carried out a series of early tests to see how well the material will fit into her way of working. “It’s very different from the Tuscan veg-tan I work with,” she says. “Most of the UK veg-tan leather I’ve sampled is saddlery and bridle leather. It’s a lot thicker than the supple, soft leather I use for accessories.”

She wants to support the UK leather industry and, in so doing, reduce her own carbon footprint as much as possible. She would like her suppliers to be family-run companies and for them to source traceable hides from farms that engage in regenerative practices. She anticipates that it may still take some time for her to source exactly what she’s looking for, but she will persist. 🌱



Scottish designer Iseabal Hendry has developed her own method of weaving thin strips of veg-tanned leather together with cotton yarn.

Credit: Iseabal Hendry

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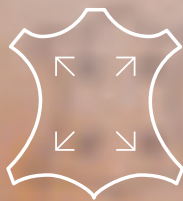
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Spray-on upholstery



Leather's inclusion in circular-economy initiatives is gaining traction if the first Limburg Circular Innovation Awards in the Netherlands are anything to go by. Two of the five finalists in the competition were users of leather and strong supporters of leather's circular-economy credentials.

This competition is a joint initiative that employers' organisation LWV, the Limburg provincial government, Rabobank and regional development agency LIOF have worked on together.

In contention

Shoe company Emma Safety Footwear was in the running with products such as its Amazone work boot. The laces are made from recycled PET and the leather in the boot comes from a Leather Working Group-certified tannery that converts cuttings and shavings into compost. The product comes with a material passport, which guarantees that Emma will take it back at the product's end-of-life for recycling. The shoe brand introduced its first range of circular safety shoes in 2018, outlining its vision of "an endless loop" for the materials it uses.

Also in contention was furniture company Cooloo, which

With deep roots in the furniture manufacturing sector, start-up Cooloo is making impressive inroads into the vibrant Dutch circular-economy scene with its innovative, waste-consuming leather upholstery.

uses leftover material from a variety of sources, including leather, with Ecco Leather prominent among its list of suppliers, to make sofas and chairs. Other materials it uses to complement the leather include old wine corks and stones from fruit. Cooloo says it makes its products to last, but also to be easy to repair and refurbish. In the build-up to the awards, its commercial and circular director, Ricco Fiorito, said he found the throwaway economy, fast



Cooloo's coatings spray onto objects of any shape or size, making it possible for the company to create durable, repairable furniture products like the Landscapes sofa.

Credit: Cooloo

fashion and plastic waste reprehensible. “Something has to change,” he insisted.

At the final in mid-February, the five contenders made their pitches to a panel of judges and Cooloo emerged as the winner, receiving the main prize of €3,000. On accepting the award, Ricco Fiorito said the recognition and the support of the regional authorities in Limburg were welcome, but he pointed out that the prize was reward for work that Cooloo has been carrying out for a number of years now.

Deep roots

Cooloo's own history dates back to 2013, although its roots in furniture manufacturing in the Netherlands are deeper. Founder, Leo Schraven, who has a mechanical and chemical background, had spent 22 years at the Leolux Furniture Group in Venlo before leaving there in 2006 to set up his own coatings company, Leolac. He ran Leolac until the launch of Cooloo. At first the new company operated as a consultancy, specialising in advising furniture producers about coatings. It brought in Ricco Fiorito, a mechanical engineer who had completed a Masters Degree in innovation sciences at the Technical University in Eindhoven, in 2016. By 2018, it had developed a method for using its coatings expertise to secure investors, establish a production facility, hire workers and start making furniture products of its own. This has been Cooloo's focus ever since, although it is now also interested in licensing its technology to allow manufacturers in other parts of the world to use it, too. It has recently embarked on an exercise to secure second-round investors and build a new, bigger, better factory on home soil.

Spray concept

During his time at Leolux, Leo Schraven began working on the concept of spraying upholstery leather onto furniture instead of upholstering in the classic way. Ricco Fiorito says of his colleague: “It was already his dream to spray leather, applying it in a seamless coat and abolishing inefficiencies such as stitching, which is hard on people and hard on the material. But he was general manager there and had too little time and too many other things to take care of to focus on this development.” This concept has come to life now at Cooloo, where the spray-coating idea is in use to create hard-wearing, repairable furniture products. So confident is the company of its products' reparability that it leases as well as sells furniture to customers. This works well for chairs and sofas that people can use in gardens, at pool-sides or on rooftops during warmer weather. Cooloo takes the products back for respraying and reconditioning after months of wear and tear, saving customers from having to worry about where and how to store the seats during the winter. If space allows, leaving the chairs out is also an option; they are robust enough.

Inroads into waste

The idea of spraying upholstery onto furniture came before there was much talk, even in the Netherlands, of the circular economy. Mr Schraven encountered discarded, unwanted material everywhere in the furniture industry and sought from the outset to cut down on waste and make the sector more sustainable. After meeting and partnering with Mr Fiorito, he became convinced that



Ricco Fiorito accepts the top prize at the 2022 Limburg Circular Innovation Awards.

Credit: Limburg Circular Innovation Award

Cooloo could do more than reduce the volume of waste that furniture producers were creating in their own production cycles. Consuming waste from other industries as raw material for the furniture was a further step forward and took the idea more fully into the circular-economy world.

“The concept of this technology was there already and we matched it to current times,” Mr Fiorito explains. “There is so much waste material lying around everywhere.” The company has developed its own machines for grinding some of this waste up, with leather one of the materials that is working particularly well. Future possibilities also include denim and other textiles. Ricco Fiorito believes leather manufacturers should invest in the technology to enable them to find a good use for their own shavings and offcuts. The sprayable leather coating they could then create would work well in seating for automotive or aviation and for accessories as well as in furniture, he thinks.

Another idea for the future is to be able to keep different colours of waste material separate and then grind up only red, only green and so on. Mr Fiorito explains that, for the moment, Cooloo simply has to take what it is given by tanneries and other suppliers and the upholstery materials it is able to develop from them turn out either grey or beige in colour.

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Leather waste is ground up to produce Cooloo's special spray coating.

Credit: Cooloo

In a bind

Key to the whole system is that Cooloo has developed its own water-based and volatile organic compound-free binder, which it can spray onto objects of any shape or size. Then, with another of its machines, it can apply ground-up fibres from waste onto the binder and build the coating up layer by layer. It has sanding techniques, too, that allow it to achieve a range of looks, feels and finishes. Cooloo likes its furniture products to have "a little bit of roughness" so that customers can feel texture, but Martindale tests produced samples in which a new, smooth leather layer emerged after sufficient rubbing. "Many of the fats and the oils are still present," Ricco Fiorito explains. "And the more you use it, the more beautiful it becomes. The leather fibres do not soak into the binder; they stay on top so it still feels like leather, and with time, you can achieve some nice, open, nubuck effects."

Use everything

His conviction is that anything that helps us make the best possible use of everything we have is good. If people continue to eat meat, hides will continue to accumulate and we have an obligation to use them. "We need to use everything we can find in this finite world," he says. "We are not in a position to be able to reject materials. Our technology can help companies in the leather industry make their production more sustainable and we want to get these

innovations out there as fast as possible for people to use. Then you can have impact."

Discussions about potential projects in India are already under way. "There is a lot of leather production there and a lot of waste," Mr Fiorito says. "Companies there should put their own leather waste to good use instead of throwing it away. For example, they would be able to use our technology to upgrade the appearance of leather from lower-end hides." Specific details he can share relate to a trial that Netherlands-based campaign group Solidaridad wants to set up in the leather cluster in Kolkata. Cooloo will transport one of its machines and the binder it has developed to the Indian city and then use the leather waste that local manufacturers produce to create coatings. Representatives of other Indian leather clusters and from Tata International are reportedly keen to see the results of this trial and may emulate Kolkata's example.

"If this works in India, we'll try to do the same in Africa and Latin America," he explains. "We have already proved that the technology works. We have furniture made using this method that has stayed outside for three or four years already. We know it works here in the Netherlands and want to see if it will work in other parts of the world too."

Meanwhile, back home, future circular economy competitions await. Winning in Limburg has paved the way for Cooloo to be one of ten finalists in a similar competition at national level in the spring. This builds on earlier achievements, including the Good Industrial Design award that the company picked up during Dutch Design Week 2020 for a chair called Ameba that North Brabant-based designer Hugo de Ruiter created in partnership with Cooloo. Competition success so far indicates to Mr Fiorito that people are now ready for new, circular ideas. He recalls the early days of visiting furniture exhibitions to display Cooloo products and seeing people react with incomprehension on learning that the company had sprayed leather and cork waste onto a sofa. Things have changed now, he says. 🌱

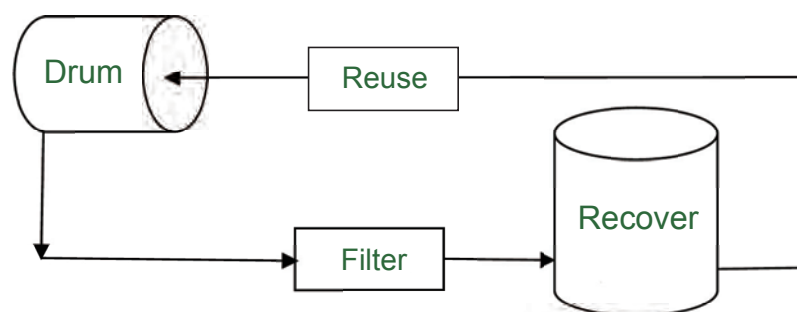


The Ameba chair that Dutch designer Hugo de Ruiter created in partnership with Cooloo won a Good Industrial Design award during Dutch Design Week in 2020.

Credit: Cooloo

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It takes a tattoo artist many hours to ink designs onto a collection of veg-tanned wallets. The leather is from a small, family run tannery in Tuscany.

CREDIT: BARNES AND MOORE

Patience pays off

It is very unusual for a tannery to create leathers using methods not much changed for hundreds of years, but this is precisely what sets J&FJ Baker apart. Most of the buildings and many of the processes are the same as they were when the family started the business in Devon, south England, in 1862. And the history goes back even further: there has been a tannery on the site since Roman times – the tanners and technicians following in footsteps potentially almost 2,000 years old.

Today's site has been updated and expanded, but the method remains largely unchanged. Bark is brought in from coppiced woods. The hides are sourced from beef cattle raised locally in Devon. Manpower is as important as machinery. "Our method of pit liming and pit tanning, using no mechanical action, produces leather with a beautiful grain," managing director Andrew Parr tells us. "It also has a very tight fibre structure, giving it strong tensile strength and making it hardwearing but light."

Leathergoods brand Barnes and Moore values the beauty that comes from slow, considered manufacturing – an ethos it has in common with its supplier, J&FJ Baker, a tannery whose leathers take 14 months to produce using traditional, time-honoured methods.

The raw hides arrive salted and are soaked in pits of lime and water to loosen the hair follicles for the dehairing and fleshing machines. Some are dehaired by hand in the traditional way, over a beam using a blade. The oak bark is chopped by hand and fed into the tanyard pits, creating liquor in which hides are gently washed for three months. They are moved by a 400-year-

old mechanism powered by a waterwheel, which grinds the bark into smaller pieces, and ensures an even tan. The hides are then layered on top of each other, with oak bark scattered between them, for another nine months.

After the tanning pits, special blends of fatliquors and oils are added, with the harness and stirrup leather further soaked in tallow and grease. The leather is dried in the drying shed, heated by a biomass boiler, which uses waste from the tannery to power it. Four coats of stain are added by hand to ensure a deep and even colour throughout the surface of the hide, and the hide is finished with oils.

As a comparison, at other tanneries, vegetable tanning with most pit systems takes around eight to 12 weeks. Combined systems using both pits and drums takes the process down to a couple of weeks and an all-drum set-up can complete the process within days. For other tannages, such as chrome and wet white, typically the tanneries will want to work on raw to wet blue or wet white in no more than 72 hours. Processing will also be quicker for the chrome and wet white.

At Bakers, some of the machines are more than 100 years old and keeping them in working order takes knowledgeable and skilled engineers, particularly as many of the parts are no longer manufactured. A decommissioned machine is often kept on site for parts and spares. This way of working is not without its challenges, admits Mr Parr, especially in cold weather. "The cold slows the whole process," he says. "And all labour has to be trained by us, as the skills needed are different from other tanneries."

However, this lengthy, laborious process protects the hides' skin's natural fibres, making the leather strong and hardwearing, producing a high-quality leather. "These features cannot be met by rapid veg tan methods," adds Mr Parr.

Gap in the market

This unique set of attributes appeals to shoemakers, furniture makers, equestrian companies and leathergoods brands, among them, Barnes and Moore, whose customers value the way the leather ages.

"Andrew Parr is totally hands on, and you'll often find him somewhere deep in the tannery, getting fully involved with the hard work that makes producing this leather possible," Barnes and Moore founder Steve Moss says. "We have total respect for that, and the fact that the dedication of the Bakers team makes it all possible in the 21st century."

Mr Moss's journey with leather started more than 15 years ago, when he was taught traditional leather techniques from saddlers in Walsall, an area in central England once famous for equestrian leathergoods and saddlemaking. He took up leathercrafting as a creative outlet and discovered it was therapeutic. Requests from friends and family, with glowing feedback, gave him the confidence to move into making full time, after determining a gap in the market. "The type of customer we appeal to is one that is focused on appreciation of craftsmanship and the resulting quality, rather than heavy branding and marketing," he explains.

Bags, belts and wallets are made at a studio in the Midlands. Each belt goes through 11 processes, with buckles crafted by hand at a local foundry. Bags combine waxed cotton, sail cloth and leathers, with wallet leather also sourced from tanneries

including Sweden's Tarnsjo, Horween in the US and Lo Stivale in Tuscany.

Claims of origin

Working with high quality materials, by hand, comes at a cost, which represents the craftsmanship and time taken to create high-quality goods. However, Mr Moss has noted several brands that are misleading people by falsely claiming that their goods are made in Britain, when they are headquartered here but manufactured overseas, where labour is cheaper.

"It's an all-too-common practice, as customers are being duped by the smoke and mirrors of misleading labelling and marketing," he says. "People feel reassured by the image of the Union Jack [flag] as part of a brand's identity. Many brands are operating in increasingly competitive mainstream markets where the costs of making their goods in the UK simply doesn't add up, hence the drive to outsource labour overseas. That's fine, but more transparency is needed to stop the public thinking that all brands are operating this way. Thankfully, in today's digital age, more and more people are becoming aware of companies who aren't telling the full story about the origin of their goods, and becoming more savvy about manufacturing generally."



Barnes and Moore founder Steve Moss has turned a passion into a business. Each item represents many hours of work.

CREDIT: BARNES AND MOORE



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The traditional oak bark tanning method is a slow and measured process. It does not use any chemicals, so there is no harmful effluent to dispose of. Waste that cannot be recycled is used to power heaters in the drying room.

CREDIT: F&J BAKER

Knowledge is power

This desire to know how and where things are made can only boost leather's credentials, if the story is told well. For tannery owner Andrew Parr, the fact that leather will never wear out and looks better as it ages needs to be better publicised – perhaps in a similar way to the Red Tractor campaign, which promotes quality in British food and drink. “Consumers should also be more aware of the sustainability of leather compared to man-made materials,” he adds. “The hides we use are a by-product of the meat industry. To dispose of them, other than tanning, would be a waste of a natural resource, as well as being environmentally unfriendly. The oak bark we use is a by-product of coppicing for charcoal. Coppice Oak regrows naturally from its roots and can be harvested every 15 to 20 years. This is done in rotation, thus keeping woods alive.”

Barnes & Moore anticipates slow but steady growth, with online sales, and goods available through selected retailers. It is working with new agents and retailers in Japan, China and Hong Kong, where customers value the attributes. “People there have a lot of respect for traditionally manufactured UK goods, they see the value in the craftsmanship and quality of materials, which makes English handmade items highly coveted,” says Mr Moss. The next focus will be the US.

Despite the challenges and the costs associated with this kind of labour-intensive manufacture, the future looks bright, as consumers increasingly value transparency in the supply chain and the honed skills, time and effort that goes into producing beautiful leather and leathergoods. “As long as we continue to make quality goods with premium materials,” says Mr Moss, “then the market will be open to support us.”

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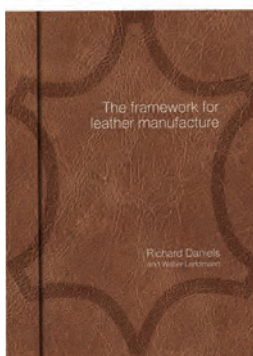
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