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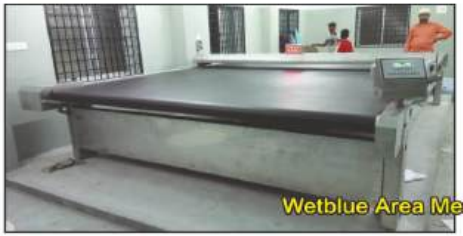
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The 26th edition of the All China Leather Exhibition, popularly called **Shanghai Fair** is the premier event for the international leather sectors seeking opportunities in China's huge markets, the focus of the leather industry.

ACLE 2026 is being jointly organised by APLF Limited and China Leather Industry Association, (CLIA) from 1-3 September 2026, in Halls E 1-E 7 & W 1 in the Shanghai New International Expo Centre (SNIE), occupying an area of over 80,500 sq mtrs space, hosting nearly 1000 exhibitors who are expected to welcome over 31,000 visitors from the trade and industry spanning over 25 countries.

This mega event targets Chinese tanning (upstream) sectors which are sourcing raw hides, skins, semi-finished leather, leather chemicals, and machineries for leather, leather products and footwear.

The CLIA predicts a robust performance from the China leather industry in 2026, despite somewhat disappointing overall results in 2025. For instance, both import and export figures experienced a year-on-year decline, with sales revenue decreasing by 13.1% compared to 2024. However, export revenues reached USD 83 billion, marking a 10% decrease but still surpassing the performance of close competitors. China remains a key market for various types of leather, presenting significant export opportunities for Western suppliers across the leather supply chain.

In its recent report, CLIA highlights the automotive sector as a growing opportunity for finished leather suppliers. With vehicle sales in China exceeding 33 million units in 2025 and an estimated 20% featuring leather interiors, alongside upholstery, this segment presents a crucial demand for leather.

ACLE provides participants with the chance to connect with existing clients, establish new contacts, and network with industry peers. ACLE serves as a valuable source of information for making informed business decisions and shaping future strategies.

Indian Leather wishes all the participants at ACLE 2026 a great success.

13th Asian International Conference on Leather Science and Technology (AICLST 2026)

(Contd., from July 2026 issue)

Day – 2: Saturday, 7th March, 2026

Technical Session – III (09:30 AM – 11:30 AM) Innovative Process Technology (TI)

Chair: Dr. B. Chandradekaran, Former Director, CSIR-Central Leather Research Institute (CLRI), Chennai **Co-Chair:** Mr. Jayanta Chaudhuri, Head Chemicals, SBU Chemicals, Balmer Lawrie & Co. Ltd., Chennai

The second day of the conference commenced with **Technical Session – III** on the theme **"Innovative Process Technology (TI)"**, chaired by **Dr. B. Chandradekaran, Former Director, CSIR-CLRI, Chennai**, and co-chaired by **Mr. Jayanta Chaudhuri, Head Chemicals, SBU Chemicals, Balmer Lawrie & Co. Ltd., Chennai**.

Right: Dr. B. Chandradekaran, Left: Mr. Jayanta Chaudhuri,
Chair and Co-Chair of Technical session-III

Before the commencement of the session, both dignitaries were welcomed to the dais and presented with mementoes by **Mr. N. R. Jagannathan, President, ILTA Southern Region**.

The session focused on emerging innovations that are transforming leather manufacturing and allied industries. The technical deliberations covered a broad spectrum of topics including **nanotechnology applications, automation and robotics, sustainable chemistries, sustainable materials and processes, process intensification, green chemistry, transition of leather processing from batch operations to continuous systems, sustainable environmental management practices, and the conversion of industrial wastes into value-added chemicals and products.**

In his opening remarks, **Dr. B. Chandradekaran** welcomed the delegates and expressed his pleasure at being associated with the conference. Referring to the technical discussions held since the inaugural day, he observed that the conference had successfully showcased a number of innovative ideas addressing contemporary challenges faced by the leather sector. He emphasized that innovation remains the key driver of technological advancement and sustainability in the industry.

He noted that the global leather sector is currently confronted with multiple challenges relating to environmental sustainability, resource optimization, regulatory compliance, and market competitiveness. Addressing these challenges requires continuous innovation in both materials and manufacturing processes. He highlighted that technological innovations can significantly contribute towards sustainable production, enhanced process efficiency, improved material utilization, and reduced environmental impact. He further remarked that the session had been designed to showcase some of the latest developments in these areas and would provide valuable insights into future directions of leather processing technologies.

Keynote Address by Dr. Volkar Rabe

In his introductory remarks, **Mr. Jayanta Chaudhuri** emphasized that process innovation has become an urgent necessity for the leather industry in view of increasing environmental expectations and global ESG (Environmental, Social and Governance) requirements. He observed that the leather and leather chemical industries are often perceived as environmentally challenging sectors and stressed the responsibility of industry stakeholders to continuously develop cleaner technologies, sustainable processes, and environmentally responsible manufacturing practices.

He expressed confidence that the keynote address and technical papers presented during the session would address many of these concerns and provide practical solutions for achieving sustainable industrial growth. He encouraged active participation and interaction among delegates to maximize the value of the technical discussions.

Dr. Volkar Rabe was presented with a Memento and Citation

The session featured the following presentations:

1. **Keynote Address by Dr. Volkar Rabe** – *Bisphenols in Leather*
2. **Dr. Bindia Sahu** – *Fatty Acids Based Fatliquor with Antifogging Properties*
3. **Ms. Janani V.** – *Sustainable Fatliquoring through Amphoteric Polymer Design: A Comparative Study on Chrome-Tanned and Chrome-Free Leather*
4. **Dr. Sangeetha D. R.** – *Superhydrophobic Leathers through Sustainable Nanocomposites Coating Technology*

5. **Ms. Anusuya Annamalai** – *Leather Tanning Based on Al(III)-Phloroglucinol Metal Complex Combined with Vegetable Tannin as a Chrome-Free Approach*

6. **Presentation by Diamond Sponsor – M/s TFL Quinn**

The keynote address by **Dr. Volkar Rabe**, Global Head, TFL, was one of the highlights of the session. Introducing the speaker, Dr. Chandradekaran outlined Dr. Rabe's academic and professional achievements, including his doctoral studies at the University of Stuttgart, his tenure at the Freiberg Institute of Leather Technology, and his extensive industrial experience spanning more than a decade in leading multinational organizations before assuming his current global leadership role at TFL.

Paper presentation by Dr. Bindia Sahu

The keynote presentation focused on **"Bisphenols in Leather"**, a subject of growing importance for the global leather industry due to evolving regulatory requirements and increasing scrutiny of chemicals used in leather processing. Dr. Rabe provided an in-depth overview of the chemistry, applications, regulatory concerns, and future challenges associated with bisphenols in leather manufacture.

The presentation examined the historical

Ms. Janani V. receiving Citations by Dr. B. Chandradekaran and Mr. Jayanta Chaudhuri

use of bisphenol-based compounds in leather chemicals and their contribution to product performance and process efficiency. At the same time, it addressed emerging international regulations concerning restricted substances and highlighted the growing need for the industry to develop safer and more sustainable alternatives.

Particular emphasis was placed on the challenges faced by leather chemical manufacturers as regulatory frameworks continue to evolve worldwide. Dr. Rabe discussed how increasing restrictions on certain chemical groups necessitate continuous research and innovation to develop environmentally acceptable substitutes while maintaining product quality and processing performance.

The keynote stimulated considerable interest among delegates as it addressed both the scientific and regulatory dimensions of leather processing chemistry. The presentation underscored the importance of proactive research and innovation in ensuring compliance with future regulations while supporting sustainable growth of the leather sector.

The subsequent technical presentations showcased a diverse range of innovative approaches aimed at improving leather processing efficiency, product performance, and environmental sustainability. Several papers focused on chrome-free technologies, sustainable tanning systems, advanced fatliquoring techniques, nanotechnology-based surface modifications, and environmentally friendly finishing processes.

Dr. Sangeetha D. R. receiving Citations by Dr. B. Chandradekaran and Mr. Jayanta Chaudhuri

Dr. Bindia Sahu presented the development of a novel fatty acid-based fatliquor imparting antifogging properties to leather surfaces.

The study demonstrated how functional fatliquors can enhance both the performance and value of leather products while maintaining processing efficiency and product quality.

Ms. Janani V. discussed the design and application of amphoteric polymer-based fatliquors as a sustainable alternative for leather processing. The comparative study evaluated their performance on both chrome-tanned and chrome-free leathers, highlighting improvements in softness, physical properties, and environmental compatibility.

Ms. Anusuya Annamalai receiving Citations by Dr. B. Chandradekaran and Mr. Jayanta Chaudhuri

Dr. Sangeetha D. R. presented an innovative nanocomposite coating technology for producing superhydrophobic leather surfaces. The sustainable coating system significantly enhanced water repellency and durability, offering potential applications in high-performance and specialty leather products.

Ms. Anusuya Annamalai showcased a chrome-free tanning system utilizing an Al(III)-Phloroglucinol metal complex in combination with vegetable tannins. The study demonstrated promising tanning performance and leather quality, contributing to the development of environmentally sustainable alternatives to conventional chrome tanning.

The session also featured innovative developments in leather finishing technology, including the utilization of natural rubber as a sustainable finishing material, demonstrating the increasing integration of renewable resources into leather manufacturing.

Overall, the session reflected the industry's strong commitment towards innovation, sustainability, cleaner production technologies, resource efficiency, and the development of environmentally responsible leather manufacturing practices. The presentations generated significant discussions among delegates and highlighted the important role of research and development in addressing future technological and sustainability challenges.

Following the technical presentations, **Dr. Volkar Rabe** was presented with a **Memento and Citation** in recognition of his keynote address and valuable contribution to the conference. All other paper presenters were also honoured with **Citations** by **Dr. B. Chandradekaran** and **Mr. Jayanta Chaudhuri** in appreciation of their scientific contributions and participation in the session.

The Chair and Co-Chair were felicitated with plants and citations **by** Dr. J. Raghava Rao,

Thereafter, both the Chair and Co-Chair were felicitated with **plants and citations** by **Dr. J. Raghava Rao, Member, AICLST Scientific Committee and Vice President, ILTA Southern Region**, as a token of appreciation for their guidance and successful conduct of the session.

Technical Session – IV (12:00 PM – 02:00 PM) Innovative Process Technology (TI)

Chair: Mr. Pulok Mazumder, Vice President, ILTA

Co-Chair: Dr. J. Raghava Rao, Member, AICLST Scientific Committee & Vice President, ILTA Southern Region

Technical Session – IV on **"Innovative Process Technology (TI)"** was chaired by **Mr. Pulok Mazumder, Vice President, ILTA**, and co-chaired by **Dr. J. Raghava Rao, Member, AICLST Scientific Committee and Vice President, ILTA Southern Region**.

Before the commencement of the session, both dignitaries were welcomed to the dais and presented with mementoes by **Mr. Susanta Mallick, General Secretary, ILTA**.

The session continued the deliberations on one of the most significant themes of AICLST 2026, namely **Innovative Process Technology**, which has emerged as a key driver for ensuring the future sustainability, competitiveness, and value creation potential of the global leather industry. The technical discussions focused on the development of novel materials, advanced processing technologies, sustainable chemistries, smart functional properties, and innovative approaches capable of enhancing the performance and market value of leather products.

Right: Mr. Pulok Mazumder,
Left: Dr. J. Raghava Rao,
Chair and Co-Chair of Technical session-IV

In his introductory remarks, **Dr. J. Raghava Rao** reflected upon the broader objectives of the conference and emphasized that the 13th AICLST had commenced with an important discussion on the challenges and opportunities confronting the leather sector. He observed that the industry must continuously identify and strengthen the unique characteristics of leather in order to successfully address the increasing competition from alternative materials.

Paper presentation by Mr. G. Mothi Prasad

He emphasized that the future of leather lies not merely in competing with other materials but in creating distinctive value propositions through innovation. According to him, innovation in chemicals, processes, materials, and products is the primary driving force that can ensure leather retains its position as a premium and desirable material in the global marketplace.

Reflecting on the technical sessions conducted earlier in the conference, Dr. Rao noted that the focus of innovation within the leather industry has evolved significantly over the years. Traditionally, research efforts concentrated on beamhouse operations, including enzyme technologies, sulfide-free processing, deliming innovations, pickle-free tanning, chrome management, and water-saving technologies. While these developments remain important, the current direction of research is increasingly oriented towards the development of advanced materials, smart functionalities, specialty chemicals, and performance-enhancing technologies that add value to leather products.

He remarked that the presentations delivered during the previous Innovative Process Technology sessions clearly demonstrated this shift in focus. Many of the papers

Paper presentation by Dr. Renganath Rao Ramesh

addressed innovations in fatliquoring, syntans, finishing chemicals, advanced materials, and product performance enhancement. He observed that the leather research community has increasingly recognized that the future success of the industry depends upon developing "smart leather" capable of delivering unique functionalities and enhanced consumer value.

Paper presentation by Ms. Poulomi Ghosh

Dr. Rao further highlighted that Indian leather technologists and researchers are making significant contributions in this direction and are successfully aligning themselves with global technological trends. He expressed confidence that the papers scheduled for the session would provide valuable insights into the latest developments in innovative process technologies and stimulate meaningful discussions among delegates.

The session featured the following technical presentations:

1. **Mr. G. Mothi Prasad** – *Characterization of Leather Processing Stages through Multimodal Magnetic Resonance Imaging Approaches*

2. **Dr. Renganath Rao Ramesh** – *Development of Bromine-Free Aluminum-Carboxymethyl Melamine MOFs as Hybrid Flame Retardants for Leather Application*

3. **Ms. Poulomi Ghosh** – *Transforming Invasive Pterygoplichthys spp. Skin into Leather*

4. **Mr. Muthukumaran P.** – *Indigenous Alternatives to Vegetable Tanning Agents – Experimental Validation and Case Study*

5. **Dr. Piku Sen** – *An Overview of Potential Applications of Deep Eutectic Solvents in Leather Manufacturing*

6. **Dr. Punitha Velmurugan** – *Encapsulated Peppermint Oil for Antimicrobial Fragrant Leather*

7. **Dr. V. Vijayabaskar** – *Synthesis of Novel Surfactants, Their Copolymers and Applications in Different Stages of Leather Processing*

8. **Ms. Debosmita Sikdar** – *Antifungal Screening of Methanolic Extracts of Phytochemicals: A Strategy to Fabricate Industrially Active Antifungal Agents*

Paper presentation by Mr. Muthukumaran P

The presentations covered a broad spectrum of innovative technologies and scientific approaches designed to enhance both the functional and environmental performance of leather products. Several papers demonstrated how advanced scientific techniques can contribute to process optimization, improved product quality, and sustainable manufacturing practices.

Paper presentation by Dr. Piku Sen

The presentation by **Mr. G. Mothi Prasad**

showcased the application of **multimodal magnetic resonance imaging (MRI)** as an advanced analytical tool for characterizing different stages of leather processing. The research highlighted the potential of non-destructive imaging technologies for monitoring process parameters and improving process control in leather manufacture.

Dr. Renganath Rao Ramesh presented innovative work on the development of bromine-free flame-retardant materials based on hybrid metal-organic frameworks (MOFs). The research demonstrated how advanced materials can improve fire resistance while simultaneously addressing environmental and regulatory concerns associated with conventional flame-retardant systems.

Dr. Punitha Velmurugan receiving Citations by **Mr. Pulok Mazumder** and **Dr. J. Raghava Rao**

A particularly unique presentation was delivered by **Ms. Poulomi Ghosh**, who explored the conversion of invasive *Pterygoplichthys* fish skin into leather. The study illustrated how unconventional biological resources can be transformed into value-added leather products while simultaneously contributing to ecological management and sustainability objectives.

The paper presented by **Mr. Muthukumaran P.** focused on the identification and validation of indigenous alternatives to conventional vegetable tanning agents. The research highlighted opportunities for utilizing locally available resources and reducing dependence on imported tanning materials while supporting sustainable leather production.

Dr. Piku Sen discussed the emerging role of **Deep Eutectic Solvents (DES)** in leather manufacturing. The presentation demonstrated the potential of these environmentally friendly solvent systems to replace conventional chemicals and contribute to greener processing technologies.

Innovation in functional leather development was further highlighted through the work of **Dr. Punitha Velmurugan**, who presented the use of encapsulated peppermint oil to impart antimicrobial and fragrance properties to leather. The research showcased the growing trend towards multifunctional and value-added leather products designed to meet evolving consumer expectations.

Dr. V. Vijayabaskar receiving Citations by **Mr. Pulok Mazumder** and **Dr. J. Raghava Rao**

The presentation by **Dr. V. Vijayabaskar** focused on the synthesis and application of novel surfactants and copolymers across various stages of leather processing. The study demonstrated how innovative chemical formulations can improve processing efficiency and product performance while reducing environmental impacts.

Finally, **Ms. Debosmita Sikdar** presented research on antifungal phytochemicals and their potential industrial applications. The work explored natural alternatives for developing active antifungal agents that could contribute to leather preservation and enhanced product durability.

Online Paper Presentation by
Ms. Debosmita Sikdar

Collectively, the presentations reflected the growing emphasis on advanced materials, green chemistry, process optimization, sustainability, resource efficiency, and smart functional properties. The research showcased during the session demonstrated how innovation is increasingly being directed towards creating differentiated, high-performance leather products capable of meeting future market requirements.

The session generated significant interest among delegates

and stimulated productive discussions on the future direction of leather research and technology development. The papers clearly demonstrated that innovation continues to be the cornerstone for enhancing the competitiveness, sustainability, and value proposition of leather in an increasingly dynamic global marketplace.

Following the technical presentations, all paper presenters were presented with **Citations** by **Mr. Pulok Mazumder** and **Dr. J. Raghava Rao** in recognition of their valuable scientific contributions and participation in the conference.

Thereafter, both the Chair and Co-Chair were felicitated with **plants and citations** by **Dr. Buddhadeb Chattopadhyay, Former Principal, Government College of Engineering and Leather Technology (GCELT), Kolkata, and Member, AICLST Scientific Committee**, as a token of appreciation for their leadership and successful conduct of the session.

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- Chromium free tanning gel
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- Protein-based synthetic tanning agent

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- Plant based leather like material
- Preparation of leather like material (Pseudo-corium)

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TFL to Showcase the Future of Responsible Leather at ACLE 2026

TFL, a leading global supplier of specialty chemicals for the leather industry, has announced its participation in the **All-China Leather Exhibition (ACLE) 2026**, taking place from **September 1 -3, 2026**, at the **Shanghai New International Expo Centre**. Continuing a tradition of more than 20 years at one of the industry's most important trade fairs, TFL will welcome customers and industry professionals to **Hall E2, Booth E03** to experience the latest innovations shaping the future of leather manufacturing.

Under the theme **"Be Prepared to Experience the Future",** TFL will present a comprehensive portfolio of advanced leather solutions that combine performance, sustainability, and trend leadership. Visitors will discover a curated collection of premium leather articles featuring the forecasted **Autumn–Winter 2027/28 colour trends**, demonstrating how innovative chemistry and expert technical advice contribute to outstanding leather performance and design.

A key highlight of TFL's presence at ACLE 2026 will be the introduction of **VEGTAN®**, TFL's new brand for responsible tanning. Based on a groundbreaking process with more than **70% bio-based content**, VEGTAN® upcycles by-products from other industries without competing with the human food chain. This technology represents a significant step in TFL's commitment to supporting a more regenerative and resource-efficient leather industry.

In addition, TFL will showcase leather accessories produced with **ultra-low bisphenol content**, reflecting the company's ongoing efforts to help customers meet increasingly demanding regulatory

and brand requirements while maintaining the highest standards of leather quality and performance. Building on innovations successfully showcased at recent ACLE exhibitions, TFL continues to advance solutions that combine sustainability with industrial practicality.

“ACLE is a cornerstone event for the global leather industry and an important opportunity to connect with customers, exchange ideas, and showcase innovation. Given the strategic importance of China and the Asia-Pacific region for TFL, we are particularly proud of our strong local presence, combining manufacturing excellence, technical expertise, and close customer support to help our partners succeed.” said **Samer Al Jabi,** Interim CEO & CCO of TFL Group. "With VEGTAN®, our latest generation of sustainable leather solutions, we are demonstrating how innovation can help create a more responsible and future-ready leather industry" he added.

Muno to Showcase Responsible, High -Performance Leather Solutions at ACLE 2026 (At Hall E2, Booth E2-C05)

Muno will be presenting its advanced wet-end technologies that combine high leather performance with a more sustainable approach to leather production, at ACLE 2026 at its booth in Hall E2, Booth E2 - C05.

As market expectations continue to evolve and brands increasingly prioritize responsible sourcing, leather manufacturers are challenged to deliver premium quality while reducing environmental impact. At Muno, innovation starts with a deep understanding of materials, processes, and real production challenges. Through advanced wet-end technologies and close collaboration with customers, the company is helping shape the future of leather manufacturing.

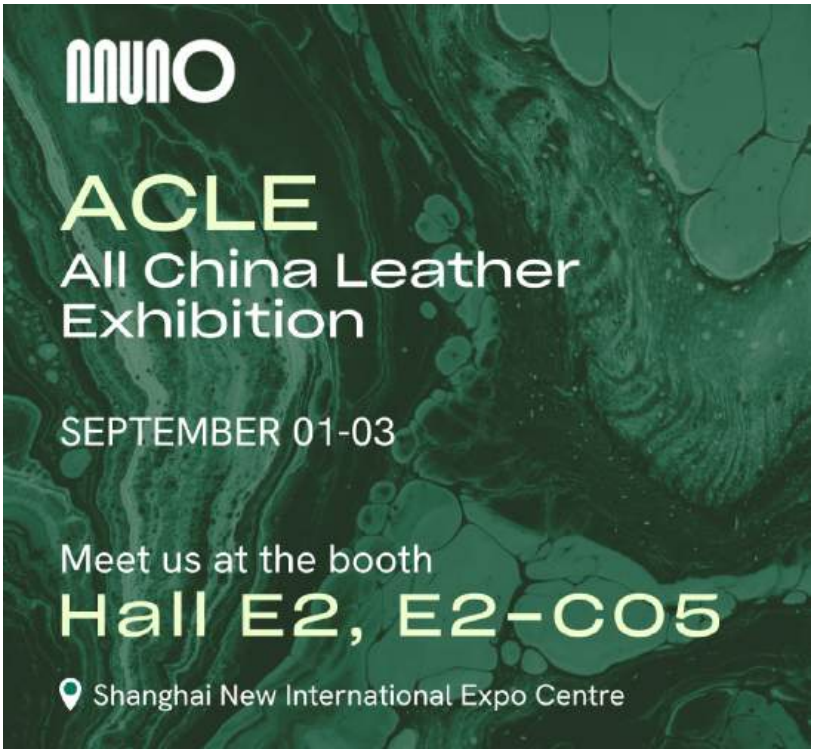
Muno will showcase three key technology platforms:

- **Densodrin® waterproof system**, which combines high performance with eco-friendliness.
- **TANICOR®.LB**, an upgraded low-bisphenol range developed that complies with upcoming regulations.
- **Syntura®**, Muno's next generation of retanning system, combining premium performance, sustainability and regulatory compliance.

Visitors are invited to meet the Muno team at Hall E2, Booth E2-C05 to discuss technical challenges, sustainability priorities and new opportunities for high-performance and more responsible leather manufacturing.

About Muno

Muno is a market leader in next-generation solutions for wet-end leather manufacturing, offering an extensive portfolio that supports every stage of the leather production process, from beamhouse and tanning to retanning, dyeing, fatliquoring and waterproofing. Driven by a deep understanding of materials, processes and production challenges, Muno develops advanced, low-impact technologies that help leather manufacturers improve performance, address evolving market and regulatory requirements, and advance their sustainability goals. Through technical expertise, continuous innovation and close collaboration with customers, Muno is helping shape the future of leather manufacturing. ***Discover more at munocorp.com***



Leading companies in the industry focus on ACLE 2026 with their cutting-edge technologies

The 26th China International Leather Exhibition (ACLE), a world-renowned event in the leather industry, popularly known as Shanghai Fair, is being concurrently oprganised with the 2026 International Footwear, Bags & Apparel Fashion Exhibition (MODA CHINA) in the Shanghai New International Expo Centre, from 1-3 September, 2026.

Exhibitors will cover raw materials and equipment from leather tanning, machinery, chemicals, synthetic leather, and footwear accessories, as well as finished products such as shoes, bags, leather clothing, and fur garments from over 30 countries worldwide. The exhibition will create a high-end exchange platform for the global leather industry, integrating trade cooperation, advanced technology exchange, resource matching, information acquisition, and fashion leadership across the entire industry chain, covering a total area of 92,000 square meters.

Global exhibitors gather, bringing together top international industry forces

This year's exhibition covers eight halls and continues to expand in scale. It is expected to bring together nearly 1,000 high-quality

exhibitors from more than 30 countries and regions, including China, Brazil, Italy, France, the United States, Australia, Turkey, Spain, Pakistan, India, and Uzbekistan, and attract more than 35,000 professional buyers and visitors.

International leather and chemical giants, including Stahl and Smit & Zoon from the Netherlands, FENICE, KLF, and MUNO from Italy, Trumpler and TFL from Germany, and Cromogenia from Spain, will all be present, showcasing comprehensive green chemical solutions covering the entire process from water treatment to finishing. On the supply side, JBS Couro from Brazil will showcase its main products, including furniture leather, automotive interior leather, and shoe upper leather; Bader, a German automotive leather supplier, will demonstrate its automotive interior leathers used by high-end brands such as Mercedes-Benz, BMW, and Audi. Meanwhile, the ASSOMAC Association has led the formation of an Italian leather machinery exhibition group, and the PTA Association has spearheaded a Pakistani-themed exhibition group, bringing together high-quality international industry resources.

The gathering of domestic brands demonstrates the advantages of a complete industrial ecosystem.

The domestic exhibition area brings together over 800 key exhibitors, showcasing the comprehensive supply chain system and mature industrial cluster advantages of China's leather industry in a multi-dimensional and comprehensive manner.

Green technology iteration and upgrading lead the low-carbon transformation of industries

Green manufacturing is the core highlight and distinctive feature of the exhibition. Leading companies in the industry will release a number of cutting-edge innovative technologies to help the entire industry achieve green and low-carbon transformation and upgrading.

In leather processing, Shishan Zhenglong promotes a fully vegetable tanning process, combining waste liquid recycling and bathless oiling technology to improve clean production levels; North American Sai Leather uses low-temperature enzymatic degreasing and novel cross-linking agent modification to allow chromium tanning agents to penetrate evenly and fully combine with leather collagen, improving leather tanning performance while reducing heavy metal emissions; Lihou Chemical's chromium-free tanning agent LMT raises the shrinkage temperature to over 85℃, breaking through the bottleneck of moisture and heat resistance; Yuantai Leather applies zeolite tanning agents to tanning shoe upper leather and has developed high-performance waterproof leather.

In terms of recycling and end-of-pipe treatment, Baosika has achieved a fully enclosed, indefinite recycling of tanning wastewater, significantly reducing chromium sludge emissions; Brothers Technology has built a project to process 7,500 tons of chromium-containing solid waste annually, converting it into chromium tanning agent raw materials for recycling; Xingye Leather has implemented "five-water separation and separate treatment," achieving a reclaimed water reuse rate of over 50%; and Meihua Leather has strengthened deep wastewater treatment through process improvements and equipment upgrades, significantly increasing the reuse rate of production water to approximately 40%. These green innovation achievements collectively demonstrate the leather industry's solid steps and remarkable results in deeply cultivating low-carbon development and steadily promoting the green transformation of the industry.

Intelligent equipment empowers intelligent manufacturing and drives industrial upgrading and quality improvement.

To promote the digital and intelligent transformation of the industry, the China Leather Industry Association will officially establish a

Digital and Intelligent Professional Committee during the exhibition, which will guide and support enterprises across the entire industry chain to complete their digital upgrades from the top-level design perspective.

At the exhibition, a group of leading companies will showcase their achievements in intelligent equipment for the entire industry process

The concurrently held **MODA CHINA fashion exhibition** will set up a 3D printing intelligent technology zone and work with the Digital Intelligence Professional Committee to build an integrated platform for technology exchange and business opportunity matching, helping the industry to make a comprehensive leap from "point-based innovation" to "system intelligent manufacturing".

The entire chain of innovation has yielded a dazzling array of new products.

The exhibition combines technology demonstration and new product launch, serving as both an arena for industrial technology competition and a concentrated launch event for cutting-edge innovative products.

Xingye Technology launched three new green products: the second-generation vegetable-coated leather balances mass production efficiency and ecological safety; the vegetable-tanned NP leather achieves zero chromium and zero formaldehyde while improving strength; and the water-dyed calfskin series meets high-end green demands. Hong Sihai Leather innovatively launched ultra-thin leather with a thickness of only 0.15 mm, providing a new material selection solution for the innovative iteration of spring and autumn trench coat fabrics. Lingjue Leather pioneered the Zhongke zinc core modified coating antibacterial and detoxifying series, which, according to authoritative testing, has an inactivation rate of over 99% against

pathogenic bacteria and influenza viruses, helping the industry achieve a leapfrog upgrade from environmentally friendly production to functional health.

In the footwear materials sector, Henan Bonny launched insoles that have obtained national Class II medical device certification, achieving a breakthrough in upgrading its products from everyday wear to medical-grade health protection. Hangzhou Kaiyue innovatively launched coffee grounds hot melt adhesive and mugwort cloth bio-based products, using natural and environmentally friendly materials to help upgrade the green and functional aspects of footwear materials. Quanzhou Xuanlong Textile launched fluorine-free waterproof, stain-resistant, and sweat-wicking footwear materials, making polyester yarn feel like cotton, combining moisture-wicking and quick-drying advantages with cost advantages.

In the field of leather processing, Zhejiang Heping New Materials showcased its standard chromium powder 9811C, synthetic fatliquoring agent NPCFAL MA80, and sulfone synthetic tanning agent NPCTANRSL, covering diverse process requirements; Anhui Zeolite New Materials presented its TANORE series of technologies, which have obtained national invention patents, providing diversified technical solutions for the industry's clean and green production.

ACLE 2026 and MODA CHINA Fashion Fair will collaborate to fully integrate the entire industry chain from raw materials and technology to finished products, connecting the core strengths of green intelligent manufacturing and fashion design. We cordially invite industry colleagues from around the world to gather in Shanghai to witness the new ecosystem of the leather industry and explore new opportunities for high-quality development!

Source: China Leather Industry Association (CLIA)

Brazilian participation at ACLE 2026

In this edition of ACLE, 12 Brazilian leather companies will be showcasing their products in their individual booths. Their participation is supported by Brazilian Leather, a project that promotes the country's leather exports and is conducted by the Centre for the Brazilian Tanning Industry **(CICB)** in partnership with the Brazilian Trade and Investment promotion Agency **(Apex Brasil)**

Letícia Luft, Brazilian Leather manager, who will accompany the Brazilian delegation, highlights that ACLE has also become increasingly relevant to the automotive sector, in addition to its traditional importance to the footwear industry.

Brazilian Leather will have an exclusive booth showcasing the Leather Preview exhibition, featuring hides and leathers from several tanneries across Brazil. A dedicated team will also promote the key attributes of Brazilian production among the fair's international audience, including sustainability, innovation and creative leather design.

ACLE exhibitors supported by Brazilian Leather / Booths:

América Leather	-	E1-C12a
Coming	-	E1-D12a
Couros Bom Retiro	-	E1-D11a
Durli Leathers	-	E1-C11b
Euro-América	-	E1-D12b
Fuga Couros	-	E1-C13a
Gobba Leather	-	E1-C11a
Hason International	-	E1-C13b
JBS Couros	-	E1-D1
Liderkoll	-	E1-D14b
Minerva Leather	-	E1-D13
CICB / Brazilian Leather	-	E1-C14a

Vasan's Voice

- Vasan Suri, A Passionate Leather Lover & Professional, Hi-Tech Consultancy
Tel: +91-9871504980/9999735293

ACLE - Shanghai 2026 - A Prelude

The year 2026 started with some promise but, the overall activities have slowed down in the Leather & Leather Products Industry.

But, there is always positive news from China. Recent reports suggest a good jump in the business of leather garments exports.

China Leather Garments recorded a 45.6% growth in export touching $49.4million.

This shows that there is still enough business to explore and we should take the cue from Chinese R&D to Product presentation and grow our business.

Life is all about learning and we all evolve by keeping our ears and eyes open to get news ideas and prospects. Let us find the gap that exists in our growth viz.a.viz., China. Tap those untouched opportunities and look for a stronger business year ahead.

In the footwear side, China still dominates the World Footwear market with 13.7 billion pairs and India way behind at 3 billion pairs. Whereas, Vietnam is growing fast and reaching 1.7billion pairs already.

The above date should give us more positivity that Leather & Leather Products business growth in India is possible provided we adapt ourselves the changing World requirements.

There is also another news that Tapestry records 8 billion annual turnover and Coach records 24% growth whereas Kate Speed is declining.

I would like to emphasize the need to increase our buying power to get the lowest price for the raw materials and chemicals, as we dictate volumes.

Similarly, when we market, a big group or conglomeration which offers variety of Leathers catering to every market and segment, would attract more business.

Again, we come back to the same topic of coming together. Consortium is the key for future growth.

Let us make a strong presentation at the ACLE combining the strengths of like minded people to create a better and larger image before the customers and suppliers.

Volume increase in business with measured steps definitely will put us up in the pedestal.

Looking forward to a result oriented ACLE Shanghai Fair, 2026.

Wishing everyone all the best !. Have a great travel and wonderful business !.

Shoes & Leather - Vietnam closed with positive results

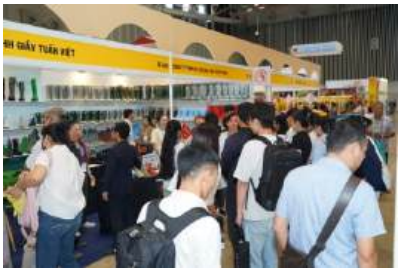
The 26th International Shoes and Leather Exhibition – Vietnam incorporating the 26th International Footwear & Leather Products Exhibition – Vietnam, organised by Top Repute Co Ltd. in association with the Vietnam Leather, Footwear and Handbag Association (LEFASO VIETNAM), was held from 8–10 July 2026, at the Saigon Exhibition & Convention Center (SECC). This milestone event provided a dynamic and comprehensive platform for industry professionals, innovators, and buyers to explore cutting-edge developments, products, and technologies across the footwear and leather sectors.

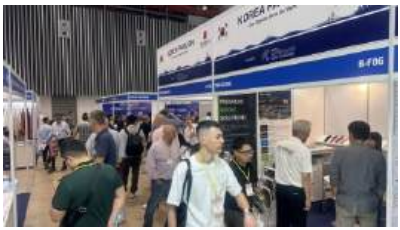
This edition successfully hosted 581 exhibitors, from 21 countries and regions, such as China, Vietnam, Taiwan (China), Italy, India, Hong Kong(China), South Africa, South Korea to name a few, presented their latest innovative products, occupying around 20,000 square meters exhibition space.

The event showcased the entire supply chain from materials, chemicals, leather, machinery and smart technologies to finished footwear, handbags, and suitcases thus making it a key meeting point for professionals across the global leather and footwear landscape.

This exhibition served as a dedicated commercial platform for professional buyers, facilitating direct contact and procurement

opportunities for both domestic and international stakeholders focused on finished product transactions. The event fostered dynamic business exchanges and strengthened global trade ties within the footwear and leather goods market.


VITACO


Brands' supply chain 2026 Goals:
Sustainable Chemical Management


CTC

The 26th International Shoes and Leather Exhibition – Vietnam incorporating the 26th International Footwear & Leather Products Exhibition – Vietnam attracted 10,116 professional visitors, of whom 66.9% were domestic visitors and 33.1% were from 88 countries and regions. Featuring a wide spectrum of innovative products and solutions, the event provided a comprehensive platform for networking, sourcing, and exchanging industry knowledge, reinforcing its role as a cornerstone gathering for the global footwear and leather community.

CONCURRENT EVENT

SEMINARS

Renowned industry experts and seasoned professionals were invited to deliver insightful presentations, shedding light on cutting-edge technological innovations and emerging trends that are shaping the future of the footwear and leather sectors.

Themes of Seminars:

"PFAS Global Regulations and Solutions" by Mr. John YANG, CTC Project Leader

"ZDHC Footwear Engagement 2026" by Dr. Andy Chen, ZDHC Footwear Engagement Director

"How to assess comfort of footwear?" by Mr. Michael Bodsworth, SATRA Chief Operating Officer

The 27th edition of Shoes & Leather Vietnam will take place from 14-16 July, 2027 at the same venue.

Brazilian participation at Shoes & Leather Vietnam

At Shoes and Leather Vietnam, held in Ho Chi Minh City, the Brazilian tanneries' booths generated 92 business contacts, with projected business totaling US$4.4 million during the event and over the following 12 months. The participating companies were **Cortume Krumenauer, Courovale, Euro-América, JBS Couros, and Minuano**.

DID YOU KNOW THAT...

IN THE LAST DECADE, SLOW FOOTWEAR PRODUCTION GROWTH CONTRASTS WITH THE GLOBAL POPULATION BOOM

DESPITE LOSING SHARE, CHINA STILL ACCOUNTS FOR 55.6% OF GLOBAL FOOTWEAR PRODUCTION

THE WORLD AVERAGE EXPORT PRICE RECOVERED TO $11.65 PER PAIR IN 2025, BUT REMAINED BELOW ITS 2023 PEAK

TO FIND OUT ALL THE FACTS AND FIGURES ABOUT THE FOOTWEAR INDUSTRY GO TO

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10th IILF closed successfully

The 10th edition of ther India International Footwear Fair (IIFF) 2026**, organised by the** India Trade Promotion Organisation (ITPO)**, in association with the** Confederation of Indian Footwear Industries (CIFI)**, on 6-8 August 2026, in Halls 5 & 6 at the Bharat Mandapam, New Delhi, closed with positive results.**

The three-day B2B exhibition brought together leading footwear manufacturers, exporters, importers, buyers, technology providers and other stakeholders from India and abroad, providing a comprehensive platform to showcase innovations, strengthen business partnerships and explore new opportunities across the global footwear value chain.

The **10th IIFF hosted around 200 exhibitors who** showcased a comprehensive range of footwear products, components, machinery, chemicals, leather and synthetic materials, manufacturing technologies and allied services. With participation from exhibitors across the footwear value chain and international representation from several countries, the exhibition provided an ideal platform for business networking, sourcing, technology exchange and export promotion. Around 15000 people from the trade and industry during the three days of the fair Shri Giriraj Singh, Hon'ble Union Minister of Textiles inaugurated the fair The inaugural ceremony was graced by Amb. Jawed Ashraf, Chairman, ITPO; Shri Premjit Lal, Executive Director, ITPO; Mr. V. Naushad, President, CIFI; and Mr. Raj Kumar Gupta, Chairman, CIFI, along with senior government officials, industry leaders, exhibitors, buyers and international delegates representing the global footwear industry.

Mr. V. Naushad, President, CIFI, in his welcome address, highlighted the remarkable growth of India's footwear industry and underscored the importance of IIFF as a premier B2B platform for fostering innovation, strengthening manufacturing, promoting exports and facilitating business collaborations across the footwear value chain.

Addressing the gathering, **Amb. Jawed Ashraf, Chairman, ITPO**, underscored the immense potential of India's footwear industry, which provides employment to nearly **4.5 million people** and accounts for approximately **12–13% of global footwear production**. He observed that despite India's strong manufacturing base, the country's share in global footwear exports remains around **2%**, and called for a collective effort by the Government, industry and ITPO to increase this share to **10%**. He stressed the need to focus on non-leather footwear, attract leading global brands, strengthen India's presence in global value chains and enhance the international profile of the sector.

Tex Biosciences participates at Singapore International Water Week (SIWW) 2026 – Advancing Sustainable Wastewater Solutions

The 11th edition of the Singapore International Water Week (SIWW2026) concluded on a high note, drawing 2,000 delegates, including 800 leaders and 21,000 trade visitors from over 71 countries and regions to the Sands Expo and Convention Centre from 15 to 18 June 2026.

SIWW2026 has reaffirmed its position as one of the world's premier platforms for innovative water, coastal and flood solutions. The event brought together governments, cities, utilities, academia, and industry to exchange insights, showcase innovations and forge partnerships that advance water security, climate resilience and sustainable urban water development.

Tex Biosciences Singapore showcased its commitment to sustainable biotechnology solutions for the water and wastewater industry at its booth in the event where it engaged with industry professionals, environmental experts, and stakeholders to share how biological solutions can contribute to more efficient and sustainable wastewater treatment.

A key highlight was the technical presentation on **"Bioremediation of Wastewater"**, where it was discussed the role of beneficial microorganisms in wastewater treatment, improving treatment efficiency, and supporting environmentally responsible water management practices.

The expo provided an excellent platform for knowledge sharing, networking, and exploring new opportunities to collaborate with professionals working toward a cleaner and more sustainable future.

Tex Biosciences look forward to continuing its journey in delivering innovative biotechnology solutions for wastewater management.

Back to School Column

Dr N K Chandra Babu

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SYSTEM DEVELOPMENT IN TANNERIES

(contd. from July issue)

MACHINERY MAINTENANCE MANAGEMENT

- Machines are the most important infrastructure support for the production of leathers.
- Machines used in the beam house and wet end operations are exposed to a strongly corrosive environment containing chemicals with high alkalinity and high acidity.
- Frames and components made of cast iron get corroded quickly and need to be protected by frequent painting with corrosion resistant paints.
- The machines need to be cleaned after every work shift and washed well.

BEAM HOUSE MACHINES

- The fleshing machines in the beam house are exposed to the most corrosive environment containing strong alkalis- sodium sulphide, sodium sulphhydrate and lime.
- The fleshing knives get corroded quickly and need to be cleaned often to prevent damage to the pelts.

WET END MACHINES

- The setting machines in the wet end are exposed to an acidic environment and need to be cleaned well frequently.
- *Daily routine maintenance checks and lubrication before starting work*
- The tannery must ensure that the routine maintenance checks are carried out without fail every day and a

completed daily maintenance check list is submitted to the production manager.

- Most of the daily routine maintenance checks are simple to carry out.
- Quite a few of them are alignment checks to check the parallel alignment of pairs of rollers.
- In many of the tannery machines the leathers are worked through pairs of rollers / cylinders – fleshing, sammying, shaving, setting out, vibratory staking, rotary staking, buffing and ironing machines.
- The parallel alignment of the pairs of rollers / cylinders and the clearance distance between the rollers are of critical importance to the results of these machine operations.
- These roller alignment checks must be included in the daily check lists of the relevant machines
- The daily lubrication schedule must be followed strictly and must be included in the daily check list.
- The rubber rollers have to be checked for any damages
- The machine operators must be made jointly responsible alongwith the maintenance department personnel to detect any problem in the machine and inform the maintenance engineer and the production manager.
- The operators must be trained to carry out the '' pre - start – up quick checks'' before starting the work and fill up the check list in a simple ''o.k - not o.k '' format

Routine maintenance system - daily schedules

- Lubrication and greasing
- Check for oil leakage and fix the leaks
- Adjustment of v-belt, chain and gear drives
- Check and adjust roller alignments

- Check rollers for wear and damage
- Check the ‘’shore hardness’’ of rubber rollers
- Check the smooth running of bearings
- Check the functioning of safety guards
- Check the tight fitting of buffing papers
- Check and clean the nozzles of air blast dust removing machines
- Check the dust extract ducts for air leaks and blocks
- Check the conveyor speeds of spraying machines
- Check the conveyor speeds, roller speeds of roller coaters
- Check the functioning of thermostats and calibrate
- Check the calibration of thickness measuring gauges
- Check the measuring machine calibration using standard area sheets
- Check the calibration of weighing machines using standard weights

PREVENTIVE MAINTENANCE SCHEDULE

- The planning and implementation of the preventive maintenance of the machines is a major responsibility of the chief executive / top management.
- It must be implemented on a ‘’ mandatory basis ‘’
- Each machine must be taken up for preventive maintenance at least once a year.
- The frequency of preventive maintenance schedule has to be drawn up based on the hours of usage of each machine and the nature and extent of the ‘’wear and tear’’ of the parts.

- During the duration of the preventive maintenance the machine has to be thoroughly checked and the worn out components / parts must be removed and replaced with new spare parts.
- A few machines which are used continuously for many hours every day may have to be taken up for preventive maintenance once in six months.
- Neglecting the preventive maintenance implementation of a machine on account of the non-availability of the machine for preventive maintenance due to continuous work will certainly lead to the breakdown of the machine.
- The break down maintenance of any machine is more complicated, more time consuming, more expensive and upsets the production and delivery schedules.
- Ideally there must not be any need for break down maintenance if the routine daily maintenance and preventive maintenance are carried out as per the planned schedules.
- Preventive maintenance is like the annual master health check up for the machines.
- In the first week of the year, the maintenance engineer must make out a detailed preventive maintenance plan in consultation with the production department, purchase department and the top management, specifying the weeks on which each machine will be taken up for preventive maintenance.

The plan must specify the following details.

1. Date on which the machine will be taken up for preventive maintenance.

2. Number of days allocated for the maintenance work.

3. Date on which the machine will be made available to the production department for work.

4. Spare parts and accessories required

5. Man power and equipment support required to be out sourced from third parties

- The chief executive must form a task force and be a member in the task force.
- The maintenance engineer will be the leader of the task force and the production manager, purchase manager and personnel manager will be the other members.
- The chief executive must authorise, approve and sanction the financial resources required for the purchase of the necessary spare parts in time.
- The purchase manager must place purchase orders and coordinate the delivery of the spare parts and the required consumables on time, well ahead of the scheduled start of the preventive maintenance.
- The maintenance department is responsible for coordinating the preventive maintenance schedule without delay. It has to coordinate with the purchase department and review the progress with regard to the purchase of the required spare parts, consumables on a weekly or fortnightly basis and inform the chief executive about the support required from him to speed up the purchases.
- The production manager is responsible to make the necessary production planning in advance to ensure that the machines are made available to the maintenance department for the preventive maintenance on the date scheduled without any delay.
- In the case of a stand-alone machine, the production manager must plan the production of different articles, during the period of the preventive maintenance, which do not need the use of the stand-alone machine so that the production does not suffer a setback due to the non availability of the machine under preventive maintenance.

- In the case of other machines the machine work must be carried out using the available machines by suitable over time work.

- The production of leathers which require the use of a specific machine for which no alternative is available, has to be carried out either in advance before or after the completion of the preventive maintenance.

- As there are many machines in a tannery, the maintenance engineer will be spending most of his time during the year on preventive maintenance rather than on break-down maintenance.

- In fact the percentage of time the maintenance department spends on preventive maintenance is reflective of the efficiency of the maintenance department.

- The more time they spend on preventive maintenance and less time on break down maintenance the maintenance department is more efficient and more pro-active.

WATER MANAGEMENT

- Water is another critical material in-put used by the tanneries.

- It is the medium in which the raw hides and skins are treated with the various process chemicals during their conversion into finished leathers.

- since water is available in plenty in some situations, it is possible that the industries may take for granted the continued unrestricted availability of good clean water to them for a long time in the future.

- But due to the impact of continually increasing human populations, fast growing industrial activities, agriculture, animal farming and breeding, the requirement for water is increasing ‘‘exponentially’.

- Water will be considered by the governments as a precious resource and the consumption of water by industries will be scrutinised by the governments in great detail.
- Priorities for the consumption of water accepted by the governments and the people worldwide are given below.
    - First priority – for human consumption
    - Second priority – for agriculture, horticulture, aquaculture and animal breeding.
    - Third priority – for sanitary and household utilisation
    - Fourth priority – for industrial consumption
- These priorities are not likely to change in the near future.
- All industries, including the tanneries, have to reconcile themselves to these realities and comply with the discharge regulations stipulated by the governments.
- Almost all the water used by the tanneries are released back into the environment as effluents containing substantial amounts of chemicals which are classified by the governmental regulatory institutions / authorities – environment protection authorities / pollution control boards – as '' pollutants ''.

The effluents are discharged mostly into

(1) land or

(2) streams or water courses .

In some cases the effluents may be discharged into

(1) rivers or river beds

(2) lakes or reservoirs.

- The governments are obliged to fulfill their mandate of protecting the environment by restricting and controlling the pollution.

- During the initial phases there will be statutory restrictions imposed by the regulatory authorities, with regard to the intensity or concentration of the various identified ‘’polluting chemicals ‘’in the effluents discharged.

- Gradually the regulatory authorities will be forced to and will introduce and implement restrictions with regard to the volumes of effluents discharged.

- This will make it necessary for the tanneries to reduce and minimise their effluent discharges and comply with the statutory requirements with regard to the volume of effluent discharges.

- Thus it will become necessary for the tanneries to reduce their water usage level substantially in order to restrict the volume of effluent discharges.

- All the tannery processes demand water consumption. Though water is the most abundant chemical used in the processes, it is often the most abused.

- Water consumption is a key indicator to the environmental performance of a tannery.

- In various areas of the world, the tanneries are licensed according to their effluent discharge volumes as well as the constituents of the effluents.

- Integrated pollution prevention and control - I.P.P.C – reference document on ‘’ Best available techniques for the tanning of hides and skins ‘’published by the European commission in may 2001 - reported that ‘’ a water consumption of 40 – 50 cubic metres per ton of raw hides can be cut down to 12 – 30 cubic metres per ton if the

tannery operates an ‘’ efficient technical control ‘’ and ‘’ good housekeeping‘’.

Distribution of water usage in various unit operations	
PROCESS	**PERCENTAGE**
SOAKING	15 % - 25 %
LIMING & RINSING	23 % - 27 %
DELIMING, BATING & RINSING	10 % - 15 %
BEAM HOUSE - SUM	50 % - 65 %
PICKLING, TANNING, RINSING, NEUTRALISING & RINSING	10 %
RETANNING, DYEING, FATLIQUORING &RINSING	30 %
POST – TANNING OPERATIONS – SUM	30 %
FINISHING	10 %
TOTAL	100 %

The tanneries may soon be required by statutory regulations to measure and record the daily water in-put using flow-meters. These records may have to be submitted to the scrutiny by the government authorities.

The tanneries will have to manage and minimise their water usage levels very seriously by implementing the following steps.

(1) Measurement and recording of the daily water input by installing flow meters at the points of pumping in either from bore-holes or rivers.

(2) Measurement and monitoring of daily water in-put into - beamhouse & tanyard; dyehouse; finishing yard; boilers; vacuum dryers; cleaning operations; non-industrial uses.

On the whole, there is a general awareness about and the need for reducing water footprint in leather processing.

(3) SUITABLE PROCESS MODIFICATIONS TO REDUCE THE PROCESS WATER REQUIREMENTS AS MUCH AS POSSIBLE .

- Reduction of process water consumption by suitable reduction of float volumes - washing, rinsing , process water
- Reuse of soaking, washing, deliming, pickling and tanning floats
- Recycling of used exhausted floats
- Reuse and recycling of used floats will make it necessary for the tanneries to optimise the use of chemicals and ensure very high exhaustion levels of the process floats.
- *It is possible to implement the (1) reduce (2) reuse (3)recycle (4)recover options in a viable manner provided the necessary initiatives are taken by the tannery management.*

(4) INSTALLATION OF AUTOMATIC WATER DOSING SYSTEM –''AQUA-MIX'–TYPE WILL BE THE IDEAL OPTION

- Computerised automatic water dosing systems pump in the precise quantities of water at the required temperatures at the correct times recorded in the process logged into the system and record and store the data electronically for recovery when desired.
- They eliminate (1) the common errors committed, with regard to the quantity of water, temperature and the time of pumping in the water, when these are carried out manually and (2) the necessity to maintain paper based, manually entered records.

L. W. G. AUDIT REQUIREMENTS

- Leather working group – (L.W.G) - is a multi-stake holder voluntary grouping of some of (1) the well recognised international ''brands'' of shoes / leather products (2) retailers (3) the supplier tanneries (4) the chemical manufacturers and (5) the international academic and research institutions and (6) N.G.Os / public interest groups.

- The members of L.W.G prefer to source the leathers for their products, only from the tanneries who have been audited by B.L.C - British leather confederation - a world renowned leather research organisation - on their behalf.

- L.W.G. Follows the following guidelines in their audits with regard to the water consumption of the tanneries. Based on the efficiency of water usage the tanneries are rated into 3 categories - good, average and poor.

Water consumption - units - litres / sq. Mtr of leather						
LWG RATING	**RAW TO TANNED**	**TANNED TO CRUST**	**RAW TO CRUST**	**TANNED TO FINISH**	**CRUST TO FINISH**	**RAW TO FINISH**
GOOD	67 - 128	40 - 77	107 - 206	53 - 101	12 - 23	119 - 230
AVERAGE	129 - 164	78 - 99	207 - 264	102 - 129	24 - 30	231 - 294
POOR	165 PLUS	100 PLUS	265 PLUS	130 PLUS	31 PLUS	295 PLUS

Water Consumption - Units - Cubic Metres / Ton Of Raw Hides						
LWG RATING	**RAW TO TANNED**	**TANNED TO CRUST**	**RAW TO CRUST**	**TANNED TO FINISH**	**CRUST TO FINISH**	**RAW TO FINISH**
GOOD	11 - 20	6 - 12	17 - 33	8 - 16	2 - 4	19 - 36
AVERAGE	21 - 26	13 - 16	33 - 42	16 - 20	4 - 5	38 - 47
POOR	27 PLUS	17 PLUS	43 PLUS	21 PLUS	5 PLUS	48 PLUS

The standards are often revisited and made more stringent on a regular basis

QUALITY OF INPUT WATER

The input water must be checked periodically for the following parameters
Total hardness
Temporary hardness
Permanent hardness
pH
Total dissolved solids
Total solids
Iron content

The quality of the water used has a major influence on the leather properties. Process recipes / formulations in beam house, tan yard and dye house have to be suitably modified based on the quality of water.

Water quality guidelines for tanning and leather industry (concentrations in mg/L unless otherwise indicated)			
Parameters	**Tanning processes**	**General wet finishing processes**	
Alkalinity ($CaCO_3$)	<130.0	NS*	
pH	6.0-8.0	6.0-8.0	
Hardness ($CaCO_3$)	<150.0	NS**	
Calcium	<60.0	NS**	
Chloride	<250.0	<25.0	
Sulfate	<250.0	<250.0	
Iron	<50.0	<0.3	
Manganese	-	<0.2	
chloroform	-	<0.2	

Water quality guidelines for tanning and leather industry (concentrations in mg/L unless otherwise indicated)			
Parameters	**Tanning processes**	**General wet finishing processes**	
extract			
Colour (units)	<5.0	<5.0	
Coliform bacteria	NS***	NS***	
Turbidity (NTU)	ND	ND	
NS: Not specified; ND: Not detectable; NTU: Nephelometric turbidity unit * Water is usually acceptable as received ** Lime softened * Should meet raw water for drinking water supply guidelines**			
Sources: Hart (1974), Ontario Ministry of the Environment (1974), CCREM (1991)			

(To be continued)

Strategy and Leather Industry Part – III

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(Contd from July issue...)

9. WHAT WILL THE TANNERY IN 2030 BE LIKE? [9]

International Leather Maker has published a personal view of Egbert Dikkers, Chair of Leather Naturally of what the leather supply chain could be like by 2030.

9.1. The future imagined Figure – 9 A

- **In 2030, leather will be a material that is very much appreciated and valued by consumers in the major consumer markets. Consumers prefer leather in their products, because it offers a nice look and feel, it can be applied to all kinds of day-to-day articles, offering high tech characteristics. Leather stays nice over time, it brings joy and pride and can be repaired when necessary.**
- **Consumers will buy leather goods with an assurance stamp telling them that it is okay to use the material as it is approved by recognised and valued auditing schemes. These labels and auditing schemes are set up in close collaboration with critical NGO's and consumer groups. Transparency as such is truly visible and accountable, moving the value chain forwards while consumers are willing to pay a decent price for their leather goods.**
- **Fashion brands and their designers favour leather over other materials because of the product characteristics and the fact that it hardly leaves a footprint on our planet.**

9.2 Sustainability no longer a problem

Sustainability no longer a problem Table - 9 B
• We do not talk about sustainability as a problem any longer. • Instead, it is appreciated by consumers that leather manufacturers use the by-product of the meat industry to turn it into a beautiful material. Imperfections are an added value and the leather industry stopped trying to make leather look like plastic. • This is true sustainability! There are no concerns about the way the animal lived because the meat and dairy industry has taken further steps in reducing the CO2 footprint, and animals are being treated decently, with a full traceability throughout their lives.

9.3 Cleaner chemistry

Cleaner chemistry Table - 9 C
• Leather and leather goods are mainly produced by companies that use bio- based, renewable chemicals and renewable side products. • Emissions do not exist and the only chemicals that can be bought on the market are the ones that are safe and end up in the leather, adding value. • Water being a scarce resource, is used in small quantities and used over and over again. Effluent treatment plants are well organised although their use will diminish through the years. Solar and wind renewable power are the major sources for energy. Chemical companies are responsible partners in the supply chain and catalyse this development in partnership.

9.4 Even safer places to work

Even safer places to work Table - 9 D
• People working in the leather industry are proud members of the supply chain, they can work safely, earn a decent living and can develop themselves personally. In short, the value chain is fully optimised with limited transportation. • Consumers do not worry about the end-of-life of their leather. Leather

Even safer places to work Table - 9 D
goods can be repaired easily and is, thus, creating new jobs, but it also has self- repairing characteristics. • Used or worn-out leather goods can be brought back to specialised companies in the local vicinity, where you can choose and purchase a design to re-use your own leather for a second life as a newly designed article. • In 2030, there is only room for responsible value chain members working on true cost value chain models, be it farmers, slaughterhouses, chemical companies, leather manufacturers, leather goods manufacturers or retailers. • This ideal world can only exist when all parties in the leather value chain collaborate and look at the true cost of leather products manufacturing and jointly promote leather as a beautiful, versatile and sustainable material."

Source : 9. & Figure 9 A and Tables – 9 B & 9 C & 9 D. WHAT WILL THE TANNERY IN 2030 BE LIKE. Leather Naturally. info@leathernaturally.org

10. By the turn of the century several eminent leather scientists offered their predictions about key issues and likely developments in the leather sector in the UNIDO paper titled "What is the future of (chrome) tanning? Leather manufacture in the new millennium"

Predictions about key issues and likely developments in the leather sector Table – 10 A
It might be interesting to briefly recall some of the points made. • Shorter delivery time will favour the trade between a tanner and product manufacturer in crust and product components, finishing may be carried out by the product manufacturer. • Cost effective and clean recovery of proteoglycans and glyco- and lipo-proteins, amino acids from fleshings and hair as well as other proteins are likely to gain significance. • While, strictly speaking, chromium is not a renewable resource, the commercially extractable reserves suffice for several centuries; Cr will remain the main tanning agent.

Predictions about key issues and likely developments in the leather sector Table – 10 A
• Reversal to vegetable tanning for soft leather (even significantly improved), is unlikely. Vegetable tannins can be qualified as a renewable resource if obtained either within eco-compatible plantation programmes or as by-products from natural species (fruits, leaves).
• The likely directions for new, high stability organic tannages might be: i) natural polyphenol derivatives, with reagent-like specificity, crosslinkable in situ with oxazolidine type reagents and ii) synthetic polymers based on melamine and phenols, crosslinked with formaldehyde or other simple compounds, to produce specified low molecular weight resins, crosslinkable in situ with phosphonium salt or other aldehydic compounds. • Spray finishing, roller or curtain coating equipment will be developed to automatically adjust the colour of the finish. Finishing equipment could use ink-jet technology. • Finishing equipment will be designed to finish pre-cut pieces, panels and patterns of leather rather than whole hides or sides. • New automated “instant” methods, including non-destructive physical property tests, to determine the quality of leather (such as the already existing mass-spectroscopy method to determine the amount of chrome in leather) will be developed.
• Splitting accuracy, and, in particular, uniformity will further improve; it is quite possible that splitting of raw hides will be introduced, ideally combined with shaving using a high-pressure water jet instead of a metal blade. • A pH electrode and other sensors will also be developed that will be able to sense the uptake of chemicals; end-point of a process step is not time- but concentration-related. • Colour matching using a calibrated spectrophotometer assisted by a computer to accurately colour match leather will be introduced. • There is a good possibility of a mechanical assist to accelerate some processes; ultrasound had been shown to speed up the penetration of fatliquors and dyes. • Life cycle assessments (LCAs) are certainly going to be important. However, ultimately, an LCA is a subjective evaluation, as selection and weighing of the various parameters forming parts of a LCA are subjective,

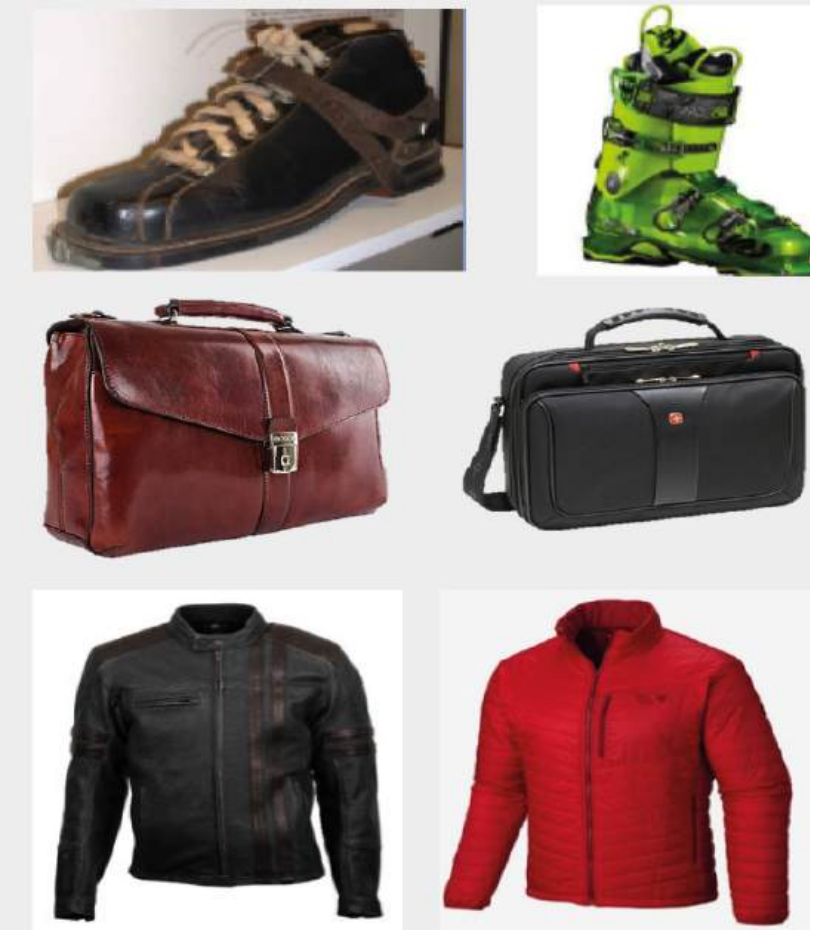
Predictions about key issues and likely developments in the leather sector Table – 10 A
depending on the prevailing scientific opinions, a priori assumptions, practical circumstances, and “political correctness” at the time the LCA is carried out. • Sooner or later, at least before 2050, the leather industry will have to provide for removal of discarded leather.

Source : Table – 10 A. The framework for sustainable leather manufacture, Second edition. Jakov Buljan, Ivan Kral'. 2019 by the United Nations Industrial Development Organization.

11. Changing Use of Leather, HISTORY LESSONS, THE FUTURE OF LEATHER

Changing Use of Leather, HISTORY LESSONS, THE FUTURE OF LEATHER Table – 11 A
• The uses of leather have changed and continue to change. In some cases, leather has lost its prime position as it could not compete with new materials developed during recent decades. At the same time the use of alternative materials was called for in many areas due to limited availability of leather. • One of the main threats for leather are new materials and substitutes with superior properties. Ski boots offer a good example. • The variety of requirements and combination of properties such as waterproofness, stability (softer or harder skeleton), warmth, support (foams hold the foot firmly in the boot without compromising on comfort) is impossible to achieve with leather, and that it is why it is no longer used in ski boots. Other examples are leather (protective) headgears, used in contact sports, by pilots, and in the mining industry.
• The case of sport shoes is also quite illuminating. In the 1970’s- 80’s white leather was used almost exclusively for sport shoes. However, with the increase in the production of athletic shoes there • was a shortage of leather for this growing market. At the same time, it became quite difficult to achieve some high-performance parameters required for sport shoes. Furthermore, the price comparison was in favour of synthetic materials. Now athletic shoes are mostly fully synthetic.

11.1 The following are some examples illustrating dramatic changes that took place in the last few decades. Figure – 11 B & 11 C & 11 D



However, the reversal to leather in the automotive industry seems more than to balance it off:

1 set of car upholstery = 40 – 70 pairs of shoe uppers

Source : Table – 11 A & Figures – 11 B & 11 C. & 11 D. The framework for sustainable leather manufacture, Second edition. Jakov Buljan, Ivan Kraľ. 2019 by the United Nations Industrial Development Organization.

12. The Council for Leather Exports (CLE) unveils Vision Document-2030 for the leather and footwear industry. [12]

The document outlines the global outlook of the industry, current status in India, global benchmarking and best practices, market and industry pulse analysis, policy, regulatory and infrastructure landscape, overview of multi prolonged action agenda to achieve the vision for 2030, domestic market vision and export market vision for 2030.

The Vision Document aims to increase production and exports in the next 5-7 years and reach the total turnover (industry size) of around USD 47.1 billion by 2030 against the present USD 17.26 billion turnover[1]. These target figures include both, domestic sales and export.

- **The present industry size is USD 17.3 billion comprising Domestic turnover of USD 12 billion and Export turnover of around USD 5.3 billion.**
- **From here the industry is looking to increase the Industry Size to USD 47.1 billion consisting of Domestic turnover of USD 33.4 billion and Export turnover of around USD 13.7 billion.**
- **It is also pertinent that out of USD 47.1 billion target the share of footwear sector (both Leather & Non-Leather) is around 50%. Which shows the importance of Footwear sector in accelerating production and exports.**

13. Information on Harmonious Coexistence

1. The Leather Industry needs to bring together all the good work being carried out into a cohesive platform that represents all and is accessible and understandable by consumers - Farming & Livestock, Deforestation & Biodiversity, Social Responsibility, Leather Manufacturing, Chemistry, Leather Technology, Machinery & Efficiency, Consumer Concerns, Brand Requirements, Business & Political Strategy.

2. An incredible journey of Leather- Leather is the result of the recycling of a slaughterhouse leftover - Hides & Skins. Tanneries tend to maximize the use of valuable matter by converting them into Leather. While doing so, the by-products obtained are recycled for fuller utilization and value addition and environmental protection. Leather & Leather Products are also recycled and up cycled. Leather is natural, biodegradable & durable. Leather is substantially a circular economy product.

3. Environmental challenges; Sustainable Leather Management; Certifications to International Standards on Quality, Traceability, Environmental protection, Chemical management ;Modernization, Innovation and related areas are being addressed on an ongoing basis by Leather Industry, Government, Research Organizations, Leather Industry Association and Trade Groups and Organizations and institutions connected with Leather & Leather Related Activities. Result is the enhanced sustainability of Leather & Leather Products Industry on an ongoing basis.

4 Leather; Recycled Leather; Leather Alternatives – Synthetic PU & PVC based, Bio Leather and Composites from Leather, Recycled Leather & Leather Alternatives would co - exist continuously. Parameters like i. The rise of environmental and societal concerns, as well as animal welfare; ii.Growing demand from rising population & Spending Potential and iii.Catering the needs of various economic sections favour the co – existence of Leather, Recycled Leather & Leather Alternatives

In Global Footwear Exports have contribution from Leather Footwear – 36 %,Synthetic Footwear -26 %, Textile Footwear – 28 % and Others -10 % in 2017. [13.1]

5.Manufacturers and Suppliers of Leather Chemicals and Auxiliaries in most of the cases cater the needs of Allied Industries like Textiles, Paper, Surface Coating, Construction and related Industries. This also speaks about Interrelated trade in Chemicals and Auxiliaries.

6. Further in Customer Support, Innovation in Application and Product Development and similar interrelated activities are happening freely.

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DURING APRIL-FEB. 2024-25 VIS-À-VIS APRIL-FEB. 2023-24,CLE. DGCI&S monthly export data.

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(to be continued)

WORLD FOOTWEAR YEARBOOK 2026 RELEASED

GLOBAL FOOTWEAR PRODUCTION HOLDS STEADY IN 2025. VALUE OF EXPORTS GROWS SLIGHTLY FROM PREVIOUS YEAR.

(APICCAPS, the Portuguese Footwear Association, has now published the 16th edition of its World Footwear Yearbook, launched in 2011. The Yearbook analyses the most important trends within the worldwide footwear industry. The availability of data for 2025, both in quantity and value, makes it possible to position the main players with regard to production, consumption, exports and imports. This publication also includes a specific analysis of 84 different markets, as well as addressing the evolution of the sector's leading global players.

The World Footwear Yearbook 2026 is now on sale from www. worldfootwear. com at 200€ (electronic format) and 250€ (electronic format + hard copy)).

In 2025, global footwear production grew by just 0.1%, reaching 24.6 billion pairs. Export volumes declined by 0.1%, but the total value of footwear trade increased by 1.6%, driven by a recovery in average unit prices.

In 2025, global footwear production remained virtually unchanged, recording a marginal increase of 0.1% to a total of 24.6 billion pairs, according to data from the World Footwear Yearbook 2026 recently released by APICCAPS, the Portuguese Footwear Association. This follows a revised estimate for the production figures in 2024, which

now indicates a robust growth of nearly 10% for that year. While international trade volume saw a slight dip of 0.1%, the total value of exports rose by 1.6%, reaching 172 billion dollars.

FOOTWEAR MANUFACTURING REMAINS HEAVILY CONCENTRATED IN ASIA

The industry continues to be centred in Asia, which accounts for 88.7% of global production. China maintains its absolute leadership, manufacturing 13.7 billion pairs (55.6% global share). India solidified its second-place position with 3 billion pairs (12.2%), while Vietnam increased its output to 1.7 billion pairs, representing 6.7% of the global total. Outside Asia, Brazil (3.4%) and Mexico (0.9%) are the only countries featured in the world's top 10 producers.

ASIA REINFORCES ITS ROLE AS THE GLOBAL CONSUMPTION CENTRE

Asia now accounts for 56% of all footwear consumed worldwide, confirming that the industry's centre of gravity is increasingly shaped by Asian consumers. However, *per capita* consumption reveals deep regional disparities: while North America leads with 4.6 pairs per person and Europe follows with 4.1, Africa averages only 1.6 pairs. China remains the top national market with 4.8 billion pairs, followed by India (2.8 billion) and the United States (1.95 billion).

CHINA'S EXPORT SHARE CONTINUES TO NARROW, WITH VIETNAM EMERGING AS THE MAIN BENEFICIARY

China remains the dominant exporter, shipping 9 billion pairs, but its global market share narrowed to 61.2% in 2025, down from 69.1% ten years ago.

Vietnam was a primary beneficiary of this shift, rising to an 11.2% share. In Europe, Germany, Belgium, and the Netherlands stand out as vital logistics and re-export platforms, with Germany holding the 4th position in the world ranking of exporters by volume.

AVERAGE EXPORT PRICE RECOVERS TO $11.65

The World Average Export Price rose from $8.87 per pair in 2016 to a record $11.96 in 2023, before declining in 2024 and recovering to $11.65 in 2025. Despite this rebound, the average export price remained below the peak level reached in 2023.

The average footwear export price in 2025 ranged from $34.76 in Europe to $8.02 in Asia, highlighting significant differences in market structure, production profiles, and value positioning across the world's footwear markets.

Leather out of the EUDR: European Commission adopts delegated act

The European Commission on 13th July 2026 adopted the Delegated Act amending the product scope of Regulation (EU) 2023/1115 on deforestation-free products (EUDR), formally excluding hides, skins and leather. The Delegated Act will be published in the Official Journal of the European Union in mid-September, at which point the amended scope becomes official.

COTANCE - Euroleather welcomes this decision as the formal recognition of a position it has held, and defended with evidence, since the regulation's inception.

A decision grounded in science

The exclusion of hides, skins and leather reflects a fundamental structural reality: raw hides account for just 1.5% of a bovine's total value at the abattoir, as confirmed by the 2026 UNIDO Guidelines for Assessing the Environmental Footprint of Leather. The independent academic study commissioned by COTANCE and UNIC, conducted by the Sant'Anna School of Advanced Studies at the University of Pisa and drawing on over 94 million data records, found no scientific evidence linking leather to deforestation - a finding independently reinforced by research from Montana State University.

The Commission's decision also avoids a regulatory incoherence that would have penalised European producers: under the previous scope, goods produced with EU leather would have been subject to EUDR compliance requirements while those produced with non-EU leather would not, placing European tanneries at a direct competitive disadvantage and putting at risk tens of thousands of rural jobs across the continent.

A collective achievement

This outcome is the result of two years of sustained, evidence-based engagement by COTANCE, its national member associations, and a united global leather industry - from the United States to Australia, Africa and New Zealand - working together under the International Council of Tanners to make the scientific case to EU institutions.

"Leather's confirmed exclusion from the EUDR is a satisfaction for the whole sector, as it follows what the Commission already proposed in May," - said Manuel Rios, President of COTANCE. *"Now it is time to keep working to showcase leather's sustainability credentials."*

"Today's Commission decision is a step in the right direction in ensuring that leather is recognised for what it truly is: a durable material and a by-product of the meat and dairy industries. The European leather industry is firmly committed to its existing traceability schemes, including those developed by the Leather Traceability Cluster Alliance," - said Edoardo De Paola, Secretary General of COTANCE.

The Delegated Act foresees a review of leather's inclusion in the EUDR scope in 2030. COTANCE will approach that review with an even stronger evidence base than the one that defined its engagement throughout this process.

STAHL RECEIVES ECOVADIS PLATINUM MEDAL FOR FIFTH CONSECUTIVE YEAR

A MILESTONE UNDERSCORING STAHL'S GLOBAL SUSTAINABILITY LEADERSHIP AND ITS COMMITMENT TO DRIVING SUSTAINABLE GROWTH

Stahl, a global provider of speciality coatings for flexible materials, proudly announces that it has once again been awarded the Platinum rating by EcoVadis for its sustainability performance. This marks the **fifth consecutive year** that the company has achieved the highest possible rating.

EcoVadis, a globally recognised provider of business sustainability ratings, evaluates more than 175,000 companies across environmental, social and governance (ESG) criteria. The Platinum rating places Stahl among the **top 1% of all assessed companies worldwide**, highlighting its unwavering commitment to responsible and sustainable business practices.

"We are incredibly proud to receive the EcoVadis Platinum rating for the fifth year in a row," says Laura Willemsen, Group Director Sustainability and Marketing at Stahl. "This achievement reflects the dedication of our teams across the globe and our deep-rooted belief that sustainability is not a destination, but a continuous journey. Our sustainability strategy is focused on creating measurable value for our customers, supporting them in achieving their own sustainability goals. Year after year, we challenge ourselves to do better, and this recognition confirms we are on the right path."

In its latest assessment, Stahl further strengthened its sustainability performance, notably improving its score in **sustainable procurement**. This progress underlines the company's commitment

to driving positive impact throughout its value chain, working closely with suppliers to ensure high ethical, environmental, and social standards are upheld.

Sustainability lies at the heart of Stahl's business and continues to shape its long-term direction. The priorities are embedded in Stahl's ESG Roadmap to 2030, with clear targets on emissions reduction, social responsibility and ethical practices across the value chain, aligned with its purpose of *Touching lives, for a better world*.

As demand for more sustainable coatings and materials accelerates, Stahl remains focused on driving progress through innovation and strong partnerships, helping to shape a more sustainable future for the industry

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DyStar Releases FY2025 Sustainability Report, Marking A New Milestone Towards Its 2030 Targets

DyStar, a leading specialty chemicals company with more than a century of expertise in product development and innovation, has announced on 7th July 2026, the release of its 2025 Sustainability Report, marking a significant milestone in its sustainability journey and reinforcing its commitment to long-term value creation.

As DyStar steps into 2026, the company reflects on five years of transformation, resilience, and progress amid a challenging global landscape. Despite geopolitical tensions, supply chain disruptions, and inflationary pressures, DyStar has continued to strengthen its global operations, advance innovation, and deliver on its sustainability commitments.

Strong Performance against 2025 Sustainability Targets

The report highlights DyStar's achievement of several key environmental targets:

- 51% reduction in emissions intensity compared to the 2011 baseline

- 81% reduction in water consumption intensity, demonstrating strong resource efficiency
- 58% reduction in wastewater intensity, reinforcing environmental stewardship

These results underscore DyStar's disciplined approach to sustainability, driven by innovation and operational excellence across its global footprint.

Driving Accountability and Continuous Improvement

DyStar remains transparent about areas requiring further attention. Challenges in waste production and packaging intensity-partly linked to plant closures and resource redeployment-continue to be addressed. Energy intensity also approached target levels despite ongoing efforts to reduce reliance on non-renewable sources.

These insights reflect DyStar's commitment to continuous improvement and accountability.

DyStar Group Managing Director, President and CEO, Xu Yalin, said: *"Our progress reflects the collective strength of our people and partners. Together, we have demonstrated that* ***resilience, responsibility, and innovation can drive meaningful change****. As we move forward, we remain committed to accelerating our 2030 goals while building a future where sustainability and digital excellence go hand in hand."*

The 2025 milestones provide a strong foundation for **DyStar's next phase of growth**. The company is accelerating its **2030 sustainability goals**, with a focus on:

- Expanding renewable energy adoption
- Enhancing biodiversity protection initiatives
- Strengthening responsible supply chain practices

This forward-looking strategy reinforces DyStar's position as a trusted partner in the global textile and chemical industries.

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