Indian Leather

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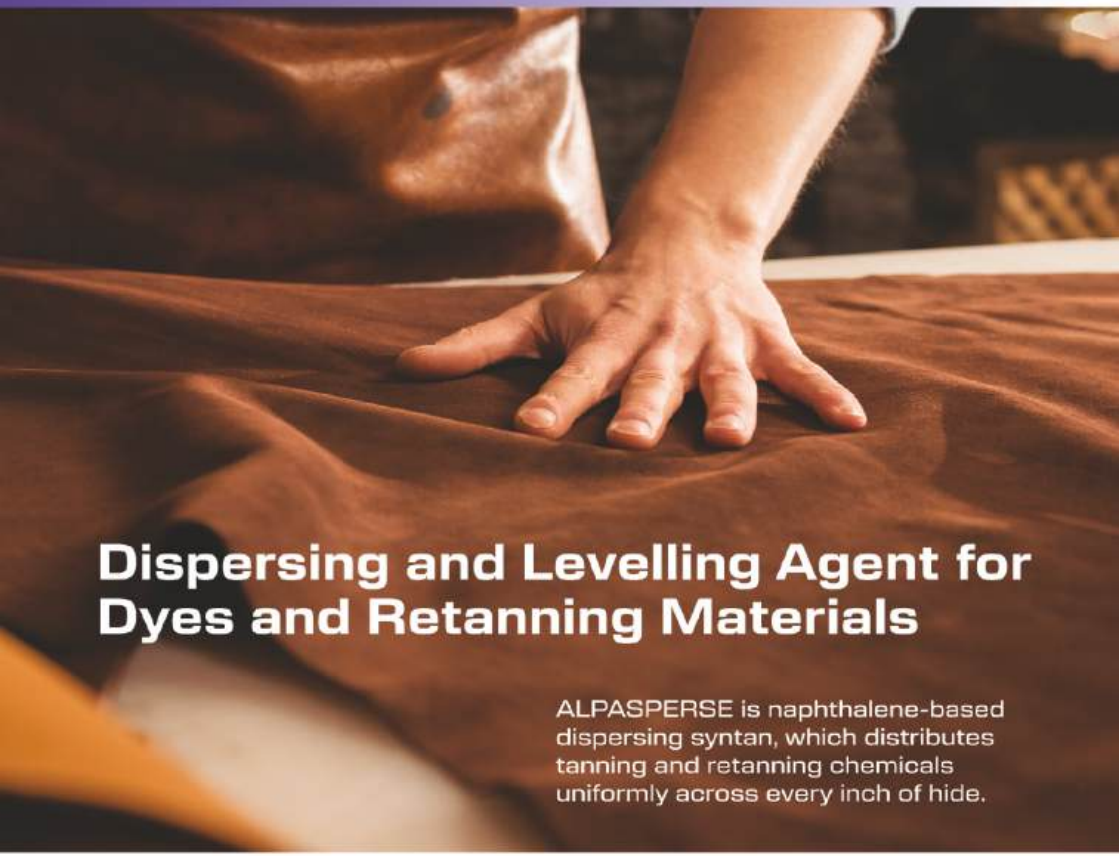

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The war between US-Israel and Iran has caused immense suffering in the world, impacting the global economy. The conflict has disrupted energy supplies, with the closing of the Strait of Hormuz, a critical shipping route, which handles about 20% of the global and liquefied natural gas flows, which led to a surge in energy prices, disrupting global supply chains and affecting countries worldwide, especially those reliant on Middle Eastern oil imports.

The war has gone too far, causing devastating human suffering and global economic repercussions. The economic fallout is significant with rising inflation, stunted growth and increased prices of food and other commodities. Countries like India, which imports most of its crude oil and natural gas, are worst affected

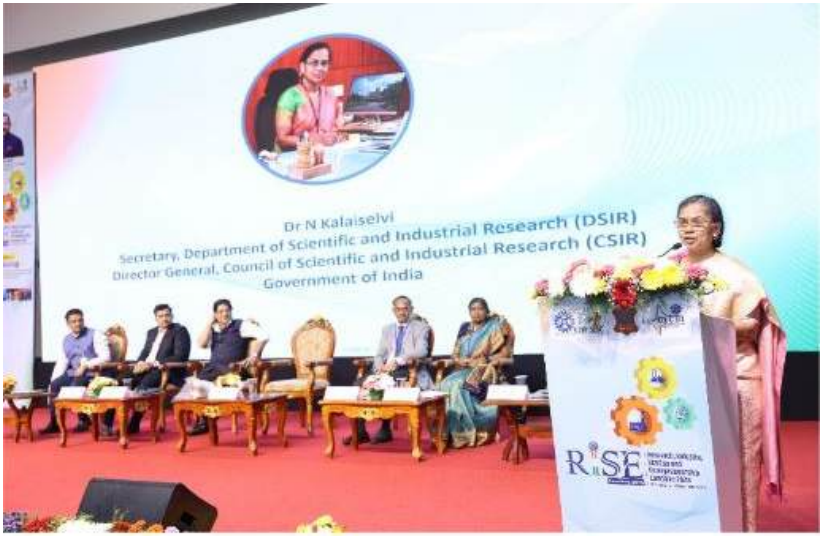
Leather industry leaders are calling this situation, a triple whammy, each blow reinforcing the other. The first is the cost of petroleum based raw materials, like PU, PVC, EVA, Solvents, Resins etc. have gone very high. Second is said to be the supply disruption as many inputs are imported from EU, and the third is the currency depreciation which makes these inputs still costlier.

It is feared raw material cost would increase 15-20% due to the spike in petroleum based inputs, as the synthetic soles alone account for nearly 30% of a shoe's cost and that non-leather footwear would have to brace even bigger hit.

According to the reports, the war situation remains fluid, the diplomatic efforts are underway. The global markets are on the edge, waiting for a breakthrough in the US-Iran conflict.

RISE Conclave 2026 concludes on a High Note, Reinforcing Research - Industry - Startup Synergy

The Research, Industry, Startup and Entrepreneurship (RISE) Conclave 2026 concluded with remarkable energy and purpose at the Chennai Trade Centre, marking two days of vibrant dialogue, strategic networking, and forward-looking collaborations. The conclave stood as a powerful testament to India's collective resolve to transform research excellence into real-world impact, in alignment with the national vision of Viksit Bharat 2047.



The event brought together thought leaders from academia, premier research laboratories, industry, and the startup ecosystem to deliberate on strengthening partnerships that accelerate innovation-led growth. A central theme that resonated throughout the sessions was the urgent need to translate research outcomes into scalable technologies and commercially viable solutions that can drive national development.

Delivering the Presidential Address, N. Kalaiselvi, Director General of Council of Scientific and Industrial Research (CSIR) and Secretary, DSIR, emphasized the importance of building integrated innovation ecosystems. She highlighted that collaborative research and cross-sector partnerships are vital to strengthening India's scientific leadership and technological self-reliance.

In his welcome address, Dr. P. Thanikaivelan, Director of CSIR-Central Leather Research Institute (CSIR-CLRI), underscored the transformative potential of stronger academia–industry linkages. He reiterated that national progress depends on seamless collaboration between knowledge creators and technology adopters.

Providing an overview of the conclave, Dr.(Smt.)N. Anandavalli, Director of CSIR-Structural Engineering Research Centre (CSIR-SERC) and Coordinating Director, CSIR Madras Complex, highlighted the event's focused mission: to build enduring partnerships that convert laboratory research into industry-ready solutions.

The industry sessions were equally dynamic, featuring leaders who shared practical insights on systems engineering, advanced construction technologies, innovation management, and startup journeys. Speakers including Mr. Prasanna Ramamurthy (Collins Aerospace & INCOSE India), Mr. C.Y. Shivaji (Larsen & Toubro Ltd.), Mr. Sathish Priyadarshini (Dextra India), and Mr. Sunil S. Nair (Magic Myna) emphasized that sustained industry engagement is crucial for accelerating technology adoption, scaling innovation, and fostering entrepreneurship.

A major highlight of the conclave was the vibrant Startup Expo, which witnessed participation from over 140 startups and MSMEs built around technologies developed at CSIR-SERC, CSIR-CLRI and CSIR-CECRI. The expo showcased cutting-edge solutions spanning multiple sectors, reflecting the growing strength of India's deep-tech startup ecosystem.

In his closing remarks at the Academy–Institute–Industry Partnership session, Dr. K. Ramesha, Director of CSIR-CECRI, expressed sincere appreciation to the dignitaries, speakers, innovators, and participants for their valuable contributions to the conclave's success. The session concluded with the presentation of mementoes and a formal vote of thanks.

B.Tech students also organized a pitch battle to showcase their entrepreneurial abilities, with leading entrepreneurs evaluating their ideas and performance.

The two-day RISE Conclave 2026 culminated with closing remarks by Dr. K. J. Sreeram, Outstanding Scientist, CSIR and former Director of CSIR-CLRI, who reaffirmed the collective national resolve to foster a dynamic innovation ecosystem where research excellence, industry expertise, and entrepreneurial spirit unite to drive India's sustainable and inclusive growth.

Back to School Column

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Vegetable Tanning – Part II –Tanning methods

The previous article in the column dealt with introduction to vegetable tanning with a brief discussion on vegetable tanning materials, their classification and their chemistry and properties. The history of evolution of vegetable tanning in Europe and E I tanning in India was also outlined. This article will discuss the production of vegetable tanning extracts/powders from plant materials including modification and other interventions to improve the quality with the most important tanning materials. The principles of vegetable tanning with a detailed discussion on various factors involved in the process would also be dealt with in this article.

Production of vegetable tannin extracts/spray dried powders

The need for reducing duration of vegetable tanning (rapid methods) due to economical consideration had necessitated the use of ready-to-use solid extracts and spray dried powders. Improvements in equipment, especially the modern evaporation technologies are effectively used for production of such products in more facile manner today. The different steps involved in the process are outlined here.

As mentioned earlier in the previous article, tannins may occur in almost any part of the plant but the major plant materials of commercial importance are bark, wood, fruit/nut or leaf (probably restricted to sumac).

Preparation of plant materials for leaching

The first step in the process is to prepare the plant materials (mainly assorting and size reduction) in order to improve the efficiency of extraction and reducing the process time. This is necessary to

reduce loss of tannins due to extended period of extraction and microbial deterioration apart from economical consideration. Chopping, shredding and grinding are carried out to improve the tannin leaching.

Leaching/Extraction

Basically the leaching of tannins is carried out using hot water (40-80^{o}C) with the temperature chosen carefully based on the type of equipment used and to prevent loss of tannins. This is carried out in a series of vessels/vats (6 to 10) involving counter current system. In modern factories, a set of autoclaves which are operated at high temperature (~120^{o} C) under pressure with mechanical handling systems is used to effect leaching in short time. Vessels/vats are (traditionally) made of copper and wood but modern equipment use stainless steel, polypropylene or glass reinforced plastics. The higher the temperature, extraction may be easier but the temperature has to be chosen based on the hydrolyzing tendency of tanning materials as well as to ensure nonleaching of unwanted components which might increase the insolubles in the extract, which would pose difficulty in penetration during tanning. Condensed tannins are generally relatively heat stable but they tend to oxidize at high temperatures especially in the presence of oxygen. Hence the modern units employ autoclaves which can be operated at temperatures above the boiling point of water, e.g., ~120^{o}C under pressure. Autoclaves are best suited for tanning materials which are difficult to extract like heartwoods and barks thus shortening the leaching duration. The tan liquors obtained are also more concentrated with reduction in the evaporation cost. Another advantage is that the conveyance of tan liquors from one vessel to another can be improved by pumping under pressure.

Counter current system of leaching

Leaching/Extraction of tannins is carried out using a countercurrent system. Hot water (~3 times the weight of material (soft water as much as possible to avoid calcium) is added to the vessel containing

the almost fully-extracted material first and the liquor either run by gravity or pumped from vat to vat until it is collected from a vat containing fresh material. The spent material is rejected at interval, the vat is filled with fresh material and the process continued by adding hot water to the next most spent vat. The tan liquors are clarified in settling tanks to remove any particulate tanning materials before taken for further processing.

Evaporation

Leached Liquors usually contain <20% solids and hence require evaporation to 40-50% solids before sale or conversion into solid extracts/spray dried powers. In modern factories this is achieved using climbing film evaporators (usually multi stage). The heat damage is minimized in such evaporation as the contact time is low and process is also efficient.

Final Drying

Most major tanning materials are now available in powder form. Powder tannins are produced by evaporation using spray drying, and usually contain 95% solids content. But solid extracts are also still produced using solid evaporators or vacuum pans to obtain a viscous liquid containing <20% moisture. This is collected into bags and cooled to solid blocks.

Modification of vegetable tannins

Vegetable tannins are treated/modified to improve the properties such as color, prevention of metal contamination, improvement in solubility/reducing insolubles and adjustment of acidity and acid-salt balance.

Treatment for Metallic Contamination

Iron contamination is a common problem with vegetable tannins as the iron-tannin complex is bluish or bluish green in color which is undesirable. Even small amount of iron contamination will give a greyish tone to vegetable tannin extracts/powders downgrading the quality. In order to take care of this problem, sequestering/chelating

ligands such as EDTA and oxalic acids are used. EDTA can take care of calcium and magnesium contamination from mainly water (hardness) as well. These cations will tend to increase the insolubles in the extracts as tannates formed are insoluble.

Modification for Color Improvement

Treatment/modification to improve color of the tannins includes addition of metal ions in suitable form or treatment with bleaching agents. Common metal additives include aluminium and titanium compounds which impart golden yellow color to the tannin extracts.

Common bleaching agents used for color improvement include sodium bisulfite, meta bisulfite in combination with formic acid (to form dithionite/hydros in solution) or hydros directly (very unstable with poor keeping quality and expensive).

Hydrolysable tanning extracts are not generally amenable to color improvement by bleaching, but aluminium with sequestering agents in combination with bleaching agents like bisulfite does wonders in brightening the color of hydrolysable tannin extracts. But, as condensed tanning extracts have a strong tendency to oxidize and bleaching by reduction is effective and widely practiced.

In order to avoid the problem of excess ash or salt content (usually that happens with bisulfite bleaching), alternatively special organic reducing agents may be used for bleaching with increased cost. 0.5% to 5% of bleaching agents is used depending on the extent of bleaching required. High temperature (~90^{o}C without boil) with extended period of treatment is necessary with some tanning materials and for improved color of the extract. While using bisulfite/meta bisulfite, good vent is necessary as evolution of sulfur dioxide occurs during reaction. But traces of sulfur dioxide in the product give protection against microbial degradation.

Improving solubility/ reducing insolubles

Certain extracts, notably quebracho, contain a significant amount of materials insoluble in cold but soluble in hot water. This may be

readily converted to a fully cold-soluble extract by boiling an approximately 45% solution of tannins with of sodium metabisulfite (~5%). The reaction may take many hours to reach completion but is accelerated by increasing the pH of the extract. During this process, color of the extract also improves to some extent.

Acid/salt adjustment

Each vegetable tanning material imparts its own individual character to leather. The molecular species making up the tannin, which vary widely from leuco anthocyanidins to gallic acid or ellagic acid esters, are partly responsible for the differences between extracts. Also the organic non-tannins such as sugars have their effects. By adjustment of acid and salt balance, it is possible to utilize almost any tanning material to produce a given effect. The classic example of sweetened (acidity adjusted) chestnut (hydrolysable tannin) was used as a substitute for wattle/quebracho in France during world war II to produce good quality sole leather.

The physical properties of the leather produced by an extract are largely determined by the state of swelling of the hide that occurs at the time of tanning. In a conventional vegetable tannage, where a large part of the tanning process is carried out in liquors relatively weak in tannin, the state of swelling is largely determined by the acid and salt balance. For good tanning especially in pit method, pH should normally be 3.2 or above and titratable acidity to pH 6.5 less than 400 mg equivalent/liter, and the salt level in the liquors should be approximately equal to that of the acid content. Acid-salt balance is adjusted by blending of different extracts or by neutralizing acidity.

Principles of vegetable Tanning

The traditional method of vegetable tanning was more of an art developed over a period based on the experience rather than on the understanding of the underlying principles. The primary objective is to comply with the tanners' associations' strict rules. For example, for good tanning of sole leather, English Guild used to talk about tanning for a year and a day. Through intensive research by many Institutes

all around the world during 20th century, the basic understanding of tanning materials and the mechanistic aspects including factors involved in tanning improved tremendously. This coupled with the availability of solid extracts and spray dried powders had made it possible to produce good quality heavy leathers with reduction in duration of tanning from many months to few days. Today rapid methods based on pit followed by drum method or drum only methods have totally replaced the traditional methods almost completely.

The main factors involved in vegetable tanning are pH, temperature, concentration of tannins, acidity, salt concentration and mechanical agitation. The effect of these factors on both diffusion and fixation has to be understood well to manipulate them for desirable results in terms of the quality of final leather. The man objective of vegetable tanning in general is to produce a leather (resistant to bacterial activity) with improved fullness with as much as uniformity of substance all over the hide/skin as possible with a definite leather yield (ratio of final dry weight to pelt weight) and desirable characteristics such as firmness and required flexibility.

pH

Effect on diffusion

pH has a significant effect on the porosity of fiber structure, the aggregation of tannins and consequently their particle size and the chemical affinity between the collagen fibers and tannins. At pH 5.5, the iso-electric point, tannin particles diffuse rapidly into the fiber structure because pore size is the maximum due to absence of swelling on one hand and low affinity between collagen and tannins on the other. Conversely, below pH 5.5, the rate of diffusion of tannin particles into the fiber structure decreases as the pore size of fiber matrix decreases due to swelling and affinity increases.

In the traditional pit tannage, limed pelt is either washed with water to remove free lime, or surface delimed. The pelt is suspended in a liquor of very low tannin concentration, and is then moved each day

through liquors of gradually increasing tannin concentration. Acidity in the spent tan liquor delimes the pelt completely and smaller sized mellow tannins color and set the grain to protect against astringent tannins in the succeeding pits.

In rapid tannage systems, limed pelt is either completely delimed to approximately pH 5.5 or pickled/conditioned to a lower pH range of 3.5-4.0, pretanned with a syntan to facilitate diffusion with concentrated tan liquor/dry powder aided by mechanical agitation.

Effect on fixation

As the pH is reduced from 4.0 to 3.0, there is a significant increase in swelling and fixation of tannins due to increase in particle size and affinity producing leather with high degree of firmness. Final pH of 3.5 produces fuller leather with good degree of flexibility but pH below 3.2 increases firmness with lesser flexibility

Concentration of acids

At the outset, the effect of pH and concentration of acids may appear similar but it is not really so due to the difference in the nature of the acids involved. The concentration of acids in a tannage is equal to the sum of the following:

i) concentration of acids present in the blend of vegetable tanning materials,

ii) concentration of acids used to make pH adjustments, i.e. to the blend, and to the suspender liquors and

iii) Concentration of acids used in pickling if any.

Acid contents vary in general between tanning materials but hydrolysable tanning materials in general have more acid contents than condensed tannins. Even among hydrolysable tannins, myrobalan contains more acid content than chestnut but the pH of chestnut extract is lower.

Generally the weaker organic acids fix more tannins than mineral acids for the same pH. Hydrolysable tannins are used in a traditional pit tannage to increase the level of acid concentration and produce very firm sole leather. Acid in the form of hydrogen ions and undissociated acid molecules fixes to the fiber structure and increases its affinity for vegetable tannins.

Rapid tanning systems use a lower concentration of acids to produce flexible leathers. Hydrolysable tannins, such as natural Chestnut and Myrabolan, are used as a source of acidity in blends with cold soluble Quebracho, and Mimosa. Mimosa acidified with a weak organic acid, for instance citric acid or formic acid, is also used as a solo tannage in some tanning systems.

The acid concentration of the strongest tan liquor should not exceed 400 millimoles per liter. Higher concentration, particularly in warm liquors (hot-pitting and drum tannages), result in damage to the fiber structure with loss in physical properties.

Concentration of Salts

Salts suppress the swelling/plumping of the fiber structure by acid, and so increase the rate of tannin diffusion. An increase in salt concentration would lead to decreased substance, increased flexibility with reduction in water resistance.

In the case of a well designed rapid tanning system, delimed pelt is conditioned to a pH and concentration of ions (acids and salts) equivalent to that of the initial tan liquors. This treatment stabilizes the volume of the pelt against any possible changes in vegetable tanning. The “iso-ionic” pelt enters a liquor of high tannin concentration without any danger of either acid swelling/plumping or osmotic dehydration, e.g., drawn grain, case hardening.

In tanning with highly concentrated tan liquors/dry powder, the problem of acid swelling/plumping is of less significance due to the small amount of float but the main problem is osmotic dehydration,

which causes a reduction in the capillary spaces hindering tannin diffusion and case hardening. Hence protection is necessary pretanning/using high concentration of salt in pickling or doing a sodium sulfate treatment.

It is generally considered that salt concentration of not less than 200 millimoles/l is required for an acid concentration of 300 millimoles/l. Higher salt concentration especially at high temperature (hot pitting) reduces tannin fixation and firmness in the leather.

Concentration of Tannins

As expected, the rate of tannin diffusion increases with increase in concentration of tannins, but the time required for complete diffusion depends more on the concentration gradient rather than the actual amount used. The rate decreases as the concentration of solubles in the tan liquor is in equilibrium with that in the capillary spaces. This is the reason for longer duration of tanning in traditional tanning systems. In a traditional pit tannage, the rate of uptake of vegetable tanning material is very slow because of the very low tannin concentration of the initial liquor, and the small increase in tannin concentration (i.e. low tannin gradient) in the system. A considerable amount of time is involved in exhausting the tan liquors to a very low level of tannin concentration. However, the rate of tanning can be increased with increasing tannin concentration. Hence the rapid pit tanning involves starting the tanning with high concentration of tannins (35-40^{o} Be) (of course, preconditioning is necessary as discussed earlier) and maintaining higher concentration gradients in subsequent pits as well.

Temperature

Temperature has a significant effect on the rates of tannin diffusion and fixation. The optimum temperature for diffusion in a pit tannage is 20-25^{o} C. With lower temperature, solubility decreases with increase in viscosity resulting in lower rate of diffusion.

In rapid tannages, due to the shorter time-period, it is essential to control the temperature throughout the tannage. A fall in temperature causes a reduction in leather yield and uneven distribution of tannins. Maximum temperature for diffusion depends on the pH of the pelt and tan liquors, concentration of salts and acids (both in the pelt and tan liquors) and nature of cations and type of pretanning/conditioning employed. Usually 35^{o} C is considered safer limit for this phase.

An increase in temperature in the final stages of tanning (hot-pitting) leads to increase in tannin fixation, leather yield and compactness of fiber structure.

A temperature limit of 38^{0}C is usually quoted for hot-pitting and drum tannages.

Mechanical Action

The use of mechanical action in tanning results in a more uniform concentration in the tan liquor and increase in the rate of diffusion and fixation. The effect of gentle rocker movement in a pit tannage accelerates the penetration time for hides by three to five days. The more vigorous mechanical action involved in a powder tannage in drum reduces the time of tannage to 24-36 hours depending on the thickness of hides.

The increase in temperature caused through drumming is controlled by regulating the drum speed and choosing the right dimensions of the drum. A small increase in temperature is advantageous but if uncontrolled, there are dangers of heat damage to the fiber structure, and darkening in color.

The discussion of vegetable tanning would be continued as Part III in next article.

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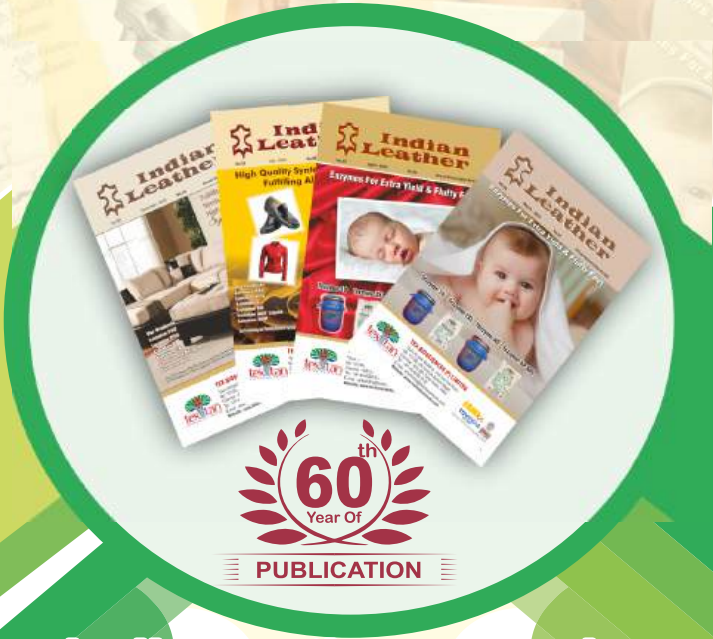

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COTANCE AT APLF 2026

APLF is considered as one of the World's Premier Leather Event. APLF which is a key platform for Trade & Business negotiations, at this edition, witnessed 500 exhibitors from around 40 countries and representatives from more than 19 global industry associations.

The 2026 edition of APLF Hong Kong (12–14 March) once again confirmed that the leather industry continues to withstand current market pressures while demonstrating strong potential for future growth. Across discussions and presentations, one theme clearly emerged: the **bioeconomy** represents a promising pathway forward for the sector, reinforcing leather's role as a natural, circular and bio-based material.

Global coordination through the International Council of Tanners

Ahead of the fair, COTANCE participated in the International Council of Tanners (ICT) meeting, which brought together under the Chairmanship of Burak Uyguner (Türkiye) the representatives of

national leather associations from Europe, North and South America, Asia and Africa.

The discussions addressed key developments affecting the sector, including regulatory changes in major leather markets, in particular the EU and the US, chemicals management, global industry statistics and World leather trade dynamics. Particular attention was given to the upcoming developments surrounding the EU Deforestation Regulation (EUDR). A new Position Statement on the EUDR is to follow.

The message from the meeting was clear: the global leather industry remains more than ever united and aligned and prepared to act together on shared challenges.

Addressing skills and education challenges

During the fair, COTANCE also took the stage at the Leather Supply Chain Conference, co-hosted by International Leather Maker and APLF, as well as on the APLF main stage.

Presentations highlighted how the European leather industry is responding to the growing education and skills challenge through the EU-funded METASKILLS4TCLF project. The COTANCE participation in the project focuses on modernising training, updating vocational curricula, integrating digital technologies such as AI and immersive learning tools, and strengthening workforce skills through reskilling and upskilling programmes not only in tanning, but across the textiles, clothing, leather and footwear sectors.

Scientific progress for the leather value chain

APLF also marked the launch of two new important initiatives in the leather industry:

- a new European initiative led by UNIC - Concerie Italiane in cooperation with Spin 360: The *Leather Leaders* project.

- a new US initiative led by LHCA in cooperation with several organisations, including CLIA: The *Institute for Data Integrity (IDI)*.

These aim to advance scientific understanding of key issues affecting the future of the leather supply chain, including:

- the environmental impact of leather recycling a **by-product** of the food industry
- providing a **central repository** for the value chain's datasets that can act as a global reference
- comparisons between **life-cycle assessment methodologies** for natural and fossil-based materials
- the role of **biogenic carbon** in environmental accounting
- the importance of **durability and ecodesign** in sustainable product design

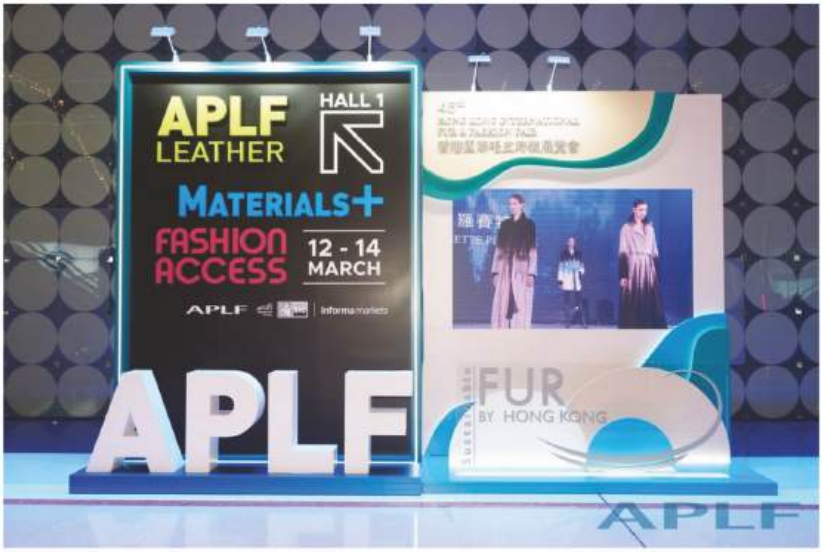
Preparing for World Leather Day

The event also served as an opportunity to begin preparations for **World Leather Day (29 April).** Leather Naturally focusses this year's campaign on the shift of the sector's narrative from volume to value, from disposability to durability, and from trend-driven consumption to long-term craftsmanship.

A moment to celebrate leadership

Beyond strategic discussions, APLF Hong Kong 2026 also became a moment of recognition and appreciation. **The global leather community used the gathering to express its gratitude to Gustavo Gonzalez-Quijano, Secretary General of COTANCE, for his outstanding leadership and dedication to the industry over many years.**

Colleagues and partners from around the world took the opportunity to thank him for his commitment to strengthening the voice of the leather sector, fostering international cooperation and advancing sustainability and innovation across the value chain.



Strengthening a global voice for leather

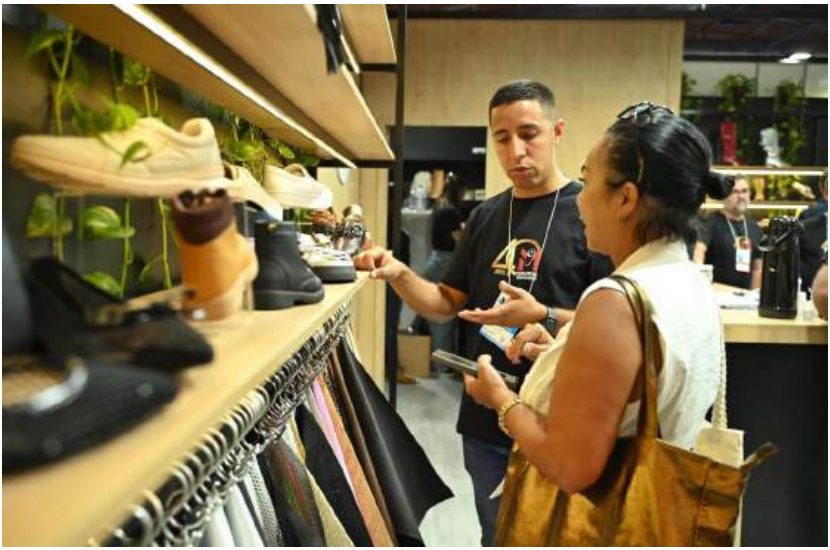
Next to Lineapelle, APLF once again proved to be one of the key platforms for global dialogue, industry strategy and convergence. For COTANCE, it offered a valuable opportunity to engage with international partners, exchange insights and reinforce a united global voice for leather — ensuring the sector continues to lead in sustainability, innovation and competitiveness.

(Source: Cotance)

49th FIMEC highlighted Brazil as a hub for technological development in the leather and footwear

The fair recorded the attendance of more than 20,000 visitors and boosted business, networking, and innovation across the industry sector

The **49th edition of Fimec - International Fair of Leather, Chemical Products, Components, Machinery and Equipment for Footwear and Tanneries,** organized by, Fenac Experiências Conectam, with the support of Trade Associations, Abicalçados, Abqtic, Abrameq, ACI-NH/CB/EV/DI/IV, Aicsul, Assintecal, CICB, IBTeC, and Sebrae/RS, took place from March 3rd to 5th 2026 at Fenac, in Novo Hamburgo/RS (Brazil).



FIMEC is considered as the leading trade fair in Latin America and one of the three largest trade fairs in the sector worldwide,

showcasing solutions in leather, chemical products , components, machinery and equipment. FIMEC 2026, occupying more than 30 thousand square metres space of all the pavilions of Fenac, reaffirmed once again the adaptability of the leather and footwear industry. During the three days of the event, around 400 exhibitors welcomed more than 23 thousand visitors.

According to Fenac's interim CEO, Marlos Schmidt, the size of Fimec reinforces the event's relevance on the global stage. The fair also exceeded initial visitor expectations. "We reached the last day surpassing our projection of 20,000 visitors, which is positive not only for the quantity but mainly for the quality of the audience," says Schmidt. International presence marked this edition, which brought together participants from 33 countries, including visitors and exhibitors. "It's natural that Argentina, Peru, Ecuador, and Colombia, which are closer countries, stand out, but we also received representatives from Germany, Italy, South Korea, and China, for example. This demonstrates how visitors and exhibitors worldwide value Fimec and the opportunities it provides," he added

The 16th Concept Factory demonstrates industrial production in real time.

In addition to showcasing products, Fimec aimed to promote knowledge and professional development. Because of this, it is the only trade fair in the world to operate a real-time factory, which, in this edition, had six production lines operating simultaneously. Called the Concept Factory, the initiative was carried out in partnership between the Brazilian Institute of Leather, Footwear and Artifacts Technology (IBTeC), Coelho Assessoria Empresarial and Fenac.

During the three-day fair, the structure allowed visitors to follow all stages of the production process, from material preparation to final finishing. The project integrated the brands Klin, Fiber, and Cravo & Canela, as well as more than 100 students from Senai Calçado, who

worked directly on the production lines and experienced the daily routine of the industry.

The fair connected innovation, business, and networking.

Digital transformation also gained prominence at the CICB Sustainability Forum, promoted by the Center of Leather Industries of Brazil (CICB), in partnership with the Brazilian Trade and Investment Promotion Agency (ApexBrasil), through the Brazilian Leather project. This year, the meeting discussed the theme "Industry and Transformation with Artificial Intelligence" and addressed the impacts of AI on management, operation, and ESG advancements in the leather production chain.

Among the new features of the 49th Fimec, the Welcome Project was created to expand the presence of strategic national and international buyers. The initiative involved footwear hubs such as Jaú, Franca, Birigui, Nova Serrana, and São João Batista, as well as international partnerships with Argentina, Peru, Colombia, and Panama. Meanwhile, the traditional Buyer Project, developed by the Brazilian Association of Companies of Components for Leather, Footwear and Artifacts (Assintecal) and the Brazilian Association of Industries of Machinery and Equipment for the Leather, Footwear and Related Sectors (Abrameq), promoted business meetings with 11 groups of international buyers.

Sustainability and artificial intelligence in the leather supply chain were central topics at the CICB Forum

Industrial best practices and the use of Artificial Intelligence in tanneries were the main topics discussed at the 13th **CICB Sustainability Forum,** held on March 4 during Fimec, in Novo Hamburgo, Rio Grande do Sul, Brazil. The event was organized within the scope of the Brazilian Leather project, a partnership between the Centre for the Brazilian Tanning Industry (CICB) and the Brazilian Trade and Investment Promotion Agency (ApexBrasil).

Opening the Forum, CICB Sustainability Advisor Ricardo Andrade highlighted the progress of sustainability in the sector. According to a survey conducted by the organization, in 2018 about 60% of Brazilian tanneries held environmental certifications; today this number exceeds 90%. “These certifications address not only the product itself, but the entire production process, seeking sustainability at the origin of manufacturing,” he explained. Andrade also presented the ESG Now platform, which evaluated sustainability indicators across 28 production units, generating important data

related to effluent management, traceability, water use, among other aspects.

The second presentation was delivered by Rafael Martins, CEO of Share and a visiting professor at universities such as Coimbra (Lisbon), Mackenzie and ESPM. Comparing AI to a kind of “magic lamp,” the expert noted that more than one billion people worldwide use these tools every day, especially ChatGPT, the first of them to gain global scale, created only three years ago. “Today, the most important skill is knowing how to ask - crafting clear prompts - which is reshaping the labor market,” he said. While presenting different tools capable of suggesting titles and texts, producing videos, or even creating “clones” for marketing campaigns and customer service, Martins emphasized that “AI does not replace human capabilities; it amplifies them.”

Next, Jo Gilet, from Hidexe (Luxembourg), presented a solution developed by the company for 3D scanning of leather, capable of detecting defects and imperfections that cannot be identified by the human eye or by conventional 2D scanning systems. According to the founder of Hidexe, the technology, based on the German Easy Inspect system, can scan more than 300 hides in just 10 seconds with a high degree of accuracy.

During the afternoon, additional presentations were delivered by Ivens Domingos, who highlighted the impact of technology on the ESG advances achieved by Durli Couros, and Cesare Dal Monte, from GER (Italy), who addressed automation and efficiency in tanning processes.

The CICB Forum concluded with a panel discussion bringing together the speakers to debate the future of the sector amid the growing use of AI tools.

The 13th CICB Sustainability Forum received Gold sponsorship from Minerva Leather, Abrameq (with Bremm Peck, NBN, Michelon and BKS), Hidexe (with Bauce), GER, Stahl and Muno. Silver sponsors were Viposa with Vancouros, Sincurt and Tecnpiel.

Upper made with renewable and recycled materials wins sustainability award in the footwear industry.

Kisafix, a brand of the Killing Group, received recognition from Fimec 2026 for the solution developed based on the logic of the circular economy.

Even before the start of Fimec 2026, Kisafix, a brand of the Killing group, Kisafix is a leader in adhesives for footwear in Latin America and in adhesives for mattresses in Brazil. had already won the award for its new product launch at the event. The Kisafix Sustainable Circular Upper won the Fimec Launch Award in the sustainability category.

“The solution was developed from the integration of technological platforms that unite textile parts and adhesive systems. The objective was to present the possibility of building sustainable, industrially viable, competitive, and personalized uppers,” says Marcos Rauber, technology manager of the Killing group. According to him, the pre-structured and self-adhesive upper solution, as presented by Kisafix, and composed entirely of sustainable raw materials, opens a new perspective for the footwear industry. This means a reduction in

steps (and time), because what was previously 'assembled' separately, joining each part, can now be a ready-to-use piece. “The upper can come ready to be applied in the production of a shoe, with the possibility of customization in materials and adhesive weight, allowing for great flexibility in design and modeling. Furthermore, the innovation is aligned with sustainability awareness and all that this represents in terms of reuse of raw materials and environmental impact,” he comments.

The product's distinguishing feature lies in its systemic and adjustable offering. Each component can be supplied separately or already prepared for direct construction of the upper, without intermediate processes. In the case of the solution presented, "a modular arrangement was structured that exemplifies the possibility of customized combinations, bringing together 100% certified recycled PET fabric, a reinforcement layer composed of recycled materials and validated under restricted substance policies for sports footwear, and EVA hot melt adhesive formulated with raw materials from renewable sources," details Cátia Klein, market development and innovation specialist at Kisafix.

To understand the solution - The fabric is RCS (Recycled Claim Standard) certified, produced from GRS (Global Recycled Standard) certified recycled PET yarn, reducing the demand for virgin raw materials and reintroducing waste into the production chain. The reinforcing blanket also uses recycled inputs and reduces the consumption of primary materials by valorizing waste. Furthermore, it is validated by the footwear industry's restricted substances policy. The hot melt adhesive is formulated with renewable raw materials and is solvent-free, reducing dependence on fossil fuels.

“The proposal offers less environmental impact and a smaller carbon footprint than a conventional upper, helping footwear manufacturers create more sustainable lines without sacrificing technical performance, and structuring a replicable solution for different models and production scales,” highlights Rauber.

(Source: Killing)

37th Euro Shoes Premiere Collection concluded successfully

The 37th edition of Euro Shoes Premiere Collection-the largest exhibition of footwear and accessories of Russia was held at the WTC Congress Center in Moscow, from 4-7 March, 2026.

This B2B event was the main meeting place for fashion brands and buyers, presenting Fall/Winter 2026/27 footwear, bag and accessory collections. Around 100 exhibitors, which include domestic and overseas participants from Germany, Spain, Italy, India, Turkey, China and other countries.

The Euro Shoes exhibition is constantly transforming and evolving to meet market demands, and has become relevant not only for retailers but also for brands developing their own collections or planning to expand their product range with in-house brands.

The exhibitors from China and India, with their extensive experience in contract manufacturing, showcased their extensive capabilities in producing private-label collections at this event.

As per the reports the Chinese exhibit was very diverse, showcasing collections of footwear, bags, and accessories, offering an opportunity to evaluate the quality of the products, their relevance, and their adherence to fashion trends. Russian entrepreneurs showed their interest in establishing long-term partnerships with Chinese manufacturers. This exhibition had provided an excellent opportunity to learn first hand about production capacities, cooperation terms, and product delivery times.

The next edition of Euro Shoes Premiere Collection will be held at the WTC Congress Center, in Moscow, between 24 and 27 August 2026.

55th Futurmoda concluded successfully focusing on the presentation of trends, materials and technological solutions for the Spring Summer 2027

The 55th edition of Futurmoda, the only fair in Spain, specialising exclusively in components for footwear and leather goods, held on 4 & 5 March, 2026, at IFA-Fiera Alacantg (Elche), once again proved to be one of the main attraction of the visitors, with a focus on sustainable materials, innovative solutions and projects related to the circular economy, traceability and responsible production.

More than 210 exhibiting firms which include participants from countries, like, Italy, Germany, Portugal, France, Greece, the Netherlands, Switzerland, China, Japan, Taiwan and Turkey,. welcomed over 4100 national and international visitors

FUTURMODA expanded its scope, allowing visitors to find in a single space the entire value chain of the sector: components and materials, lasts, soles, insoles and heels, sheets and templates, leathers and tanning, textiles and synthetics, decorations and fittings, prefabricated products, chemical products, packaging, as well as technological solutions and specialised machinery.

FUTURMODA also offered a packed programme of events, including the Experts' Forum, with conferences on topics such as artificial intelligence, digitalisation, sustainability and internationalisation. At the same time, the FUTURMODA Green Planet space once again proved to be one of the main attractions for visitors, with a focus on

sustainable materials, innovative solutions and projects related to the circular economy.

In an international context fraught with uncertainty and difficulties, the general manager of AEC and FUTURMODA, Álvaro Sánchez, praised the results of the event, noting that the number of participants exceeded expectations. Sánchez highlighted the interest of the sector, and also emphasised the commitment of manufacturers to Spanish manufacturing

With this edition, **FUTURMODA** reaffirms its commitment to being much more than a trade fair: **a strategic space where trends are defined, business opportunities are generated and the future of the industry is built.**

Spanish footwear sector warns against ultra-fast-fashion model

On the occasion of the last edition of Futurmoda, the Spanish Footwear Industry Federation (FICE), the Spanish Association of Manufacturers of Leather Goods, Travel Goods and Related Products (ASEFMA), the National Association of Footwear Retailers (ANCC) and the Spanish Association of Footwear Component Manufacturers (AECC) issued a joint statement warning of the risks of the ultra-fast-fashion model for Europe.

The signatories argue that this business model, mainly driven by platforms originating in China, is “structurally unsustainable from environmental, economic and social perspectives”. “This is not merely a new form of digital commerce; it is an economic scourge that is eroding the foundations of the regulated European market and endangering employment and responsible consumption”.

They state that this model has a disproportionate logistical and environmental impact due to the influx of billions of small shipments into the EU. It significantly increases carbon emissions and packaging waste, placing pressure on the supply chain. It also promotes a culture of disposable consumption based on short product lifecycles, impulse purchases and high return rates, thereby undermining the principles of the circular economy.

At the same time, these industry bodies note that ultra-fast fashion companies benefit from regulatory loopholes in low-value imports, which allow them to bypass full compliance with European fiscal, environmental, and product safety standards. This, according to the organisations, creates downward pressure on prices, erodes margins across the value chain, and threatens the viability of European SMEs.

In addition, this model raises broader social impacts, such as the normalisation of impulse buying and the increasing disconnect between price and product value, which is of particular concern among younger consumers.

The signatories are therefore calling on the Spanish and EU authorities to implement stricter measures. These include removing exemptions for low-value shipments, fully applying VAT and customs duties, reinforcing product safety controls, and making digital platforms operating in the EU more accountable.

“We reaffirm our commitment to quality, durability, innovation, local employment, fair trade, and responsible consumption. Every purchase is an economic and social decision. Opting for European brands means prioritising safety, quality, job creation and a sustainable industrial future”, they conclude.

* * *

World Leather Day 2026: Make It Leather.

The *Leather Naturally* team has announced the theme for **World Leather Day 2026**: **Make It Leather.** In its press release, it has stated: "This year's campaign is a call to action, bringing together our members and partners across the leather sector around one clear principle: make intentional, responsible material choices.

With six weeks to go until this year's World Leather Day (**29 April**), the Make It Leather theme sets the tone for 2026. We're shifting the conversation from volume to value, from disposability to durability, and from trend-led consumption to long-term craftsmanship.

We encourage the whole industry to get behind World Leather Day and make the most of the opportunities in the weeks ahead. Explore how you can get involved by visiting the new World Leather Day page below!

Confederation of European Footwear Industry

Alongside 15 other EU trade associations, The European Footwear Confederation (CEC) has signed an industry statement calling for the rapid introduction of the EU's 'deemed importer' designation.

European traders are facing a growing influx of small consignments from third-country e-commerce platforms, including many ultra-fast fashion products that do not comply with EU environmental, health, safety and intellectual property rules. This creates unfair competition for EU businesses that respect EU standards.

The proposed 'deemed importer' system would make foreign sellers and online platforms legally responsible for meeting key EU single market obligations, including customs duties, VAT, Extended Producer Responsibility (EPR), and other regulatory requirements.

As this measure is not expected before 2028 under the new Union Customs Code, CEC is urging the EU and Member States to act sooner by requiring foreign operators to appoint a legally responsible entity in the EU without delay. This could be achieved through an EU Regulation well before 2028, helping ensure fair competition and effective enforcement of EU rules.

101st MICAM closes with solid results and strengthens its role as an international footwear hub

"A dynamic platform for business and strategic vision, a space where Italian manufacturing excellence engages with emerging trends, new technologies, and the distribution models of the future." - Giovanna Ceolini.

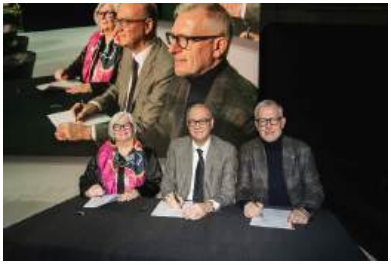
The **101st edition of MICAM and the 129th edition of MIPEL** has concluded at Fieramilano Rho, welcoming **over 20,000 visitors, 54% international and 46% Italian.**

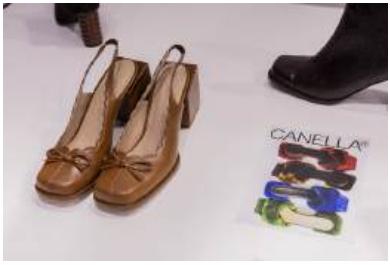
Among the visiting countries, the strongest performances came from **France, Spain, Germany, Belgium and Greece**, while outside the EU the leading markets were **Japan** and the **United States**.

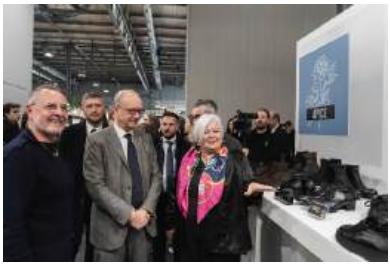
The event hosted **795 brands**, including **402 international and 393 Italian companies**, confirming its strong global appeal and the central role of the trade fair in supporting business development and internationalization within the sector.

"This edition of MICAM sends us a clear and encouraging signal: the footwear industry is able to respond intelligently to the challenges of the global market, transforming complexity into opportunities for growth and innovation," stated, Giovanna Ceolini, President of MICAM and Assocalzaturifici. "The figures confirm the solidity of the exhibition, but what truly makes us proud is the quality of the relationships built here, the intensity of the dialogue between companies, buyers and professionals from all over the world. MICAM is not just a trade show: it is a dynamic platform for business and strategic vision, a space where Italian manufacturing excellence

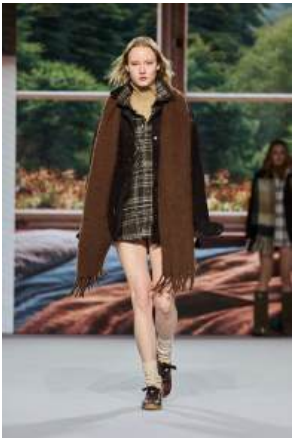
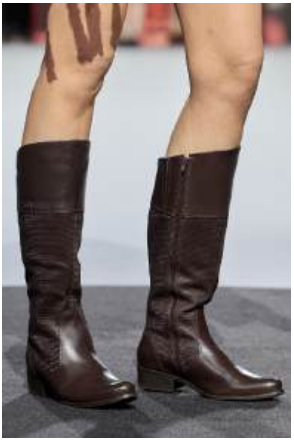
engages with emerging trends, new technologies and the distribution models of the future.









(Source : Micam.it)

The work initiated with the industrial plan, the collaboration with our institutional partners – from the Ministry of Foreign Affairs to ICE – and the growing focus on internationalization demonstrate that we are on the right path. We are ready to approach the next edition with even greater ambition, strengthened by a global community that chooses MICAM as its benchmark."

Special attention was given to the event's forward-looking content, starting with the new layout developed as part of the industrial plan carried out with KPMG, aimed at enhancing the visitor experience and highlighting innovation and the supply chain.

Among the most appreciated features was the **MICAM Next** area, with seminars organized in collaboration with WIRED Italia and the fashion shows.

There was also strong interest in **M&M – The Hub**, the space dedicated to training and advanced manufacturing, where the MICAM Academy and craft workshops curated by Arsutoria School attracted over 500 students during the three days of the event.

From a strategic perspective, the event is part of the **Fashion Link Milano** project, an **integrated ecosystem** designed to strategically connect brands, buyers and professionals through a coordinated experience across all the involved trade fairs, enhancing the complementarity of different offerings:

Lineapelle : Milano Fashion & Jewels : MIPEL : TheOneMilano : SIMAC Tanning Tech : Sì Sposaitalia Collezioni

The next appointment is with MICAM 102, from September 13 to 15, 2026.

The Connecting Thread in Quantum Mechanics

Buddhadeb Chattopadhyay

(Former Principal, Government College of Engineering and Leather Technology, Kolkata)

We are trying now to show the connectivity between different laws of Physics for fun-loving students. Though they apparently happen to appear disjointed but like a magic, it may be seen that they relate to each other by an invisible thread; just if we take an out-of-box view. It is assumed that the students are aware of those laws coming from different chapters with different context and having different relevance. The symbols and notations used hereafter has their usual meaning and therefore, the outcome.

We all know the two fundamental relationships. One comes from the Special Theory of Relativity, due to Albert Einstein which states the relationship between the mass and energy as follows: -

E = m**c**^2 where m is the mass of a particle and **c** is the speed of light in vacuum, which remain constant…..(1)

Or, E = **pc**…...(2) because **p** = momentum, so here **p** = m**c……**(3)

From the simple relationship between energy of wave we also know E = hν where, as stated earlier, E is the energy and ν is the frequency of the propagated wave and h is Planck's constant ……(4)

Since we know the relationship between ν and the wavelength λ, as ν = **c**/λ.....(5)

By replacing ν in (4) by equation in (5); we can write E = h.**c**/λ ……..(6)

or, **c** = E λ/h ……(7) Now by replacing E from (2) by the same in (7) we may write E = **p**.E λ/h…..(8)

Cancelling E from both RHS and LHS in equation (8) and by rearrangement we get h = **p**.λ……(8)

This is known as De Broglie's famous wave particle duality relationship in Quantum Mechanics but derived from Einstein's formula from the Special Theory of Relativity. Which means wave and particle which appears as two different mental pictures have been merged. Because momentum (**P**) is the attribute of particle property and λ is that of a wave. So, like a both sides of the same coin, particle can appear as wave and *vice-versa*. The classical double slit experiment and its interference patterns in the detector shows, particle as tiny spread-out-things and the observation does affect the result, which is a rapid departure from classical physics.

Now let us investigate the Bohr's theory of the structure of the atom. Bohr imagined electron as a pure particle, so to explain the mysterious Hydrogen line spectra, he had to make a second postulate stating that for the orbiting lone negatively charged electron across the single positively charge proton in its nucleus, the angular momentum (m**vr**) cannot have any value. It must be quantized that is nh/2π where n = 1, 2, 3,….. So m**vr** = nh/2π ……..(9) is the outcome, because according to the classical physics m**vr** is the angular momentum. But this is simply a postulation, which needs validation through quantum mechanics.

When Warner Heisenberg established his famous uncertainty principle and stated two dynamic variables of any quantum particles cannot be measured simultaneously and accurately. Bohr's circular orbit itself came under scrutiny and nullified.

Now if, we consider for a moment hypothetically that the electron is a wave then the circumference of the orbit must fit full wavelengths, otherwise upon overlapping due to interference the electron may completely disappear. In other words, $2\pi\mathbf{r} = n\lambda$ (where n = 1, 2, 3,…), since $2\pi\mathbf{r}$ is the circumference of the circle and **r** is the radius of the first orbit of the electron……(10).

By inserting De Broglie's equation ($h = \mathbf{p}\lambda$) in equation (8), we get from (10) $2\pi\mathbf{r} = nh/\mathbf{p}$, or, $h/2\pi = \mathbf{pr}$ (Where $h/2\pi$ is known as reduced Planck's constant) …….(11)

Since by definition **p** = m**v**, therefore from equation (11) we can write m**vr** = nh/2π…….(12). This is the quantum mechanical deduction of Bohr's second hypothesis.

Now taking the proven Bohr's second postulate m**vr** = nh/2π, which also can be written as stated earlier **p**r = nh/2π (since momentum = m**v** = **p** and kinetic energy ½ m**v**^2 = **p**^2/2m)…..(13) **P** and **r** are dynamic variables and measurable. We know that the maximum error in measurement cannot exceed the measured value; therefore, the maximum error in measurement of **p** = Δ**p**; similarly, maximum error in measurement of position vector **r** = Δ **r**. by putting these values in Bohr's second postulate, we get, $\Delta\mathbf{p}.\Delta\mathbf{r} = nh/2\pi$.....(14), or in general $\Delta\mathbf{p}.\Delta\mathbf{r} \geq h/2\pi$ (assuming n = 1). This is the famous Heisenberg's Uncertainty Principle.

Thus, we can see as if, there is a connecting thread tying up special theory of relativity with the basic quantum mechanical laws.

(to be contd..)

Leather Industry - Challenging times - Look for Opportunities

- Vasan Suri, A Passionate Leather Lover & Professional, Hi-Tech Consultancy
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Man Proposes, God Disposes.

The Indian leather industry was reeling under pressure due to the Trump Tariffs for nearly 5-6 months and there was some expectations of relief and there comes the war.

Let us all pray for a minute for all those departed innocent people, the kids, the soldiers and many more.

The WAR (Worthless Arrogance and its Repercussions). The devastation have been terrible. Israel, Palastine, Iran, Kuwait, Bahrain, UAE, Qatar, US, Lebanon everyone got affected. Buildings (sky scrapers) have been brought down as rubbles. Roads, Airports, Sea Ports, Ships, Aircrafts everything got damaged apart from the thousands of human lives.

Many Indians working abroad are in the fear of losing their jobs, as the total West Asia and Middle East will now take time to rebuild itself.

The Strait of Hormuz is closed for International routes and this is going to hurt our Industry and the transportation.

Internationally oil prices have gone up and already Chemicals suppliers have indicated increase in price up to 30%. In some cases, it is already implemented.

As it is the Industry was going through the toughest times and this war situation have made it still worse.

When food is a problem, who will bother about the fashion?

The online retail sale offers for clothing and other types of cosmetics, perfumes and leather goods at unbelievable prices is an indication of the unsold merchandise that is lying in the market. Where are we heading, no one have any clue. We have to just think about that day or month and nothing far. The present scenario suggests a very clear situation to wait and watch before taking the next step. There is no earlier end that is visible about the war though, the losses mounted by these Countries which had direct involvement, is countless and still increasing.

All these will have cascading effects on our raw material prices and the international markets.

Having gone through all the negative points, we all know that, and will be prepared for the tough times ahead. Remember that it is always the darkest before the dawn. There is always a better tomorrow. Such International war and challenges definitely pushes everything down and at the same time, as we touch the bottom, we will have to bounce back and that is the law of Nature.

Let us keep our eyes and ears opened and look for those opportunities which will spring up after all these challenges. One side of the World is affected and there is another side which is still holding good. How can we get closer to them and be supportive in these tough times, should put us in for a better opportunity.

Then, after all these devastation, the rebuilding will start. This may open up a much better free trade opportunities. Let us approach those opportunities not for just making money but, to be more compassionate with those Countries in rebuilding.

In that process, making a reasonable profit is not any problem.

What all opportunities could open up, in the Leather & Leather Products Sector.

1. Every Country will look in to rebuilding their defence and military team. This will open up for supply of safety shoes, Safety equipments etc.,

2. Fire proof leathers, Water proof leathers, and its products, could well be in demand.

3. Face masks made from leather with breathable membrane could work well.

4. Rebuilding of Offices, Residences could open up for furniture.

5. Fashionable products at reasonable prices could be at an advantage.

Let us not get impractical by thinking that we are looking for opportunity when the war is still not over.

It is the law of Nature. As written in the ***Bhagwat Gita***, ***what is yours today, is someone else tomorrow and will be for someone else day after.***

Core Teachings of Gita Upadesh:

Do Your Duty: Focus on action (Karma) rather than the results (Phal). Work is your duty, not the reward.

The Soul is Immortal: The soul never dies; it only changes bodies. Therefore, do not fear death or loss.

Change is Law: Change is the law of the universe. What belongs to you today belonged to someone else yesterday.

Equanimity: Remain balanced in success and failure, happiness and sorrow.

Surrender to the Divine: Trust in the divine plan and surrender your worries to God.

Control Your Mind: A controlled mind is a friend, while an uncontrolled mind is an enemy.

These timeless teachings encourage living in the present, avoiding regret over the past, and taking action in the face of uncertainty.

Nothing is permanent in this World and everything is transient. We have to do our duty to save our family, our industry and our economy and our Country.

Once we are strong then only, we could support others.

Stay strong by will. Do not harm others, tomorrow will be ours. Intention is the key.

Words of Caution:

We discussed challenges and opportunities and practical life.

Would like to add a few words on caution.

1. The WAR crimes and the scars are going to remain and may have lot of problems in the future.

Please be cautious wherever and whenever you travel.

2. The whole air and sea is polluted due to all these devastating drone strikes, bombs and other sources of damages.

3. Beware of another pandemic which may be created after all these war situation settles down.

4. Inflation, enmity, distrust, fear, vengeance - all of these will be staring at the entire world and the World will never be the same.

5. Covid pushed us back and we all came back with high spirits to rebuild from where we left.

Now, this war will push us few years back.

6. Love the Country, Be United, Never share our internal weakness outside, Be compassionate, Be helpful to the needy.

7. Everything will change for good and time is the healer.

Let us all be united and spread love and peace around the World.

India emerges as a key growth market for apparel, footwear and sportswear: Euromonitor International

- **71% of consumers are concerned about rising daily costs, reshaping fashion spending worldwide**
- **India ranks fifth globally in growth, with a 3.7% increase**
- **AI and experiential retail redefine how consumers engage with brands**

Amid longevity and wellness becoming new status symbols, the global sportswear market is forecast to grow at a CAGR of 2% between 2025 and 2030, outpacing the wider apparel market, according to market intelligence company, **Euromonitor International**.

Findings from Euromonitor's **World Market for Apparel and Footwear 2026** report show the global apparel and footwear market was valued at USD1.9 trillion in 2025, with growth expected to remain below a 1% CAGR through to 2030.

Global consumers are becoming more discerning with how they spend on fashion, prioritising value, wellbeing and experiences over volume. According to Euromonitor International's Voice of the Consumer: Lifestyles Survey 2025, 71% of global consumers are still concerned about rising everyday costs, driving intentional consumption and greater scrutiny of perceived value, accelerating market polarisation around the globe.

Marguerite Le Rolland, Senior Global Insight Manager for Fashion at Euromonitor International, said: "Consumers are not necessarily buying less fashion, but they are buying differently, on either the primary or secondary market. Value now extends beyond price and intrinsic product features to include durability, versatility and emotional connection, creating clear growth opportunities for brands that understand these shifting priorities."

India's rapid growth in the global apparel and footwear market

In 2025, India ranked fifth in global apparel and footwear growth with a 3.7% increase. The surge was fuelled by a young, tech-savvy population and higher disposable incomes, especially among Gen Z. Digital retail platforms are driving influencer-led commerce and personalisation, while modern retail infrastructure attracts global brands.

The sportswear market is expanding rapidly, thanks to growing fitness trends and the influence of international brands. In India, sportswear saw strong growth in 2025, with sales rose by 11% to reach USD9.5 billion. This was fuelled by higher disposable incomes and a growing urban middle class.

The upward trend is expected to continue, with a projected compound annual growth rate of 10%, reaching USD15 billion by 2030. The market's appeal comes from its potential to grow further, driven by rising demand for comfortable and versatile clothing, as well as changes in the retail scene, including the rise of quick commerce platforms and an increase in value fashion offerings from established companies.

Fashion expands through tech-enabled wellness

E-commerce sales continue to outperform other channels, bringing the share of online shopping to 32.4% of total sales of apparel and footwear in 2025. With the rise of agentic AI and shoppers increasingly using GenAI platforms in place of search engines, retailers and brands need to pivot their strategies and integrate new capabilities to offer the convenience and trust that shoppers expect of e-commerce.

As fashion purchases are rooted in emotional investment, the winners will be those that position agentic AI for extra convenience, but not a replacement for human touch, and continue to build their brand loyalty through community-led, hyper-local and culturally relevant initiatives.

ECHA adds two hazardous chemicals to the Candidate List

The Candidate List of substances of very high concern (SVHC) now contains 253 entries for chemicals that can harm people or the environment. Companies are responsible for managing the risks of these chemicals and giving customers and consumers information on their safe use.

The newly added substances are n-hexane and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl) ethylidene] diphenol and its salts. They are used, for example, in formulation, polymer processing, coatings, cleaning agents and as process regulators and cross-linking agents respectively.

Entries added to the Candidate List on 4 February 2026:

Substance name	EC/List number	CAS number	Reason for inclusion	Examples of uses
n-hexane	203-777-6	110-54-3	Specific target organ toxicity after repeated exposure (Article 57(f) - human health)	Formulation, polymer processing, coatings and cleaning agent
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl) ethylidene] diphenol and its salts	-	-	Toxic for reproduction (Article 57c)	Process regulator and cross-linking agent

The list now contains 253 entries – some of these entries cover groups of chemicals so the overall number of impacted chemicals is higher.

These substances may be placed on the Authorisation List in the future. If a substance is on this list, companies cannot use it unless they apply for authorisation and the European Commission authorises its continued use.

Consequences of inclusion on the Candidate List

Under **REACH**, companies have legal obligations when their substance is included – either on its own, in mixtures or in articles – in the Candidate List.

If an article contains a Candidate List substance above a concentration of 0.1 % (weight by weight), suppliers must give their customers and consumers information on how to use it safely. Consumers have the right to ask suppliers if the products they buy contain substances of very high concern.

Importers and producers of articles must notify ECHA if their article contains a Candidate List substance within six months from the date it has been included in the list (4 February 2026).

EU and EEA suppliers of substances on the Candidate List, supplied either on their own or in mixtures, must update the safety data sheet they provide to their customers.

Under the **Waste Framework Directive**, companies also have to notify ECHA if the articles they produce contain substances of very high concern in a concentration above 0.1 % (weight by weight). This notification is published in ECHA's database of substances of concern in products (SCIP).

Under the **EU Ecolabel Regulation**, products containing SVHCs cannot have the ecolabel award.

ECHA's Biocides Committee supports approval of ethanol in disinfectants

The European Chemicals Agency's (ECHA) Biocidal Products Committee (BPC) has concluded that ethanol may be approved for use in hand and general disinfectants. The Committee did not take a position on whether ethanol should be considered a carcinogenic or reprotoxic substance.

In its February meeting, the BPC adopted its opinions supporting the approval of ethanol as active substance in the following product-types:

- Product-type 1: Human hygiene products, such as hand disinfectants;
- Product-type 2: Disinfectants and algaecides not intended for direct contact with humans or animals; and
- Product-type 4: Products used in food and feed areas.

In its opinions, the Committee considered that safe use has been demonstrated for all uses in these product-types. BPC did not reach a conclusion on the carcinogenic or reproductive properties of ethanol. As a result, no new hazard classification has been proposed.

According to the BPC, the following factors prevented a clear hazard conclusion:

- The applicant's dossier, although considered complete, lacks data on dermal exposure, a key route of exposure for biocidal products. The available inhalation data has not been performed in accordance with the standard guidelines;

- Most of the evidence relating to the carcinogenic and reproductive properties of ethanol is from voluntary oral consumption of alcoholic beverages, which the Committee did not consider an appropriate basis for decisions in the context of these biocidal uses; and

- New studies on more relevant exposure routes are underway, and the BPC believes these must be considered before determining carcinogenic or reprotoxic properties. However, waiting for these studies to become available could significantly delay the approval process.

Next steps

Following the BPC adoption, ECHA will send the opinion to the European Commission for decision-making. The Commission prepares a draft Implementing Regulation proposing either approval or non-approval of the substance. This draft is submitted to EU Member States for a vote in the Standing Committee on Biocidal Products. If supported, the Commission formally adopts the decision and it becomes legally binding.

If approved, biocidal products containing ethanol may be authorised under the Biocidal Product Regulation. Companies will have to apply for product authorisation at national level or through Union authorisation. If not approved, products containing the substance must be withdrawn from the EU market within the applicable transition periods.

Romans CAD 2026 - V16: Redefining digital excellence in the footwear and leather goods industry

Strategies redefines digital excellence with the launch of Romans CAD®™ (RCS) 2026 – V16

A next-generation platform designed to transform 3D design and 2D engineering in the footwear and leather goods industries.

Faced with accelerating time-to-market cycles and increasingly stringent sustainability requirements, footwear and leather goods professionals demand more agile and precise tools. To address these strategic challenges, Stratégies has announced the launch of Romans CAD®™ (RCS) 2026 – V16, a major version of its platform, optimized for 3D designers, 2D modelers, cost estimators, and production managers.

More than just an update, V16 embodies a smarter, faster and more connected approach to product development.

New features in RCS V16:

Real-time 3D/2D integration:

Start by shaping and visualizing your designs in 3D, then effortlessly transition to precise 2D patterns. Changes are synchronized in real time, reducing the number of prototype iterations and accelerating the design process.

Precision engineering and technical drawing

New tools, such as the "feared edge" and constrained parametric rectangles, offer engineers the ability to create complex patterns with increased accuracy and formula-guided adjustments.

Photorealistic visualization

The V16 rendering engine has been significantly optimized, delivering up to three times faster performance. It incorporates a new metallic PBR (Physically Based Rendering) workflow, enabling instant, high-fidelity previews of materials and textures, and promoting better alignment between different stakeholders.

New RCS Bag 3D–2D module Designed specifically for leather goods, this module allows precise prototyping of bags, offering designers the possibility to faithfully simulate volumes and folds in direct relation to production patterns.

Intelligent cost and operations management

The placement and cutting tools have been optimized to incorporate the specific geometry of each foot (distinguishing between left and right) and now include vision-assisted detection of leather defects. These advancements improve precision and maximize material yield.

Modernized experience

The workspace has been completely redesigned to offer a more intuitive interface, with simplified menus and a customizable shortcut bar. This evolution allows users to work more efficiently, both for developing prototypes and managing large-scale collections.

Why this is important

RCS 2026 – V16 helps professionals work faster and more sustainably. By combining technical excellence with design freedom, Romans CAD®™ enables teams to shorten development cycles and improve decision-making at every stage of production. “With V16, we are taking a decisive step in digital continuity. Our goal is to offer brands and manufacturers a single digital thread that guarantees technical precision while unleashing creativity,” says the Stratégies leadership team.

André Lanning to step down as CEO and join the TFL Board of Directors

TFL in its latest press release has announced that CEO André Lanning will join the TFL Board of Directors, which as mentioned will help with operational continuity, while also adding valuable knowledge and experience to TFL.

The Board of Directors has been actively engaged in succession planning and is progressing toward appointing a new CEO who can continue to lead TFL's long-term strategic direction.

In the meantime, Samer Al Jabi will assume the role of Interim CEO in addition to his current role as Chief Commercial Officer. Mr. Al Jabi joined TFL in 2025 and is contributing significantly to the company's five-year strategic plan and global commercial excellence efforts. As interim CEO, he will ensure leadership continuity and advance TFL's strategic priorities and long-term growth objectives.

TFL remains firmly committed to executing its 5-year strategy and delivering sustained value to customers, partners, and shareholders.

The Board of Directors thanks André for his leadership and wishes him continued success.

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I, S. Ranganathan, hereby declare that the particulars given above are true to the best of my knowledge and belief.

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Date : 1.3.2026

(Sd.,) S. RANGANATHAN
Signature of Publisher.

Strategy and Leather Industry Part – I

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(Contd.. from February)

9.The Rise of Sustainable Leather in India: Practices, Challenges, and Future Trends [9]

Sustainable leather products in India are gaining attention as the global demand for eco-friendly and ethically produced materials grows. Here's an overview of the current landscape:

9.1 Sustainable Leather Practices Table – 9 A

9.1 Sustainable Leather Practices Table – 9 A
• **Vegetable Tanning: This traditional method uses natural tannins from plants like bark, leaves, and fruits instead of harmful chemicals like chromium. It's less harmful to the environment and results in biodegradable leather.**
• **Water Management: Some tanneries are adopting water recycling and treatment technologies to minimize water pollution and reduce overall consumption.**
• **Energy Efficiency: The use of renewable energy sources, such as solar power, in tanneries is slowly being implemented to reduce carbon footprints.**
• **Waste Management: Innovations in utilizing leather waste, like turning scraps into leatherboard, are becoming more common.**

9.2 Challenges Table – 9 B

9.2 Challenges Table – 9 B
• **Environmental Concerns: Leather bags for women production are still associated with high water usage, chemical pollution, and waste. While sustainable practices are emerging, the industry as a whole still faces significant environmental challenges.**

9.2 Challenges Table – 9 B
● **Regulatory Compliance: Ensuring compliance with environmental regulations is a challenge due to the decentralized and fragmented nature of the best leather bags industry in India.**
● **Consumer Awareness: Although global awareness is rising, Indian consumers are still catching up with the demand for sustainable men's leather bags, which can impact the speed of adoption.**

9.3 Key Players and Initiatives Table – 9 C

9.3 Key Players and Initiatives Table – 9 C
● **Tanneries: Some Indian tanneries are leading the way in sustainable practices. They are certified by international bodies such as the Leather Working Group (LWG), which sets standards for environmental stewardship in the leather industry.**
● **NGOs and Industry Associations: Organizations like the Council for Leather Exports (CLE) and NGOs are promoting sustainable practices and providing guidance to tanneries on improving environmental performance.**
● **Collaborations: There are collaborations between Indian best leather purses producers and global brands of Italian leather purses that emphasize sustainability, aiming to improve supply chain transparency and environmental standards.**

Source : 9 & Tables – 9 A, 9 B, 9 C .The Rise of Sustainable Leather in India: Practices, Challenges, and Future Trends, Nera Powered by Neraexim

10. Market Trends [10]

● Eco-friendly Leather Products: There's a growing market for best leather bags made from sustainable leather, including footwear, accessories, and furniture.

● Export Opportunities: India, being one of the largest tooled leather purse exporters, sees a significant opportunity in catering to international markets where demand for sustainable products is higher.

India's leather brands industry is on a path towards sustainability, but the transition is gradual. The combination of traditional practices with modern

sustainable technologies holds promise for the future of sustainable leather in India

The future of sustainable leather purses in India is poised for significant transformation, driven by a combination of global trends, technological advancements, and increasing awareness of environmental and ethical issues. Here's what the future might look like:

10.1 Technological Innovations Table – 10 A

10.1 Technological Innovations Table – 10 A
• **Biotechnology: The development of lab-grown leather, also known as bio-fabrication leather, could revolutionize the industry. Companies are working on creating leather from animal cells, which could reduce the need for livestock and eliminate many environmental concerns associated with traditional leather production.** • **Enhanced Tanning Processes: Advances in chemical engineering may lead to the development of more efficient and less polluting tanning processes. For instance, new eco-friendly chemicals or even enzyme-based tanning methods could replace harmful substances like chromium.** • **Circular Economy Models: The adoption of circular economy principles, where leather products are designed for durability, repairability, and recyclability, will likely become more widespread. This will reduce waste and encourage the use of recycled leather materials.**

10.2 Consumer Demand and Market Dynamics Table – 10 B

10.2 Consumer Demand and Market Dynamics Table – 10 B
• **Rise in Ethical Consumerism: As global and domestic consumers become more environmentally conscious, the demand for sustainably produced leather goods will increase. Brands that can offer traceability and transparency in their supply chains will likely gain a competitive advantage.** • **Shift to Alternative Materials: There will be a growing market for leather alternatives, such as plant-based or synthetic leather bags**

10.2 Consumer Demand and Market Dynamics Table – 10 B
made from materials like mushrooms, pineapples, and cork. These materials offer a lower environmental impact and cater to vegan and cruelty-free markets. • Increased Export Potential: As global markets, especially in Europe and North America, tighten regulations on environmental and ethical standards, Indian Genuine leather purse producers who adopt sustainable practices will have better access to these lucrative markets.

10.3 Regulatory and Industry Support Table – 10 C

10.3 Regulatory and Industry Support Table – 10 C
• Stricter Environmental Regulations: The Indian government is likely to implement more stringent environmental regulations on the leather industry. This could include mandatory waste treatment, water management protocols, and emission controls, pushing tanneries towards sustainable practices. • Incentives for Sustainable Practices: Government and industry bodies may introduce incentives for companies that adopt sustainable practices, such as tax benefits, subsidies for clean technology, and support for certification processes like the Leather Working Group (LWG). • Education and Skill Development: There will be a greater emphasis on educating workers and business owners in the leather industry about sustainable practices. This includes skill development programs focusing on new technologies and sustainable methods.

10. 4 Global Collaborations and Partnerships Table – 10 D

10. 4 Global Collaborations and Partnerships Table – 10 D
• International Partnerships: Indian men's leather bag producers will increasingly collaborate with global brands that prioritize sustainability. These partnerships can drive the adoption of

10. 4 Global Collaborations and Partnerships Table – 10 D
international best practices and standards in sustainability. • Research and Development: Collaborative research initiatives between Indian institutions, international organizations, and private companies will play a crucial role in developing new sustainable leather technologies.

10.5 Social and Ethical Considerations Table - 10 E

10.5 Social and Ethical Considerations Table - 10 E
• Improved Labor Conditions: As part of the broader sustainability agenda, there will be a stronger focus on improving labor conditions within the leather industry. Ethical practices will become a key aspect of sustainability, including fair wages, safe working conditions, and the eradication of child labor. • Community Impact: Sustainable leather sling bags can have positive impacts on local communities, particularly in rural areas where tanneries are often located. Initiatives aimed at reducing pollution and waste can improve public health and environmental conditions for these communities.

10.6 Sustainability as a Brand Value Table – 10 F

10.6 Sustainability as a Brand Value Table – 10 F
• Brand Differentiation: Indian leather backpack brands that emphasize sustainability will likely gain a stronger foothold in both domestic and international markets. Sustainability could become a key differentiator in a competitive industry, leading to increased brand loyalty and premium pricing. • Storytelling and Transparency: Brands will focus on storytelling that highlights the sustainable journey of their products, from sourcing to production. Transparency in the supply chain will become crucial, with consumers expecting clear information on how their leather tote bags are made.

The future of sustainable leather in India looks promising, driven by technological innovation, consumer demand, regulatory support, and a shift towards ethical practices. While challenges remain, the industry is likely to undergo significant changes that will make it more sustainable, competitive, and socially responsible. As global trends continue to evolve, India's leather industry will need to adapt and innovate to stay ahead.

Source : 10.& Tables – 10 A & 10 B & 10 C & 10 D & 10 E & 10 F. & 10 G. The Rise of Sustainable Leather in India: Practices, Challenges, and Future Trends, Nera Powered by Neraexim

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1.Introduction

1. A sustainable strategy for the leather industry [1]

- A sustainable strategy for the leather industry focuses on minimizing environmental impact through various practices, including vegetable tanning, water recycling, and renewable energy sources.
- This includes reducing water consumption, using eco-friendly materials like vegetable tanning agents, and managing waste more effectively.
- Furthermore, the industry can adopt cleaner production approaches, such as using enzymes and plant extracts, and exploring chrome-free tanning alternatives.

1.1 Key Strategies for a Sustainable Leather Industry Table - 1 A

1.1 Key Strategies for a Sustainable Leather Industry Table - 1 A
• Adopt Eco-Friendly Tanning Processes:
• Vegetable Tanning: Utilize natural tannins derived from plant sources like bark, acorns, and gall nuts to replace traditional chemical tanning agents. Vegetable-tanned leather is biodegradable and has a lower environmental impact than chrome-tanned leather.
• Chrome-Free Tanning: Explore and implement alternatives to chromium, such as synthetic tanning agents, polymeric tanning agents, and other mineral tanning options, to eliminate the release of chromium into wastewater.

1.1 Key Strategies for a Sustainable Leather Industry Table - 1 A
• Nanomaterials for Chrome Exhaustion: Utilize nanomaterials to improve the efficiency of chrome tanning and reduce the discharge of chromium into wastewater.
• Water Management:
• Water Recycling and Reuse: Implement closed-loop systems to reuse and recycle water used in the tanning process.
• Reduce Water Consumption: Optimize processes to minimize water usage at each stage of leather production.
• Waste Management:
• Solid Waste Recycling and Valorization: Explore ways to repurpose solid waste from leather production, such as using it in other industries or as a source of renewable energy.
• Effluent Treatment: Implement advanced technologies for treating wastewater to remove pollutants and ensure it meets environmental standards.
• Renewable Energy:
• Transition to Renewable Energy Sources: Utilize solar, wind, and other renewable energy sources to power leather production facilities.

1.1 Key Strategies for a Sustainable Leather Industry Table - 1 B

1.1 Key Strategies for a Sustainable Leather Industry Table - 1 B
• Traceability and Transparency:
• Traceability Systems: Implement systems to track raw materials and processes throughout the supply chain to ensure sustainability practices are followed.
• Transparency in Production: Provide clear and transparent information about the environmental impact of products and processes to consumers.
• Circular Economy:
• Design for Durability and Repair: Design leather products to be durable, repairable, and recyclable to reduce waste and extend the lifespan of products.
• Recycling of Leather Scraps: Implement programs to recycle leather scraps and waste into new products.
• Collaboration and Partnerships:

1.1 Key Strategies for a Sustainable Leather Industry Table - 1 B
• Industry Collaboration: Encourage collaboration between tanneries, manufacturers, retailers, and other stakeholders to implement sustainable practices throughout the supply chain.
• Research and Development: Invest in research and development to find new and innovative ways to reduce the environmental impact of leather production

By implementing these strategies, the leather industry can significantly reduce its environmental footprint and contribute to a more sustainable future.

Source: 1 & Tables – 1 A & 1 B, A sustainable strategy for the leather industry https://www.google.com/search

2. THE UK LEATHER INDUSTRY -AN OVERVIEW ANDFUTURE STRATEGY[2]

Leather is a unique and highly versatile material. It is a renewable resource based on a by-product of the meat, wool and dairy industries and used in a wide range of products as diverse as children's shoes, where it is most important for foot health, luxury bags and cases, car seats, jackets, gloves, saddlery and oil seals in aircraft.

Leather makes a contribution to the quality of everyday life and has done so for centuries. Leather has a special attraction and is sought after by consumers – virtually everyone wears or uses one or more leather products on a regular basis. The UK has an important place in the global leather industry because of its specialist producers and its concentration of technical expertise, education and training facilities.

2.1 STRATEGIC ISSUES FOR THE UK LEATHER INDUSTRY[2.1]

They have identified six main areas of strategic importance and concern for the UK industry,

They are broadly categorised as follows:

- Research and development
- Environment
- Brand
- Carbon footprint and sustainability

- UK raw material (hides and skins)
- Education and people

These categories will present the major challenges for the UK leather industry for the foreseeable future, and we believe that if there is to be support available to meet the needs of the sector that it should be focussed on these areas. The major issues by category are outlined below and addressing them will allow for further development of a lean and resilient independent UK leather sector.

3.Creating A Pricing Strategy For Leather Products[3]

Leather products are always in demand in the market. People of all ages and occupations use leather-made products. Whether it be leather bags, wallets, shoes, etc. leather products are always a classic in every fashion season.

- How a pricing strategy is created for leather goods can be a common thought question by the buyers of leather-made goods.
- Creating a pricing strategy for any product is an intricate part of the business organization. It can determine and establish several important aspects of the business. To create a pricing strategy for products, several directions are often followed.
- However, it can vary in the case of the pricing strategy for leather products. Leather products can be high-end items, medium-range, or budget-friendly too.
- To create the pricing strategy for leather products, several key factors need to be considered first. These key factors focus on what value the leather products are supposed to provide to the buyers. At the same time, the fundamental aspects of selling leather products should be clear.
- The fundamental features that manufacturers of leather goods should be clear about before pricing their products include whether they are looking for basing the price on the production cost, the value that the product is offering to the buyers, or, the prevailing competition in the market.

Three major pricing strategies followed are :

3.1 Three major pricing strategies can be followed Table – 3 A

3.1 Three major pricing strategies can be followed Table – 3 A
3.1.1 Cost-Based Pricing Strategy - Cost-based pricing strategy is the type of strategy used in pricing for a material based on the cost that is acquired during its production. So, the production cost acts as the basis for the final price of the product. A predetermined profit level is added to the production cost to get the product price. Many companies that mass-produce leather goods use this pricing strategy.
3.1.2 Value-Based Pricing Strategy - Value-based pricing strategy can prove to be an effective way to create a pricing strategy for your leather products. This strategy is also known as a customer-based pricing strategy because out of all the other strategies this one focuses the most on what the customers want. In this pricing concept, the price is set according to the benefit the product provides.
3.1.3 Competition-Based Pricing Strategy - Competition-based pricing strategies are highly helpful to sustain in a highly-competitive market. It is the type of pricing strategy that places the price on its products after analysing what the existing competitors are charging in the market. So, when similar businesses are filled up in a market, this pricing strategy proves to be very significant to acquire profit.

Source : 3 & Table – 3 A. Leather Pricing and Profitability Strategies, Deskera

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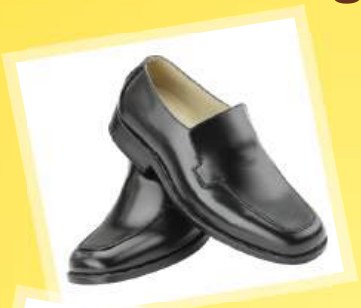

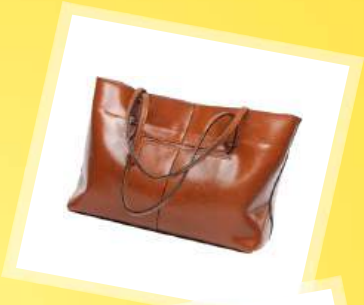

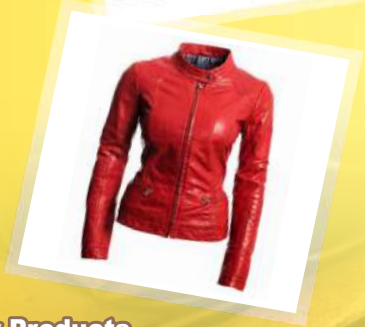

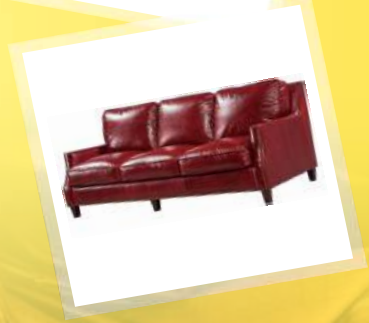

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