

INDIA INTERNATIONAL LEATHER FAIR (IILF) SPECIAL ISSUE

Vol.57

January - 2024

No.11

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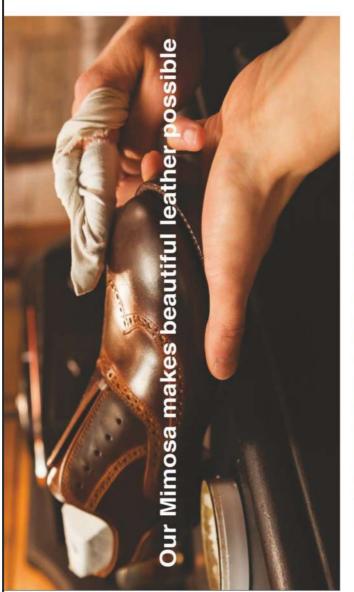
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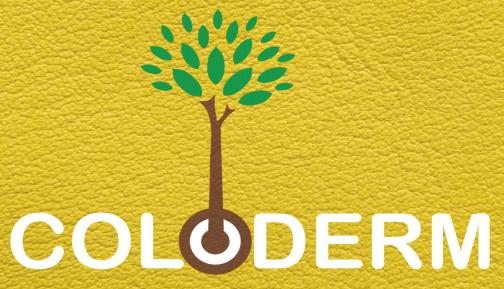
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Seminar: ZENTAN Innovations - Shaping the Future of Leather Sustainability

HALL: Meeting Room B, Convention Centre, Chennai Trade Centre.

DATE : 02nd FEB 2024 | TIME: 11.30 PM-12.30 PM

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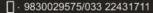
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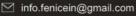






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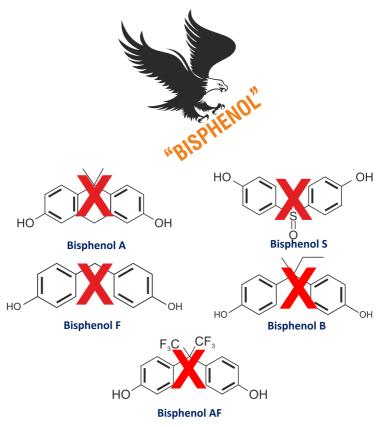


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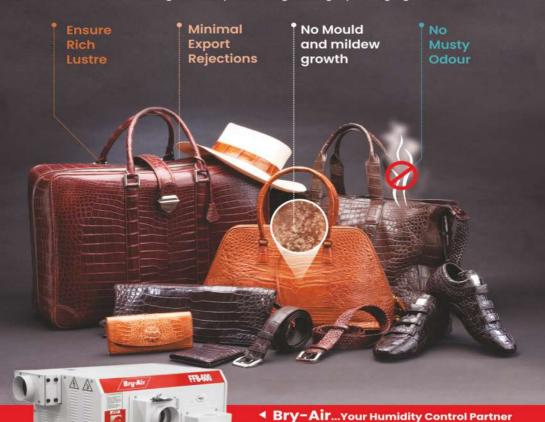
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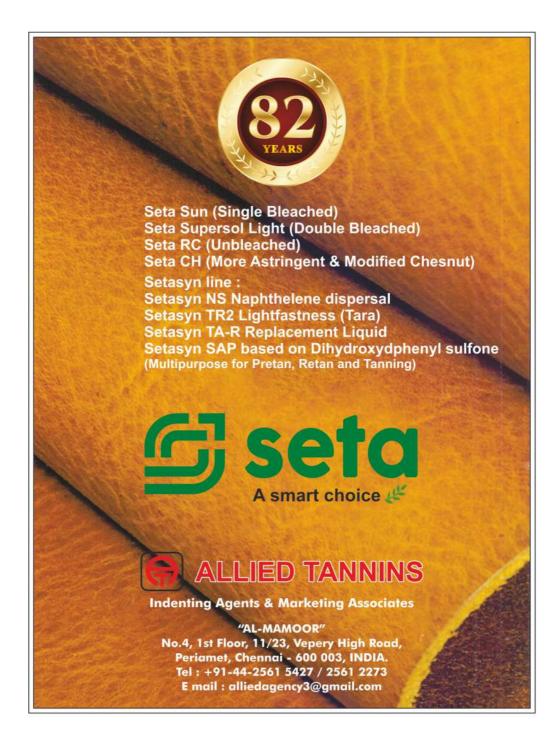


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Kelvin Bio Organics was established in Chennai, India, with the main aim of Providing good quality, eco friendly products acceptable to the highly competitive global market. We have been in the field for two decades and have achieved top slot in the field of enzymes manufactured by submerged fermentation process, beam house products, spary dried powder syntan fatliquors and auxialiaries.

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Indian Leather wishes the participants at IILF 2024 All Success

Published on the 2nd of Every Month

For advertisement tariff and other details please contact: INDIAN LEATHER, 120 Vepery High Road, Chennai-600 003.

Phone: +91 - 44 - 28343685, Cell: 9444412685 Website: www.indianleathermagazine.com Email: indianleather@yahoo.com

Owned & Published By: **S Ranganathan** and Printed by him at ARUL ACHAGAM (Old No.25) New No.30, Kandasamy Salai, Periyar Nagar, Chennai 600 082, Tamil Nadu

Founder: S SANKARAN Editor: S RANGANATHAN

Opinions expressed in the articles are those of the authors and not necessarily those of the Editor.

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ANNUAL SUBSCRIPTION INDIA: Rs.500/- OVERSEAS: By Air Mail US\$100

The 37th edition of the India International Leather Fair (IILF), the mega event of the leather industry, organised by the India Trade Promotion Organisation (ITPO), in colloboration with the Council for Leather Exports (CLE) and with the support of apex bodies, CSIR-CLRI, IFLMEA, ISF and IFCOMA is being held at the Chennai Trade Centre, Nandambakkam, Chennai, from 1st to 3rd February, 2024. Around 450 exhibitors from India and 20 overseas countries showcase the entire range of products needed for the leather industry.

The **Leather Fashion Show 2024**, organised by the Indian Finished Leather Manufacturers & Exporters Association (IFLMEA) will be held concurrently on 1st February, 2024, at the ITC Grand Chola hotel. This is the largest Fashion Show which will focus the leather industry's attention on the latest expressions of styles and designs in the world of leather fashion.

India's value of exports of leather, leather products and footwear, during the period April 2023-October 2023 stood at around US\$ 2.9 billion, which is 13% less than the value achieved during the same period last year With the winter sales picking up in abroad, the industry is hoping for good improvement in its performance in the coming months. As per the data, the turnover of the industry (industry size) is US\$ 17.26 billion during 2022-23.(exports \$ 5.29 billion and domestic industry turnover of \$ 12 billion). The Council for Leather Exports has taken the initiative to prepare a **Vision Document 2030** for Leather and Footwear Industry which aims at substantially increasing the turnover of the industry to \$ 47.1 billion by 2030 (export turnover of \$ 13.7 billion and domestic industry turnover of \$ 33.4 billion (Details published elsewhere in this issue).

Shri Yavar Dhala, Convenor, Leather Fashion Show, has said that Cole Haan, a US based leather shoe manufacturing company is soon shifting its production (5 million pairs per annum) base from Taiwan to Tamil Nadu in India, which will be a welcome move and increase the demand for leather.

IILF will continue to play its important role as a premier sourcing point for all kinds leather and leather products by attracting a huge number of exhibitors and visitors from India and abroad.

Indian Leather wishes the fair a grand success





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Shri Rajendra Kumar Jalan takes over as Chairman, Council for Leather Exports (CLE)

Shri Rajendra Kumar Jalan, Vice – Chairman, Council for Leather Exports (CLE) took charge as Chairman of CLE in the 178th meeting of Committee of Administration of CLE held in New Delhi on 16.1.24 through Hybrid mode. CLE is an Export Promotion Council, Sponsored by Ministry of Commerce and Industry.



Shri Rajendra Kumar Jalan, is a technocrat engaged in the leather industry for almost 47 years. Earlier, Shri Jalan has served as Chairman of CLE during January 2013 to January 2015 and also as. Vice — Chairman, CLE. Shri Jalan has also served in Governing Council of Footwear Design and Development Institute (FDDI), Board of Governor of Central Footwear Training Institute (CFTI), Agra and Academic Council Member of Madan Mohan Malviya Technical University, Gorakhpur and Har Court Butler Technological University, Kanpur

Shri Jalan is also a part of various NGOs working for the betterment of the people of Kanpur as well as towards improving the infrastructure and industrial climate of Kanpur and U.P. He is also been nominated as a Research Council Member of Central Leather Research Institute, Chennai by Department of Science and Technology in 2017 and continues to serve the institution proactively.

Shri Jalan actively participated in various working groups of XII Five Year Plan, which gave deep insight into what is going to come for the Industry.



He has been conferred by WORLD CUSTOMS ORGANIZATION Certificate of Merit in the year 2014 for rendering exceptional service to the International Customs Community.

In an endeavor to strengthen the hands of Hon'ble Chief Minister of Uttar Pradesh so as to get River Ganges clean, he has worked with the Industry to get an in-principle approval for setting up a Leather Park at an acquired 240 acres of land at Ramaipur, Kanpur Nagar. It will have a capacity to have almost 195 tanneries besides leather goods factories.

It is going to be the first green field integrated project of its kind having an Effluent Treatment Plant and solid waste disposal facility. The treated water would not flow into the River Ganges.

He was selected to work as a District Volunteer during the second wave of Covid and was felicitated as a COVID WARRIOR in October, 2021 for his contribution to Kanpur District.

Indian Leather congratulates Shri Rajendra Kumar Jalan for taking charge as Chairman of CLE.

Please visit our website: www.indianleathermagazine.com





CLE unveils Vision Document 2030 for Leather & Footwear Industry

The Council for Leather Exports (CLE) had organised an event for the presentation of National Export Excellence Awards on 10th January 2024, at the Hotel Taj Palace, New Delhi. **Shri Rajeev Singh Thakur**, IAS, Additional Secretary, Department of Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce & Industry, Government of India was the Chief Guest of the function and released the CLE's Vision Document 2030 for Leather & Footwear Industry and also presented the National Export Excellence Awards for FY 2022-2023.

The dignitaries present on the occasion include: Shri Sanjay Leekha, Chairman-CLE, Shri Rajendra Kumar Jalan, Vice-Chairman-CLE, Shri P R Aqeel Ahmed, Former Chairman-CLE, Shri Motilal Sethi, Regional Chairman (North)-CLE, Shri Mukhtarul Amin, Chairman-Leather Sector Skill Council, Shri Ramesh Kumar Juneja, Regional Chairman (East)-CLE, Shri R. Selvam, IAS, Executive Director-CLE, and industry stakeholders participated in the event. Officials from various departments /ministries of the Government of India attended the event.

The Indian leather and footwear industry has a long history. The industry has combined its traditional strengths of huge raw material base and manpower availability, with the application of modern technological tools to become a leading manufacturer exporter of value-added products. The leather industry is also a labour-intensive sector with a workforce of about 4.42 million, 40% of whom are women.



CLE has prepared a Vision Document 2030 for Leather and Footwear Industry, which aims at substantially increasing the turnover of the industry (industry size) from USD 17.26 billion during 2022-23 (exports of USD 5.29 billion and domestic industry turnover of USD 12 billion) to USD 47.1 billion by 2030 (export turnover of USD 13.7 billion and domestic industry turnover of USD 33. 4 billion). The Vision Document outlines the global outlook of the industry, current status of the industry in India, global benchmarking and best practices, market and industry pulse analysis, policy, regulatory and infrastructure landscape, recommendations splitting into short term, medium-term and long-term, overview of multi prolonged action agenda to achieve the Vision for 2030, domestic market vision and export market vision for 2030.

Shri Sanjay Leekha, Chairman-CLE, in his address has said, 'CLE has taken the initiative to prepare Vision Document for the 'Footwear, Leather, Leather Products and Accessories sector' in the country. Footwear here includes both leather footwear as well as non-leather footwear. Series of industry consultations were held with the stakeholders in the past about one year, and based on the diverse views emerged, the CLE has brought out the Vision Document 2030, with the professional assistance of a renowned consulting firm. In a nutshell, the Vision Document 2030 for Leather & Footwear Industry is aiming to substantially increase the production and exports in the next 5-7 years and reach the total turnover (industry size) of around USD 47.1 billion by 2030 from the present level of USD 17.26 billion.

These target figures includes both the domestic market sales and export sales. The present industry size is US \$ 17.26 billion consist of domestic turnover of US \$ 12.00 billion and export turnover of US \$ 5.26 billion. From here, the industry is looking to increase the

industry size to US \$ 47.1 billion consist of domestic turnover of USD 33.4 billion and export turnover of USD 13.7 billion. It is also pertinent to mention that out of the US \$ 47.1 billion target, share of footwear sector (both Leather footwear as well as non-leather footwear) is around 50% which shows the importance of the footwear sector in accelerating the production and exports. To attain this ambitious vision, the Document has outlined the intervention measures and strategies, categorizing into short term, medium term and long term'.

CLE presented the Export Excellence Awards for FY 2022-23 to a total of 64 exporters under various categories, namely, export performance, brand creation and women entrepreneurs. (Full details of Export Awards published elsewhere)

Shri Rajendra K. Jalan, Vice-Chairman, CLE, in his remarks, has stated 'Leather Products and Footwear have the unique qualities of not only being essential lifestyle products but also fashion oriented products. Even while the market is placing emphasis on innovation & design, there is increasing focus on sustainable development. As we are aiming at more growth levels in the coming years, our strategy should be to produce innovative, well designed and sustainable products.

I am sure that achievers in the global market have already adopted this strategy. The CLE is proud to be associated with achievers in our industry who are the flag bearers of the country and is honoured to present National Export Excellence Awards 2022-23 to manufacturer-exporters who, by their tireless efforts, have brought laurels not only to themselves but also to the country. I would like to congratulate all the Award Winners for their laurels and wish them more successes in their endeavours".





CLE National Export Excellence Awards for FY 2022-23 - List of Award Winners

The Council for Leather Exports (CLE) National Export Excellence Awards presentation event for the year 2022-23 was held at Hotel Taj Palace, New Delhi on January 10, 2023. Shri Rajeev Singh Thakur, IAS, Additional Secretary, Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce & Industry, Govt of India graced the occasion as the Chief Guest and presented the awards

Indian Leather congratulates all the award winners.

Overall – Leather, Leather Products & Footwear (made of Leather as well as non-Leather)

1st Place : FENGTAY INDIA GROUP. Tiruvannamalai District.

Tamil Nadu

2nd Place : APACHE FOOTWEAR INDIA PVT LTD, Tirupati

District, Andhra Pradesh

3rd Place: TATA INTERNATIONAL GROUP, Ranipet, Tamil

Nadu

Exports Above Rs.300 Crores:

LEATHER FOOTWEAR

1st Place : APACHE FOOTWEAR INDIA PVT LTD, Tirupati

District

2nd Place : TATA INTERNATIONAL GROUP, Ranipet

LEATHER GOODS

1st Place : A V THOMAS LEATHER & ALLIED PRODUCTS PVT

LTD., Chennai

NON-LEATHER FOOTWEAR

1st Place : FENGTAY INDIA GROUP, Tiruvannamalai District

2nd Place : APACHE FOOTWEAR INDIA PVT LTD. Tirupati

District



LEATHER GARMENTS

1st Place : BHARTIYA INTERNATIONAL LTD, Gurugram

Exports Above Rs.200 Crores & Upto Rs.300 Crores:

LEATHER FOOTWEAR

1st Place : AFPL GLOBAL PRIVATE LIMITED, Kanpur

2nd Place : ROGER GROUP, Agra

LEATHER GOODS

1st Place : KHEMCHAND HANDICRAFT, Jodhpur

2nd Place : TANGERINE DESIGN PVT. LTD, Gurugram

INDUSTRIAL LEATHER GLOVES

1st Place : INDUSTRIAL SAFETY PRODUCTS GROUP, Kolkata

FINISHED LEATHER

1st Place : PRARA LEATHERS GROUP, Chennai

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LEATHER FOOTWEAR

1st Place : ALTHAF SHOES GROUP, Chennai

2nd Place : LAMBA FOOTWEAR INDUSTRIES, Agra

LEATHER GARMENTS

1st Place : S.M. LULLA INDUSTRIES WORLDWIDE, Chennai

2nd Place : GEMINI ENTERPRISES, Chennai

LEATHER GOODS

1st Place : ALPINE APPARELS PVT LTD. Faridabad 2nd Place : STICHWELL EXPORTS PVT. LTD, Kolkata

FINISHED LEATHER

1st Place : MODEL TANNERS, Kanpur

2nd Place : SUPER TANNERY GROUP, Kanpur



NON-LEATHER FOOTWEAR

1st Place : NEXGEN FOOTWEARS PVT LTD., New Delhi 2nd Place : RELAXO FOOTWEARS LIMITED, New Delhi

FOOTWEAR COMPONENTS (SHOE UPPER)

1st Place : ALTHAF SHOES GROUP, Chennai

2nd Place : BBK SHOES, Ranipet

INDUSTRIAL LEATHER GLOVES

1st Place : RAMA OVERSES LTD, Kolkata

2nd Place : ACKNIT INDUSTRIES LIMITED, Kolkata

HARNESS & SADDLERY (NON LEATHER)

1st Place : SUPERHOUSE GROUP, Kanpur

Exports Upto Rs.100 Crores

LEATHER FOOTWEAR

1st Place : HABEEB TANNING COMPANY, Chennai

2nd Place : KORA SHOES PVT. LTD, Chennai

LEATHER GARMENTS

1st Place : APOLLO GREEN ENERGY LIMITED, Noida

2nd Place : CENTURY OVERSEAS, New Delhi

LEATHER GOODS

1st Place : ASG LEATHER PRIVATE LIMITED, Kolkata

2nd Place : TRIO TREND EXPORTS PRIVATE LIMITED, Kolkata

FINISHED LEATHER

1st Place : SUPERHOUSE GROUP, Kanpur

2nd Place : RAHMAN INDUSTRIES LIMTED, Kanpur



NON-LEATHER FOOTWEAR

1st Place : TATA INTERNATIONAL GROUP, Ranipet 2nd Place : CONDOR FOOTWEAR GROUP, Surat

FOOTWEAR COMPONENTS (SHOE UPPER)

1st Place : HABEEB TANNING COMPANY, Chennai

2nd Place : COMPETENCE EXPORTS PRIVATE LIMITED.

Kanpur

INDUSTRIAL LEATHER GLOVES

1st Place : VINIT GLOVES MANUFACTURING PVT. LTD,

Kolkata

2nd Place : ZENITH APEX PRIVATE LIMITED, Kolkata

HARNESS & SADDLERY (LEATHER)

1st Place : S.K. EXPORTS, Kanpur

2nd Place : KINGS INTERNATIONAL LTD, Kanpur

HARNESS & SADDLERY (NON-LEATHER)

1st Place : MIREEN INDUSTRIES PVT. LTD, Gurugram

2nd Place : TARUN TEXTILES, Kanpur

FASHION /SPORTS LEATHER GLOVES

1st Place : HIJAZ GROUP, Chennai 2nd Place : AALA GLOVES, Chennai

FOOTWEAR COMPONENTS (OTHER THAN SHOE UPPER)

Other Components:

1st Place : WILHELM TEXTILES INDIA PVT. LTD., Gurugram 2nd Place : VERSATILE ENTERPRISES PVT. LTD., Ludhiana

FOOTWEAR COMPONENTS (OTHER THAN SHOE UPPER) -

Soles:

1st Place : UNISOL INDIA PVT LTD. Noida

2nd Place : SANT RUBBERS LIMITED, Jalandhar



WOMEN ENTREPRENEUR AWARD 2022-23

- Smt. VIJAYA KORA, Partner, Ajantha Shoe Company, Chennai for manufacturing and exports of Footwear Components (Leather Shoe Uppers)
- Smt. REENA SACHAN, Director, Growmore International Limited, Kanpurfor manufacturing and exports of Leather Goods & Accessories
- Smt. SHRUTI MANGLA, Director, Orion Conmerx Pvt Ltd, New Delhifor manufacturing and exports of Leather Garments, Leather Bags & Accessories
- 4. **Smt. ANNAPURNA TIWARI**, Partner, Parth Exim, Kanpur for manufacturing and exports of Saddlery & Harness (Non-Leather).
- 5. **Smt. A. SIDHRA FATHIMA,** Partner, Vista Shoes, Chennaifor manufacturing and exports of Leather Footwear

BRAND CREATION AWARD 2022-23

- 1. Jama Corporation Private Limited, Kanpur for Leather Footwear for the BrandsOLDWESTand RIDE & STYLE
- 2. Condor Footwear Limited, Surat for Non-LeatherFootwear for the BrandAEROWALK
- Wilhelm Textiles India Private Limited, Gurugram for Footwear Components (other than shoe uppers) for the Brand WILHELM TEXTIL
- 4. Kings International Ltd., Kanpur for Saddlery & Harness (Leather) for the Brand KINGSTON
- 5. Amit Leather Wears, New Delhi for Leather Garments for the Brand DANIER





Shri Rajeev Singh Thakur, IAS, Additional Secretary, DPIIT, Government of India releasing the VISION DOCUMENT 2030 FOR LEATHER & FOOTWEAR INDUSTRY prepared by CLE on 10.01.2024 at New Delhi, in the presence of Shri Sanjay Leekha, Chairman-CLE, Shri Rajendra K Jalan, Vice Chairman-CLE, flanked by Shri Mukhtarul Amin, Chairman, Leather Sector Skill Council, Shri P R Aqeel Ahmed, Former Chairman-CLE, and Shri Motilal Sethi, Regional Chairman (North), CLE



Shri Rajeev Singh Thakur, IAS, Additional Secretary, DPIIT, Government of India releasing the National Export Excellence Award 2022-23 Booklet





Presentation of overall Export Award 2022-23 – 1st Place – to Feng Tay India Group



Presentation of overall Export Award 2022-23 – 2nd Place – to Apache Footwear India Pvt Ltd



Presentation of overall Export Award – 3rd Place – to Tata International Group



Presentation of Women Entrepreneur Award 2022-23



Presentation of National Export Excellence Awards 2022-23



Presentation of National Export Excellence Awards 2022-23



Presentation of National Export Excellence Awards 2022-23



View of participants in the Event





IFLMEA organises Press Conference on Leather Fashion Show

*Largest Leather Fashion Show with 15 India's leading companies will showcase their best leather products from bags, garments, shoes, leather goods & accessories through 60 top class models. Over 90 buying representatives from various international brands would attend the event

A short showcase of Leather Garments, Bags, Footwear & Accessories on 'Live' Models featured during the Meet for the first time.

The Indian Finished Leather Manufacturers & Exporters Association had organised a Press Conference on 25th January 2024 at the Hotel Taj Connemara, Chennai, to discuss sustainable trends in the leather industry, industry process initiatives and the features of the Leather Fashion Show 2024.

Shri K R Vijayan, Chairman, IFLMEA, in his welcome address, has said that the Association provides all guidance and assistance to its members, in manufacturing and trading of finished leather, and especially in environmental issues and data relating to trade opportunities. "As part of our efforts towards being a conscientious industry, we continue to invest in manufacturing sustainable products adopting zero liquid discharge processes, treating wastewater, using cleaner and greener technology, creating energy from waste and using solar energy among others" said the Chairman. He thanked Saba Group and Solidaridad, the Gold Sponsors, and Micropak and TFL being the Silver Sponsors of the Leather Fashion Show 2024.

Shri S K Sabapathy, Chairman, Saba Group has said most of their products are based on Bio-polymers and renewable sources of raw materials and said they are at present working towards metal free, salt free, chrome free and waterless tanning systems. He further said, they have introduced a revolutionary tanning agent to avoid Metals, Aldehyde, Chrome and Salts in the tanning process, using their exclusive 'Reactive Technology'.









Shri Suril Paneerselvam, Programme Manager, Solidaridad, an international civil society organisation, in his short presentation, has said "Solidaridad has been at the forefront of innovation in the leather industry, among which is the gender led initiatives. We have focused on cultivating leadership development through re-skilling, green jobs and the promotion of women owned business through techno logical interventions, market linkages etc. A traceability study to understand the gender gap in the leather sector in Tamil Nadu is currently in the

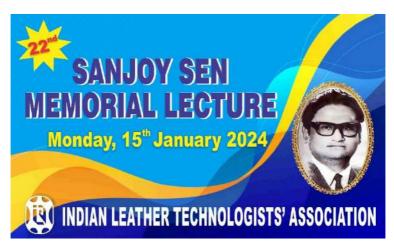
pipeline. We convert leather and solid wastes of shavings, buffing dust and trimmings into leather like products and use our wastes to create bio-manure, aquaculture and construction materials. These along with our 'waste to create fashion products' initiatives and our improved manufacturing processes go a long way towards sustainability and circularity".

Shri Yavar Dhala, Convenor, Leather Fashion Show 2024, has said that the 37th IILF would showcase the entire range of products relating to the leather industry from raw materials to finished products. Around 450 exhibitors from over 20 overseas countries participate in the mega event. The Leather Fashion Show the regular feature of the IILF will be held concurrently on 1st February 2024 at the ITC Grand Chola Hotel. It will focus the leather industry's attention on the latest expressions of styles and designs in the world of leather fashion. Lifestyle brands like BMW will also be showcasing their products. Fifteen of India's leading companies will showcase their products from bags, accessories, garments and footwear. This edition which will feature 10 show toppers and over 60 models will be directed by Bhaskaran Chandra Sekhar and choreographed by Jude Fel. "For the first time a short showcase of 'Live Models' presenting the Leather Bags, Garments, Footwear & Accessories exclusively for the Press & Media is being arranged", said Shri Yavar Dhala.

Shri Dhala further said, a leading U S based shoe manufacturing company, Cole Haan is moving 5 million pairs of its annual production from Taiwan to India in the new factory set up by Honf Fu in Tamil Nadu.

Finally, Shri Mohamed Jahan, Hony Secretary, IFLMEA, in his address thanked the sponsors of the IILF and Leather Fashion Show.





22nd Sanjoy Sen Memorial Lecture

The Indian Leather Technologists' Association (ILTA), organised the 22nd edition of Sanjoy Sent Memorial Lecture on 15 January, 2024 at the Seminar Hall in Science City, Kolkata. Shri T D Sivakumar, Vice President, NaBFID, Mumbai delivered the lecture on the topic "India in International Trade: Recent trends and Possible Solutions". The lecture which lasted for nearly an hour was very informative and highly contemporary.

Shri Susanta Mallick, Secretary, ILTA, greeted the gathering and delivered the introductory speech. The dignitaries present on the occasion include: Miss Ruksar Bose, niece of Mrs. Ratna Sen, Mr. Swapan Kumar Basu, Mr Prabir Kr Dasgupta, Mr Ashim Kr Mitra, Senior Life Members of, ILTA, Prof. (Dr.) Sanjoy Chakraborty, OIC, GCELT, Mr. Bibhas Chandra Jana, Joint Secretary, ILTA, Miss Himadri Tiwari, Award Winner from MIT, Muzaffarpur, Mr. Ramesh Ch. Sahoo, Campus in Charge, FDDI, Kolkata and Mr. Sk. Gholam Mohammad from Industry.

After garlanding the portrait of the great legend by the Chief Guest and all the dignitaries, **Shri Arnab Jha** delivered the welcome address. He briefly outlined the eventful life of Shri Sanjoy Sen and the great services rendered by him to ILTA and the industry during his tenure of three decades as the President of ILTA.

Sanjay Sen Memorial Medal from ILTA was presented to **Miss Himadri Tiwari** from Muzaffarpur Institute of Technology, Muzaffarpur, Bihar in 2023, and to **Miss Anushka Pal** from Harcourt Butler Technical University, Kanpur, U.P. in 2023 who secured topper position in B Tech (Leather) examination.. Also, Sanjoy Sen Memorial Gold Medal from GCELT was awarded to Miss Ayugma Sengupta for topping B.Tech Leather Technology examination as Composite Topper of 4 years in 2022 from GCELT. Dr. Prafulla Kumar Basu Memorial Scholarship was awarded to Miss Sreeparna Sadhukhan Mr. Saikat Kumar Maji and Miss Sunita Mondal.







The programme came to a close with Mr Susanta Mallick proposing the vote of thanks. In his thanks giving address, he invited all to attend the 5th Prof S S Dutta Memorial Lecture being organsied in Chennai at the IILF venue on 1st February 2024. More than 100 people attended the programme.

Tamil Nadu Global Investors Meet 2024: Secures Investments Exceeding ₹6.6 Lakh Crore

(Article written by Naina M.A.M, Sr. Journalist and Special Correspondent, Freelance Media News Network Chennai, Earlier in Print and e-Media and PIB)

In a historic turn of events, the Tamil Nadu Global Investors Meet 2024 has emerged as a catalyst for economic growth, attracting a record-breaking ₹6.64 lakh crore in investments. This remarkable achievement, doubling the figure from the previous GIM in 2019, significantly aligns with Chief Minister MK Stalin's vision of elevating the state to a \$1 trillion economy by 2030.

Leading the charge is Tata Power, among nearly 600 companies, signing Memoranda of Understanding (MoUs) with the Tamil Nadu government during the two-day event. Tata Power's commitment of ₹70,800 crore stands out in a consortium that includes major players such as Adani Group, Singapore's Sembcorp, and several others.

Adding to this economic surge are noteworthy contributions from various sectors, showcasing the diversified investment landscape:

VinFast, a key player in the electric vehicle sector, has announced a groundbreaking investment of \$2 billion (approximately ₹16,000 crore) to establish an Electric Vehicle (EV) manufacturing unit in Tuticorin, Tamil Nadu. This strategic move by VinFast is poised to generate over 3,000 local jobs, marking a significant contribution to the state's employment landscape.

JSW Steel, under the leadership of Managing Director Sajjan Jindal, revealed its substantial investment of ₹15,000 crore in Tamil Nadu



thus far. In an ambitious move, the company now aims to double its existing investments over the next few years.

Sajjan Jindal outlined JSW's commitment to invest in two renewable energy projects in the state, signaling a significant contribution to Tamil Nadu's sustainable development goals.

The renowned TVS Group has unveiled plans to infuse ₹5,000 crore into various projects across Tamil Nadu. This diverse investment initiative is expected to create employment opportunities for 500 individuals, showcasing the group's commitment to contributing to the state's economic growth.

JSW Renewables has reaffirmed its dedication to green energy with substantial investments in multiple renewable energy projects across Tamil Nadu. The conglomerate is set to inject ₹12,000 crore into these initiatives, promising to create 6,000 jobs and actively contributing to the state's sustainable development objectives

Pegatron, a leading consumer electronics manufacturer, has made a significant entry into Tamil Nadu with a substantial investment of ₹1,000 crore. The establishment of a consumer electronics manufacturing unit is projected to create an impressive 8,000 jobs, providing a substantial boost to employment opportunities in the state.

Godrej Consumer Products Ltd has unveiled plans to establish an integrated manufacturing unit in Chengalpattu, with a noteworthy investment of ₹515 crore. This initiative is expected to create 446 jobs, contributing to the industrial development of the region.

First Solar, a key player in the solar energy sector, has announced its intention to establish a photovoltaic (PV) solar module plant in



Kanchipuram. The company is set to invest ₹2,500 crore in this sustainable initiative, creating 350 jobs and aligning with Tamil Nadu's commitment to green energy solutions.

Qualcomm, a global leader in wireless technology, has decided to set up a design centre in Chennai, reinforcing the city's status as a hub for technology and innovation. The investment, totaling ₹177 crore, is expected to generate 1,600 jobs, further positioning Chennai as a key player in the technology landscape.

Hyundai, a prominent player in the automotive sector, has announced an additional investment of ₹6,180 crore in Tamil Nadu. This augmentation builds upon the ₹20,000 crore invested in electric vehicle (EV) manufacturing in the previous year. Hyundai Motor India also revealed plans to establish a Hydrogen Resource Centre in collaboration with IIT-Madras, marking a significant stride in advancing sustainable mobility solutions.

In tandem with this economic boost, Stalin released the Public-Private-Partnership (PPP) policy, recognizing the importance of collaboration between the public and private sectors in undertaking large-scale infrastructure projects. This policy amalgamates the best practices of both sectors to attract further investments and foster economic growth in the state.

Union Minister of Commerce Piyush Goyal participated in the TN Global Investors Meet as Chief Guest. Over 450 delegates have flown across the globe to attend the prestigious event. The Tamil Nadu Global Investors Meet 2024 has undoubtedly set the stage for a transformative period of economic development and job creation in the state.







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AN INNOVATIVETECHNOLOGYAPPLICATION OF OZONE IN REDUCTION OF POLLUTIONAL LOAD AND REMOVAL OF COLOUR IN TANNERY EFFLUENT



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Association (ILTA)

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1. Introduction

The tanneries in India and most of the Asian countries use large amount of poor-quality chemicals in semi-finishing and finishing operations. In wet finishing operations different types of fat liquors, dyes and non-degradable chemicals are used and the residual chemicals discharged as waste in the effluent. The effluent from semi-finish to finishing operations contains pH in the range of 4-5, COD in the range of 4000-6000mg/I, color in the range of 1500–2000 in Platinum-Cobalt Color Scale (Pt-Co). The important challenges in leather process and effluent treatment are:

- Control of H₂S and other odour emissions from beam house operations.
- Increase in colour and non-degradable COD in the effluent due to use of non-degradable chemicals and dyes.
- Colour removal is being insisted upon by pollution control authorities and Municipal Administration.
- Difficulties in reduction of non-degradable COD from 400-500 mg/l to less than 250mg/l.



- Enforcement of stringent environmental/discharge norms (i.e.BOD less than 10mg/l, SS less than 20mg/l, etc.) for discharge into water bodies and rivers.
- Sustainable recovery of chemicals and water for use under circular economy.

With a view to address the challenges of odour emission, non-degradable COD, Colour, etc. in the effluent, occupational health and safety measures and to meet new discharge standards and guidelines an advanced oxidation system with ozone has been studied in lab and pilot scale andadopted in a tannery cluster of 120 units with Common Effluent Treatment Plant (CETP).

The advance oxidation system has been upscaled for full-scale operation in such a way that the treated effluent is free from odour and improves the occupational health & safety condition in tanneries and effluent treatment plants. This advance oxidation system could achieve the removal of colour and meet new discharge parameters (i.e.BOD:<10mg/l, COD:<250mg/l & SS:<20mg/l) except Total Dissolved Solids (TDS).

The sequence of the new treatment process is : Pre-aeration with ozone treatment in dye bath effluent \rightarrow Mixing with other sectional streams \rightarrow Primary treatment for removal of suspended matters and sludge \rightarrow Secondary biological treatment \rightarrow Tertiary treatment \rightarrow High-rate advance oxidation for reduction of colour and non-degradable COD.

The advance oxidation system designed and implemented for a capacity of 150m³/hr is fully operational with onsite generation of oxygen and ozone. The oxygen generation plant supplies 2000m3/hr of oxygen at 93% purity and ozone is generated for a capacity of 30kg/hr in two modules each of 15kg/hr. The application of advance oxidation system for colour removal and non-degradable COD is first of its kind in terms of technological development. There is scope of replicability in many of the industrial units with effluent treatment plants with the scope for recover and reuse of water.



2. Materials and Method

For the development of high-rate advance oxidation system is followed after basic physiochemical and biological treatment. The first stage is generation of oxygen from atmospheric air using oxygen generator with a ratio of 100:5 (i.e. Atmospheric air \rightarrow Oxygen in m³/hr). The oxygen is stored in a separate compartment and further ozone is generated from oxygen using ozone generator at a ratio of 100:15 (Oxygen \rightarrow Ozone in m³/hr).

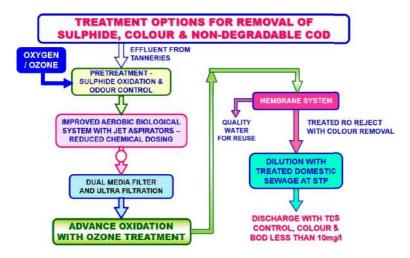


Fig.1 : Treatment options for removal of sulphide, colour& nondegradable COD

The ozone is distributed through diffusers in the oxidation compartment with a detention time of 60-90 minutes. The reduction in COD is from 400mg/l to <250mg/l and colour is reduced from >500 Pt-Co to less than 200 Pt-Co units & the ozone treated effluent looks like a clear water. The dissolved oxygen level in the final treated effluent is increased to 5-7 ppm and creates a pleasant & safety atmosphere in the tannery cluster & treatment plant.



Prior to the Advance Oxidation system an Ultra-Filtration system has been developed and introduced for the reduction of suspended solids from the level of about 50-100mg/l to less than 10mg/l and improve the clarity. The view of the Ultra-filtration (UF) system implemented prior to ozone treatment is shown in the following figure.



Fig.3: Ultra-filtration (UF) system

The sequence of advanced oxidation using ozone for removal of colour & non-degradable COD is given below:

- Generation of Oxygen from Atmospheric air using Oxygen Generator with ratio 100:5 (i.e. Atmospheric Air → Oxygen in m3/hr).
- Generation of Ozone from Oxygen at the ratio 100:15 (Oxygen → Ozone in m³/hr).
- The Ozone is distributed through diffusers in Ozone treatment tank with detention time of 90-120 minutes.



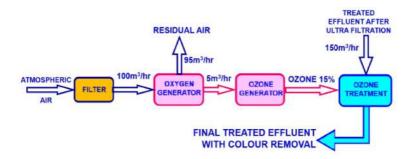


Fig.4: Sequence of advanced oxidation using ozone for removal of colour & non-degradable COD

The view of full-scale advance oxidation system with ozone treatment implemented with a capacity of 3000m³/day.



Fig.4: Ozonation System - Pre-Aeration & Ozone Reaction Chamber and Treated Effluent Storage Tank

3. Results and Discussion

The operational performance of advance oxidation system starting from post aerobic treatment, tertiary treatment, rate of oxygen generation and conversion into ozone, application of ozone have been studied at commercial scale system with a capacity of



3000m³/day. The performance of the overall system in terms of reduction in soluble COD, Colour, Suspended Solids, (SS), BOD is given below:

SI. No.	Treatment unit	Parameter	Inlet	Outlet	Percentage reduction
		COD	2500 mg/l	600 mg/l	76%
1.	Aerobic system with Secondary Clarifier	SS	400 mg/l	200 mg/l	50%
	,	Colour	>550 Pt/Co	>500 Pt/Co	10%
	Tertiary treatment	COD 600 mg/l 450 mg/l 25%			
2.	units – Dual Media Filter (DMF) and Ultra-Filtration (UF)	SS	200 mg/l	<10 mg/l	95%
		Colour	500 Pt/Co	400 Pt/Co	20%

It may be noted that COD and SS are considerably reduced during the biological treatment and tertiary treatment respectively. However colour reduction is only 10-20% during the biological treatment and conventional tertiary treatment units such as DMF and UF. Hence, it is considered necessary to adopt advance oxidation treatment using ozone to reduce colour and corresponding non-degradable COD. The advance oxidation system designed and implemented for a capacity of 150m³/hr is fully operational with onsite generation of oxygen and ozone. The oxygen generation plant supplies 2000m3/hr of oxygen at 93% purity and ozone is generated for a capacity of 30kg/hr in two modules each of 15kg/hr.

The ozone is distributed through diffusers in advance oxidation treatment with a detention time of 60-90 minutes. The COD is reduced from the range of 400-450mg/l toless than 250mg/l. The colour is reduced from more than 500 Pt-Co to less than 200 Pt-Co units and the ozone treated effluent looks like a clear water. The dissolved oxygen level in the final treated effluent is increased to 5-7 ppm and creates a pleasant and safe atmosphere in the tannery



cluster and effluent treatment plant area. The visual of the ozone treated effluent and consolidated performance statement are shown below:



Parameters	Inlet Parameter	Outlet Parameter	
Rated flow	150m3/hr	150m3/hr	
COD	400mg/l	< 250mg/l	
DO level	1-2 ppm	4-6 ppm	
Colour	500 Pt/Co	< 200 Pt/Co	
Clarity	Turbid	Clear	

Fig.5: Visual of the ozone treated effluent and consolidated performance statement

The application of advance oxidation system for colour removal and non-degradable COD is first of its kind in terms of technological development. The capital cost of the system oxygen and ozone generation system excluding basic physiochemical and conventional biological treatment works out to 1.00 Million Euro for a capacity of 3000m³/day. The effluent treatment system serves for 120-member

tannery units. The operating cost of ozone treatment is about 900 Euro per day and borne by the member tanneries. There is scope for replicability of advance oxidation treatment using ozone in many of the industrial effluent treatment plants to meet new discharge norms as well as for the plants planning to recover and reuse of treated effluent.

4. Conclusion

The advance oxidation system with ozone is successfully adopted in a cluster of 120 tanneries with a Common Effluent Treatment Plant (CETP) for a capacity of 3000m³/day. The DO level in the treated effluent is increased to 5-7 ppm and make it fit for discharge into receiving bodies and improved performance of Reverse Osmosis (RO) in the water recovery process. There is scope for replication of State-of-Art technologies for removal of H₂S, odour, colour and recovery of water from tannery waste.

5. Acknowledgements

The authors sincerely thank the following organizations for the successful development and application of the advance oxidation system using ozone.

- Department of Promotion of Industry and Internal Trade (DPIIT)
- Government of India Organizations
- CSIR Central Leather Research Institute (CLRI), Chennai, India
- Government of Tamil Nadu
- Tamil Nadu Pollution Control Board (TNPCB)
- United Nations Industrial Development Organization (UNIDO)
- IUE Commission of IULTCS



- Asian International Union of Environment (AIUE)
 Commission, Chennai
- Cluster of Tanneries with CETPs in India & Abroad

6. References

- S.Rajamani, "Biological Liquefaction and Anaerobic Digestion of Waste Fleshing Integrated with Sludge and Bio-Energy Generation – A Novel and Sustainable Development" – Article published in Eliva Press, Jan.2023 Edition.
- S.Rajamani, Arnold Mulder, "Ecological friendly production process and sustainable waste treatment in leather industries" – Article published in Leather News India, Jan.2023.
- S.Rajamani, Improved Cleaner Leather Production and Closed-Loop Processing of Saline and Chrome Streams -Paper presented in 12th Asian Inernational Conference of Leather Science and Technology (AICLST) Conference, Palmerston North, New Zealand, 2022.
- S.Rajamani, "New and innovative cleaner production process for sustainable development in leather process and environmental protection" - Invited participation and keynote presentation on 10th Freiberg Leather Days in Chemnitz, Germany, 2022.
- S.Rajamani& Technical Team of PTIETC CETP, Chennai, India – "Technical report on the up-gradation of Pallavaram PTIETC CETP, Chennai, India project" with financial support from DPIIT, Govt. of India and MSME, Govt. of Tamilnadu including the performance of advance oxidation system using ozone, 2023.



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Advancements in the use of wastes-derived polysaccarides for leather tanning and finishing*



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* This study was carried out within the MICS (Made in Italy – Circular and Sustainable) Extended Partnership and received funding from Next-Generation EU (Italian PNRR – M4 C2, Invest 1.3 – D.D. 1551.11-10-2022, PE00000004). CUP MICS C93C220052800

(We sincerely thank Dott. ssa Carmelina Grosso, Italian Leather Research Institute and the author Mauro Carraro for their kind permission to re-publish this article published in Italian Leather Research Magazine Cuoio Pelli Materie Concianti – CPMC, Vol. 99(2), 45-55(2023) - Editor.)

Introduction

Leather is a widely used material with applications ranging from fashion and automotive industries to upholstery and accessories. Traditionally, leather processing has involved the use of various chemical substances, some of which have negative environmental impacts. In recent years, there has been a growing interest in developing sustainable and eco-friendly alternatives for leather treatment. New treatment methods for leather, focusing on tanning and finishing processes, have been thus developed utilizing biobased compounds.

Tanning is a crucial step in leather production, that involves converting animal hides or skins into a stable and durable material. Traditionally, chrome tanning has been the dominant method due to its efficiency and effectiveness. However, the use of chromium salts poses significant environmental concerns. Bio-based alternatives are being developed to reduce the ecological footprint of the tanning process.

Vegetable tanning is a well-known bio-based method that uses tannins derived from plant sources, such as tree barks, leaves, and fruits. These tannins are rich in polyphenolic compounds, which react with collagen fibers in the hides, resulting in a soft and flexible leather. Vegetable tanning not only offers an environmentally friendly option but also creates unique and natural aesthetics in the leather.

Enzymes have shown great potential in the tanning process by reducing the need for harmful chemicals. Proteolytic enzymes, such as proteases, can selectively degrade unwanted proteins and non-collagenous components in hides, improving the tanning efficiency. Enzyme-assisted tanning promotes the use of bio-based catalysts and helps in achieving a more sustainable leather production.

The finishing process involves enhancing the visual appeal, durability, and performance characteristics of leather. Conventional finishing methods often rely on synthetic polymers and petroleum-based chemicals. However, bio-based compounds offer promising alternatives for sustainable finishing.

Bio based and waste- based compounds for tanning and finishing

Bio-based coatings, including biopolymers and natural oils, are being explored as alternatives to synthetic finishes. Biopolymers derived from renewable resources, such as starch, cellulose, or chitosan, can form protective films on the leather surface, enhancing its durability and resistance to water and abrasion. Natural oils, such as vegetable oils, can be used to achieve a soft and supple feel in the leather, reducing the dependence on petroleum-based oils.

Agricultural wastes, including fruit pomace, straw, husks, and seeds, present abundant sources of potential compounds for tanning and finishing processes. By converting these waste materials into useful

tanning agents, the leather industry can reduce its dependence on non- renewable resources and decrease waste generation. For example, waste from the olive oil industry can be transformed into a natural tanning agent known as olive leaf extract. Similarly, grape pomace and seed extracts have shown promise as effective tanning agents.

Lignin derivatives, have also shown potential as tanning agents. These compounds can be obtained from renewable resources, including agricultural by-products, and have demonstrated good tanning efficiency. Lignosulfonates, obtained by sulfite pulping of lignocellulosic materials, have been extensively studied as tanning agents. These derivatives possess strong complexing properties, forming stable complexes with collagen fibers in the leather structure. Lignosulfonates enhance the tanning efficiency, improve the physical properties, and impart a lighter color to the leather. Moreover, they exhibit dispersing and deflocculating properties, aiding in the uniform distribution of tanning agents and minimizing waste generation.

Lignin derivatives can be chemically modified to develop lignin-based syntans. These compounds act as bridging agents, linking collagen fibers in the leather matrix and improving its strength and stability. These derivatives also contribute to improved dyeability, lightfastness, and shrinkage temperature of the leather.

Lignin derivatives, such as lignin sulfonate and lignin-based nanoparticles, have shown potential as coating and finishing agents in leather processing. These derivatives form thin films on the leather surface, enhancing its durability, water resistance, and mechanical properties. Lignin derivatives possess inherent antioxidant properties due to their aromatic structure. These compounds can scavenge free radicals and inhibit oxidation processes, thus extending the lifespan

and quality of leather products. Additionally, lignin derivatives can act as UV stabilizers, protecting the leather from UV-induced degradation and color fading. Incorporating lignin derivatives in finishing formulations provides both environmental and performance benefits.

The utilization of lignin derivatives, besides the advantages of sustainability, waste valorisation and decreased environmental impact, enhance the tanning efficiency, strength, colorfastness, and water resistance of leather products, improving their overall quality and performance.

Despite the numerous advantages, several challenges exist in the utilization of lignin derivatives in the leather industry: need for a standardization, due to the variability of lignin sources and the chemical modification processes, which pose challenges in ensuring consistent performance and quality of lignin derivatives. The cost-effectiveness and scalability also need to be addressed.

Polysaccarides derivatives have emerged as a promising category of compounds in the leather industry, offering sustainable alternatives to conventional tanning and finishing methods. Derived from renewable resources, such as sugarcane and sugar beet, these compounds present several advantages, including environmental friendliness, biodegradability, and potential health benefits. This section explores the application of sugar derivatives in tanning and finishing processes, highlighting their properties, benefits, and challenges.

Syntans derived from sugar derivatives, such as glucose and fructose, have gained attention as effective tanning agents. These compounds act as bridging agents, binding collagen fibers in the leather structure and improving its physical and mechanical

properties. Syntans contribute to the formation of stable cross-links, strength. resulting in enhanced shrinkage resistance. the leather. Sugar derivatives, lightfastness particularly saccharides like trehalose and sucrose, have been explored as softening agents in the tanning process. These compounds improve the softness and pliability of leather, enhancing its tactile qualities. Softening agents derived from sugar derivatives offer an alternative to conventional synthetic softeners, which are often derived from non-renewable resources and pose environmental concerns.

Sugar derivatives can be utilized as dyeing assistants and pigment dispersants in leather finishing. These compounds exhibit excellent solubilizing properties, facilitating the uniform dispersion and fixation of dyes and pigments onto the leather surface. Moreover, sugar derivatives can enhance the color fastness and resistance to fading, resulting in vibrant and durable coloration.

The utilization of sugar derivatives in tanning and finishing processes offers several benefits: beside the sustainability, biodegradability and safer use, they contribute to improved softness, strength, and colorfastness of leather products, enhancing their overall quality and market appeal.

Some challenges need to be addressed for their widespread adoption: The cost- effectiveness and availability of sugar derivatives need to be optimized for large-scale commercial implementation, moreover, further research is required to fine-tune the performance of sugar derivatives in terms of tanning efficiency, coloration, and durability. Finally, compatibility with other chemicals and process parameters needs to be investigated to ensure compatibility with existing tanning and finishing processes.

Use of Chitosan for Tanning and Finishing of Leather



Chitosan, a bioplymer derived from the deacetylation of chitin, a polysaccharide found in the exoskeletons of crustaceans and cell walls of fungi, has gained significant attention in the leather industry as a versatile material for tanning and finishing processes. Chitosan possesses unique properties, such biodegradability, biocompatibility, antimicrobial activity, film-forming ability, and cationic nature. These properties make chitosan an attractive material for various applications in leather processing. Chitosan can be used as a tanning agent in leather processing. It interacts with the collagen fibers in the leather matrix, forming stable complexes and improving the tanning efficiency. Chitosan-based tanning agents offer advantages such as increased leather yield, improved softness, enhanced dyeability, and reduced environmental impact compared to conventional tanning agents. The cationic nature of chitosan also aids in the removal of negatively charged impurities during the tanning process.

Chitosan can be applied as a finishing agent to modify the surface properties of leather. It forms a thin film on the leather surface, imparting smoothness, gloss, and a soft touch. Chitosan-based finishes enhance the aesthetic appearance of leather, making it more visually appealing. Chitosan coatings on leather provide water resistance, preventing water penetration and damage. The hydrophilic nature of chitosan also allows for moisture absorption and release, contributing improved moisture management properties of leather products. Chitosan exhibits an interesting antimicrobial properties, inhibiting the growth of bacteria, fungi, and other microorganisms. Applying chitosan- based finishes to leather products can help prevent microbial growth, thereby improving hygiene and durability.

The use of chitosan in tanning and finishing of leather provides several benefits: sustainability, biocompatibility, as well as improved

performance (it enhances the tanning efficiency, softness, water resistance, and antimicrobial properties of leather, resulting in improved product quality).

However, challenges exist in the utilization of chitosan in leather processing: the cost-effectiveness of chitosan-based processes, scalability of chitosan production, requirements for standardization and optimization of chitosan-based processes.

Use of Nanocellulose for Tanning and Finishing

Nanocellulose (NC), a nanoscale cellulose material derived from renewable sources such as wood pulp, has garnered significant interest in various industries due to its unique properties and sustainable nature. This chapter explores the perspectives on the use of nanocellulose in tanning and finishing processes within the leather industry. It discusses the properties of nanocellulose, its potential applications in tanning and finishing, benefits, challenges, and future directions.

Nanocrystalline Cellulose (NCC) is produced by the acid hydrolysis of cellulose fibers, resulting in rod-like nanocrystals with high aspect ratios. These nanocrystals possess exceptional mechanical strength, high surface area, and unique optical properties, making them suitable for various applications in the leather industry.

Nanofibrillated Cellulose (NFC) is obtained by mechanically disintegrating cellulose fibers, resulting in long and flexible nanofibers. NFC exhibits excellent tensile strength, high aspect ratio, and a large surface area, making it a versatile material for numerous applications, including tanning and finishing.

Nanocellulose can act as a tanning agent, effectively binding to collagen fibers and improving the physical properties of leather. The

nanoscale size and high surface area of nanocellulose allow for better penetration into the leather matrix, enhancing its stability, tensile strength, and resistance to shrinkage.

The interaction between nanocellulose and collagen fibers promotes the formation of stable crosslinks, resulting in improved strength, durability, and water resistance of leather. This approach reduces the reliance on hazardous crosslinking agents and offers a more sustainable alternative.

NC-based finishing treatments can significantly enhance the mechanical strength and dimensional stability of leather. The incorporation of nanocellulose into finishing formulations reinforces the leather matrix, resulting in improved tensile strength, tear resistance, and reduced shrinkage.

NC coatings or films can impart water resistance to leather, preventing water penetration and damage. Additionally, nanocellulose has the ability to absorb and release moisture, contributing to improved moisture management properties of leather products.

NC-based finishes can modify the surface properties of leather, including smoothness, gloss, and softness. The nanoscale nature of nanocellulose allows for a uniform and fine coating, resulting in an enhanced aesthetic appearance of the leather.

NC can serve as a platform for functionalization, allowing for the incorporation of additional features in leather finishing. For example, antimicrobial agents, UV stabilizers, or flame retardants can be incorporated into nanocellulose- based finishes, providing additional functionalities to the leather products. The use of nanocellulose in tanning and finishing processes offers several benefits: is derived from renewable sources and offers a sustainable alternative to

conventional materials used in the leather industry. It enhances the mechanical strength, water resistance, and durability of leather products, leading to improved quality and longevity. Nanocellulose-based processes minimize the use of hazardous chemicals, reduce waste.

Nanocellulose from Waste Textiles: towards an augmented circularity

The production of nanocellulose from waste textiles presents a sustainable and environmentally friendly approach to valorize textile waste while obtaining a valuable nanomaterial. To produce nanocellulose from waste textiles, the selection of suitable textile waste sources is crucial. Waste textiles can include discarded cotton fabrics, cellulose- based fibers such as rayon or lyocell, or a combination of different textile materials. It is essential to consider factors such as the cellulose content, fiber structure, and presence of contaminants when choosing the textile waste sources for nanocellulose production.

Pretreatment of textile waste is necessary to remove impurities, dyes, and other non-cellulosic components before nanocellulose extraction. The pretreatment methods involve may processes such as sorting, shredding, and cleaning. Contaminants and non-cellulosic materials can be removed through washing, bleaching, or enzymatic treatments. Effective pretreatment ensures the production of high-quality nanocellulose with minimal impurities. Several conversion techniques can be employed to extract nanocellulose from pretreated textile waste. Common methods include acid hydrolysis, enzymatic hydrolysis, and mechanical disintegration.

In acid hydrolysis, the textile waste is subjected to strong acid treatment, such as sulfuric acid or hydrochloric acid. This process

selectively breaks down the non- cellulosic components, leaving behind nanocellulose. Acid hydrolysis can be performed under controlled conditions to obtain nanocellulose with desired properties.

Enzymatic hydrolysis involves the use of cellulase enzymes to selectively break down cellulose fibers into nanocellulose. Enzymatic methods are environmentally friendly and offer the advantage of milder reaction conditions compared to acid hydrolysis. However, the availability and cost of enzymes may impact the scalability of the process.

Mechanical such as high-pressure homogenization microfluidization, physically break down the cellulose fibers into nanoscale dimensions. Mechanical forces applied to the pretreated textile waste disrupt the intermolecular bonds, resulting in the formation of nanocellulose. Mechanical disintegration methods offer control over particle size and have the potential for large-scale production.

- [1] S.V. Kanth, R. Venba, B. Madhan, N. K. Chandrababu, S. Sadulla J. Clean. Prod. 2009, 17, 507 515.
- [2] G. C. Jayakumar, S. V. Kanth, J. R. Rao, B. U. Nair, J. Am. Leather Chem. Assoc., 2015, 110, 145-151.
- [3] O. Suparno, A. D. Covington, C. S. Evans, J. Chem. Technol. Biotechnol., 2005, 80, 44-49.
- [4] H. Zhu, H. Liu, K. Tang, J. Liu, X. Zheng, Y. Pei, *J.* Zhong, RSC Adv., 2022, 12, 7506-7515.
- [5] Y. Mahmud, N. Uddin, T. Acter, Md. M. Uddin, A.M. Sarwaruddin, Md. L. Bari, A. I. Mustafa, S. Md. Shamsuddin, Adv. Mater. Res., 2020, 9, 233-250.
- [6] A. Tamilselvi, G. C. Jayakumar, K. Sri Charan, B. Sahu, P.R. Deepa, S. V. Kanth, J. Kanagaraj, J. Clean. Prod., 2019, 230, 694-699.





PROMOTING CIRCULARITY IN TAMIL NADU LEATHER CLUSTERS

Solidaridad Regional Expertise Centre, Chennai

INTRODUCTION

India's leather industry is one of the largest industrial sectors based upon a by-product and a highly valuable sector contributing to thirteen percentage of leather production (three billion square feet of leather)in the global market. As enormous raw materials for leather production are available with world's 21% of the Cattle and buffalo population and 11% of the goat and sheep population. The leather industry provides employment for more than four million people covering 30% women involvement. The tanning process plays vital part for enhancing the leather quality in the leather production. Tamil Nadu is the main hub of the tanneries in India with approximately 750 tanneries contributing to 60% of country's tanning capacity and around 50% of the total export. Most of the tanneries targeted on the finishing of semi-finished leather products and organized into different clusters (8 nos).

However, the tanning process of raw hides generates enormous amounts of solid wastes, where 1000 kg of raw hides processing results about 750 - 850 kg solid waste that results in a solid waste generation of about appx. 700 - 850 tonnes every day. Annual solid waste generation in Tamil Nadu is about appx. 7000-9000 tonnes of solid waste. The biggest challenges faced by tanneries are managing and disposing the huge volumes of solid wastes in the TN leather clusters such as raw trimmings (1779 tonnes/month), hair (208 tonnes/month), fleshings (2078 tonnes/month), pelt trimmings (260 tonnes/month), wetblue trimmings (1708 tonnes/month), wetblue shavings (2705 tonnes/month), crust trimmings (312 tonnes/month), buffing dust (550 tonnes/month), finished trimmings



(274 tonnes/month), sludge from individual tanneries and common effluent treatment plants (CETP)(2375 tonnes/month) and salt from multiple effect evaporators (4325 tonnes/month) from the four clusters, approximately (Solid waste Baseline Survey, 2022).

A small portion of tannery solid waste is used in glue and gelatin manufacturing from raw trimmings, carpet making from soft hair, chicken and fish feed from fleshings, leather board manufacturing from shavings and cement manufacturing process uses sludge. The recovered salt from multiple effect evaporators is stored inside the CETPs. Hence, the common disposal practice of these solid wastes dumped at landfills which causes serious environmental pollution in air, water and soil ecosystem. The total carbon footprint of these solid wastes has a significant impact on the climate change. It not only affects the environment, also has major impacts on the public health. Currently, the landfill sites are also almost full with no permission from Pollution Control Boards on new landfills has been provided. Also, tanners incur significant expenses to transport these solid wastes to secure landfills. Hence, disposal of these solid wastes is a great challenge for the tanneries. There is an urgent need for a sustainable solution for this tannery solid wastes.

SOLIDARIDAD'S PROJECT INTERVENTIONS FOR CIRCULARITY

The conversion of the tannery solid wastes into a useful and valuable product is a circular approach. To scientifically deal with the solid waste problems in the cluster, the Solidaridad in the European Union-Switch Asia project "Promoting circularity in the Tamil Nadu leather clusters for solid waste management" implementing circular and sustainable solutions for the tannery wastes in the Tamil Nadu leather industry. They have partnership with the Politecnico Internazionale per lo Sviluppo Industriale ed Economico (PISIE), Indian Finished Leather, Manufacturers and Exporters Association (IFLMEA), Council for Leather Exports (CLE) and Tata International Limited (TIL) in 4 leather clusters - Ambur, Pallavaram, Ranipet and



Vaniyambadi. The various project interventions for enhancing the solid waste management efficiency through demonstrations of circular market-based models with cleaner and eco-friendly process technologies (as depicted in the figure below) are

- Conversion of chrome shavings into eco-particle boards (EPBs) and protein syntan
- Conversion of fleshings into tallow, bio-manure, biogas and aquatic feed
- Conversion of tannery sludge into paver blocks and bio-char
- Reuse of accumulated salt
- Enzyme based dehairing and
- Process-based optimizations for pollution reduction and water conservation are installation of the solenoid valves, smart water saving systems (SWaSS), waterless fleshing roller (WLF) and implementation of the de-salting machines for the total dissolved solids reduction.



Figure 1: Demonstration of Circular Solid waste utilization models and eco-friendly tanning practices at Tamil Nadu leather Clusters

PAVER BLOCKS FROM TANNERY SLUDGE

In scientifically dealing with the solid waste problem, significant sustainable solution for managing exceedingly large volumes of lime sludge bν converting it into



value-added products as "Paver blocks". Several trials using tannery lime sludge for making Paver blocks with desired compressive strength and environmental standards were conducted. Pilot demonstrations of Paver blocks made from sludge laid over 15,000 sq.ft at various places of Pallavaram tannery cluster. It holds great potential for sector transition towards circularity by tapping into the unutilized resource and has positive environmental impact pave the way for new business opportunities for the tanneries.

IMPLEMENTATION OF DESALTING MACHINES

Desalting machine is used to remove excess salt from hides/skin and reduces salinity at source. This is a scientifically proven technology and implemented widespread by Solidaridad, where the TDS content in the effluent is reduced to 30 - 33% at source itself well before the process. Desalting machineries are installed at Ranipet, Ambur and Vaniyambadi clusters.

ECO-PARTICLE BOARDS FROM SHAVING DUST

Utilizing the shaving dust for the manufacturing of Eco-particle boards (EPB's) and further making it into eco-friendly "Waste to Fashion products" of ladies' hand bags, tote bags, laptop bags, jewellery box, clutches, etc. are having a huge economic potential and high demand in domestic and international market. The

Solidaridad team conducted several trials for creating high quality eco-particle boards of various eco-friendly versions using different combinations of chrome shavings (cow, vea goat), tanned cuttings, cotton waste, binders, fat liquors and linkers. cross The technical evaluation exhibited that the EPBs passed the REACH standards and have



good tensile strength, tensile elongation and tearing strength. The environmental and other benefits of these EPB's are green, safe eco-friendly, conversion of trivalent chromium into hexavalent chromium is avoided, highly durable material, reduces environmental pollution and securing environmental sustainability. EPB's have potential industrial applications in foot wear, furniture industry, thermal insulation of buildings and leather panels, etc. Pilot-demonstration unit of making value-added products in supporting women empowerment through women entrepreneur was established and aid in co-creating the market linkages.

RE-USE OF ACCUMULATED SALT



Possible solution for the Zero Liquid Discharge (ZLD) recovered salt is thermal re-crystallization and using it for curing and pickling purposes. Many leather products have been developed using the ZLD recovered salt and these products has key features of - No fresh salt used for curing and without any quality issues.

WATER SAVINGS

(SOLENOID VALVES, SWASS AND WATERLESS FLESHING ROLLER)

Retrofitting of fleshing machine by installation of a solenoid valve, saves around 50% of fresh water consumption which otherwise is discharged as waste. As a result, reduces the CETP charges for tanneries and also reduces cost for tanners who are buying water for processing in tanneries. The installation of solenoid valves in



selected tanneries at Tamil Nadu leather cluster, saved million litres of water in the tanneries. The demonstrations of Smart Water Saving System (SWaSS), a water optimization technology for medium to large tanneries installed at Chennai and Ambur, not only saves around 30 - 35% of the fresh water consumption also resulting in the consistency of quality of Production.





Waterless Fleshing Roller (WLF) roller - Retrofitting to existing fleshing Machineis an Innovative and Sustainable Technology developed towards a finer step of eliminating water usage in the unit operation. It is retrofitted at a Vaniyambadi tannery. The benefits of WLF roller are: first initiative method to save 100% water used in fleshing machines and conserves water, Sustainable Manufacturing process and WLF roller is a Make in India product, saves the cost, time and energy. This technology development could be scaled up all over India and abroad due to its affordable cost compared to high cost imported machines.

BIOCHAR FROM LEATHER SOLID WASTE

The tannery solid waste conversion into biochar through pyrolysis process could be an economical and environmentally friendly way for disposal of waste. Trials on converting sludge to biochar, a carbonaceous product that can be added to soil for improving the soil quality is underway. It reduces the overall environmental impacts

from solid waste, reduces the volume and mass of solid waste entering the dumping sites, and creates a waste to value.

CAPACITY BUILDING FOR WORKERS







The MSME tannery workers was facilitated with capacity building and training on circular practices and eco-friendly tanning solutions and occupational health and safety (OHS) training which improved their capacities and working conditions.

Solidaridad is a 53-year-old civil society organization working in around 45 countries globally. Solidaridad India is part of the global Solidaridad network, which has its secretariat in the Netherlands and is a major international driver of sustainable and fair production and consumption practices in different agri-food and industrial sectors, including leather. Solidaridad embarked on its leather journey in India from its flagship project in Kanpur- Unnao Cluster in 2017. This model was scaled with support of the EU Switch Asia in Kolkata Leather Cluster (Bantala) in 2020 and in Tamil Nadu leather clusters in 2022.

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TFL increase the use of biobased low impact chemicals for leather.

TFL are dedicated to drive the use of renewable raw materials inproducts to the next level.

Tominimize the use of fossil fuel materials in products and the carbon footprint of leather, it is vital to support customers not only with the right products to make beautiful leather but to also support their efforts for more sustainable solutions.TFL have gathered all products with a renewable content of 50% or higher under one roof, with the name "Pure".

The latest "Pure" products with high amounts of renewable raw materials for leather finishing areas following:

RODA® Pure Feel F 730 is a product for garment, shoe upper, upholstery and leather goods, which is used as an additive in aqueous topcoats and nitrocellulose emulsion lacquers. **RODA®** Pure Feel F 730imparts a soft and waxy feel to the leather. The product comes with a 65% renewable content.

Another candidate is **RODA® Pure Base WH 0303** which is a ready-to-use base coat compound for typical box type articles like brush-off and patent leather. This product provides very good coverage and flexes with a 50% bio content.

RODA® Pure Finish 5090 is a ready-to-use NMP-free and NEP-free topcoat with 61% bio content. The product is especially designed for shiny and very fashionable leather articles, forming a soft and glossy film with very good physical properties.

Now also available with a renewable content of 51% is RODA® Pure Finish 6271-B, the bio version of our well-known dull topcoat compound for shoe upper nappa, upholstery and garment leather with good physical and mechanical properties, a pleasant, warm and silky touch and a very low polishing effect.



AQUADERM® Pure Finish 1813 is a PUD topcoat binder which forms a glossy, very dry and medium-soft film to obtain excellent physical properties with dry and wet rub fastness. The product, with its 53%bio content, is commonly used as a gloss component for upholstery and shoe upper articles.

With 43% renewable content RODA® Finish 5180/E Dull does not quite qualify to carry the name "PURE" but the product is still a valuable bio contributor in our range. This ready-to-use topcoat compound is suitable for a wide range of full grain or buffed upholstery articles. Leather made with RODA® Finish 5180/E Dullare dull, can be milled and come with excellent heat and light fastness properties.

In the wet end TFLhave already launched various unique biobased products (renewable content in brackets) including the film forming polymer MAGNOPAL® Pure A(93%), the amphoteric retanning agentMAGNOPAL® PureHLiq (97%),the filler MAGNOPAL® Pure M(100%) and the genuine resinRETINGAN® Pure RS(70%) together with renewable faliquors, for example,CORIPOL®Pure LC (79%).

TFL is now proud to announce the very latest launches, two potential game changers, namely: TANIGAN® Pure T-A(75%), a patented non-food grade bio-based extract with true tanning power and completely free of bisphenols. TANIGAN® Pure T-A can be used as a genuine replacement tanning and retanning agent for all types of leathers, imparting outstanding tightness combined with inner mellowness.TANIGAN® Pure T-Ahas a bright, even leather colour and superior light fastness and heat resistance compared to many commonly available vegetable tannins.

The second new product is **MAGNOPAL® Pure B**(71%),a completely new generation of bio-based polymers that can fully replace traditional fossil fuel-based acrylics. As you would expect from a traditional polymer product, it gives the leather a fine and smooth grain and a light, even colour.



Do not think that being "bio-based" means we have compromised on performance, on the contrary, MAGNOPAL® Pure B has excellent lightfastness and heat resistance.MAGNOPAL® Pure B is used for all types of leather and imparts excellent tightness combined with exceptional fullness and softness. MAGNOPAL® Pure B produces leather of low density, which makes it particularly suitable for lightweight articles. In addition, MAGNOPAL® Pure B has an extremely high exhaustion rate resulting in low BOD / COD values of the wastewater.

Both products contain impressively high amounts of bio-based materials which improve the bio-content of the wet end formulation and make the resulting leather more sustainable. TANIGAN® Pure T-A and MAGNOPAL® Pure B can be combined with other products from the "Pure Range" to create leathers with a low environmental impact.

TFL participates to IILF 2024

As in the past editions, TFL will be present with its exclusively fair concept and display a special collection of premium leather articles - all made with great chemicals and excellent advice. TFL will not only present accessories and shoe articles in the colors of the Spring-Summer 2025 season, but also expose automotive and upholstery pieces made by using its latest technical innovations.

Along with this collection of leather articles, visitors will learn about the latest updates on TFL sustainable solutions and technologies exceeding prior environmental standards.

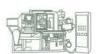
The TFL PURE TEC, a complete range of bio-based low impact chemicals for leather, and our extended range of ultra-low to zero BPS/BPFsyntans will be starring aside and inside the exclusive collection displayed at IILF 2024.

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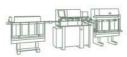


































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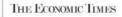


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Indian Leather





9th LEATHERTECH Bangladesh concludes successfully

Over 200 exhibitors from 10 countries presented a wide range of products for Leather, Machinery, Components & Accessories, Chemicals sectors

"We were anxious in the run up for the show, but we were very satisfied at the overall turnout and participation which clearly reflected the role played by LEATHERTECH Bangladesh as the "Leather Industry Networking Forum" which is very redeeming.-Tipu Sultan Bhuiyan, Managing Director of ASK Trade & Exhibitions Pvt Ltd, the organizers of the event.

The 9th edition of Leathertech Bangladesh - a most popular International Trade Show on Machinery, Components, Chemicals & Accessories for Leather, Footwear and Travel Goods sector of Bangladesh, organised by ASK Trade & Exhibitions Pvt Ltd, between 2 and 4 November, 2023 at the Expo Zone, International Convention City, Bashundhara, Dhaka, concluded with positive results.

Over 200 exhibitors drawn from 10 countries, which include Group Participation of Indian trade bod ies, such as Council for Leather Exports (CLE), Indian Footwear Components Manufacturers Association (IFCOM), Confederation of Indian Footwear Industry (CIFI). Chinese companies participated in large numbers. More than 4312 people from the trade and industry visited the event, despite the prevailing political turmoil in the awake of forthcoming general elections in the country.



































Stakeholders from the Leather, Footwear and Travel goods sector responded well to the event and visited in good numbers across the spectrum consisting of decision makers, senior management, technical personnel, merchandising community and the shop floor workers besides the people from the trade viz., machinery & chemical dealers, importers. Potential Investors planning to get into the business were also seen interacting with exhibitors getting to know the important aspects of investment, productivity, manpower issues etc..

A huge variety of products showcased by the exhibitors include:

Raw, Semi-finished and Finished leathers in Cow, Goat, Sheep & Exotics, Synthetic materials, Dyes & Chemicals for tanning, finishing, and shoe finishing chemicals, a wide variety of shoe components such as TPR & EVA Soles, PU,TRU, Toe Puff and counter materials, a number of shoe accessories, Self Adhesive & Reinforcements Tapes, Interlinings, Non-woven insole board etc. On the Machinery sector, a large number of Leather, Footwear and Leathergoods Machinery, Molding Machines, Designing Software & Hardware for Footwear and Leathergoods etc.

Also there were participants from Logistics Sector, Shoe Project Consultants, Media and Trade Associations.

A Buyer-Seller meet held concurrently was the highlight of the event which enabled many of the new exhibitors to get familiar with some of the leading companies in the sector. During the BSM the sourcing team from the sector interacted with suppliers of their choice in a one-to-one meeting. Leathergoods & Footwear Manufacturers and Exporters Association (LFMEAB) extended the LEAD Support for the event and supported by Bangladesh Tanners Association (BTA),



Bangladesh Finished Leather, Leathergoods and Footwear Exporters Association (BFLLFEA), Bangladesh Paduka Prostutkarak Samity (BPPS).

Another highlight was the "Talk Show" organised by Footwear Exchange, with an objective of exchanging Industry Knowledge which was held concurrently with the show. A host of dignitaries from Planning Commission, BIDA, EPB, Association Heads, Leading Footwear Manufacturers, Consultants, Subject Matter experts participated in the talk show sharing their views on the path ahead for the sector. This collaboration with Footwear Exchange is poised for a bigger role in the coming edition thus providing a clear direction for the sector to excel.

Export performance of Leather, leather products and leather footwear for the current FY 2022-23 July-May (11 months) has reached almost US\$ 1120 mn. In terms of non-leather footwear exports were almost US\$ 434 mn. Export performance of the total sector (leather, leather products, leather and non-leather footwear) reached US\$ 1554 mn with export growth of almost 2% over SPLY

Globally it is viewed that Bangladesh as a production hub and has hardly been tapped due to internal issues such as shifting of the industry to Savar and ETP related issues. Bangladesh has a robust and well entrenched domestic market for leather and non-leather footwear and goods with many local brands leading the market share. Entry of Bangladesh into the Middle Income Group will fuel further growth with added disposable income amongst the local populace.

Next Edition of Leathertech Bangladesh will take place on 21-23 November 2024 at the same venue.





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The 100th edition confirms the influence and impact of Expo Riva Schuh & Gardabags: an increasingly united community dedicated to strengthening the international footwear and bag business.

- Over 1300 exhibitors including companies and brands from 39 Countries (+ 15% compared to January 2023 edition) 16 Trade Associations representing all major shoe producing countries were present
- Around 9000 buyers (80% European and 20% Non-European) attended the event. Attendance rate aligned with 2023 edition
- Offered a preview of the upcoming autumn/winter 2024-25 collections

The 100th edition of Expo Riva Schu-the most popular and important International Exhibition dedicated to volume footwear and the 10th edition of Garda Bags, a specialized fair for leather goods and accessories orghanised by Riva del Garda Fierecongressi SpA, ran concurrently from 13-16 January, 2024 at the exhibition halls of Riva del Garda.

Over its first 100 editions, the fair has hosted roughly 70,000 footwear collections. An underestimation, no doubt, because this assumes that at every edition, each exhibitor presented only one collection, which we know not to be the case. The event has welcomed some 500 thousand visitors and, at each edition over the last 10 years, has persuaded industry operators from at least 100 different countries to come to Riva del Garda.



































Today, about 80% of visitors come from Europe and a good 20% from non-European countries (a very high number compared to other events). Significantly, there was a notable surge in participation from Italy, the UK and Poland. Visitor numbers from Germany and France were down somewhat, indicative of the relative decline in these countries' respective economies.

The visitor make-up was quite interesting too: 30.4% were from the retail sector, 19.3% from distribution and 5.2% from e-commerce, followed by 15.5% manufacturers.

Among buyers, 58.9% played a decision-making role as either a company owner or head buyer.

The January 2024 edition will long be remembered not only for its impressive statistics but also its **Celebration Night** festivities. "A memorable and extraordinary moment," commented Paolo Villa, President of ASSOPROV, "that recreated the atmosphere and spirit of the early days, when people would meet on the shores of Lake Garda to do business and forge relationships."

"We focused on getting to know more about exhibitors' production and the market dynamics our visitors face. We have cultivated important relationships with institutions and trade associations to facilitate the exchange of valuable information and collaborate on projects that offer tangible benefits to the industry," stated Alessandra Albarelli, General Manager of Riva del Garda Fierecongressi.

A path already being paved, given the **presence at the fair of key international stakeholders** and representatives from the most influential associations and most prominent global events: "It was



crucial for us to convey our vision of the industry's future to them," she concluded.

She then added: "This 100th edition serves as confirmation that the innovations implemented in recent years, including new digital, business and marketing services, are genuinely enhancing the value of the event format."

GianPaola Pedretti, Exhibition Manager, summarised the many successful and popular events held throughout the exhibition: "Through the **Market Focuses** on the Far East, Latin America, Africa, Europe, and the USA, along with the one dedicated to handbags and accessories, we continued to gauge the industry's pulse.

The four sessions in the new **Highlights Area**, on the other hand, in collaboration with Arsutoria, provided us with insights into the prevailing styles favoured by consumers of handbags and accessories. We cast a glance into the future, looking beyond fashion alone, with **Innovation Village Retail**, and also with the **Startup Competition** that awarded the Spanish **iF Returns Solution**, a logistics optimisation and control platform for returns management."

Lots of collections, plenty of handshakes, many discussions, infinite memories and countless emotions. The 100th edition of Expo Riva Schuh & Gardabags serves as a springboard from which the international footwear and accessories community can gather momentum and capitalise on future opportunities, beginning in June 2024.

The next edition will take place from 15-18 June, 2024.





Shoes & Leather Guangzhou 2024 rescheduled to 29-31 May 2024 at Area A of Canton Fair Complex.

This highly acclaimed event in the footwear and leather industry provides an excellent platform for industry professionals to exchange information, showcase products, and establish new partnerships. The exhibition will feature the latest trends and innovations in the industry, including high-quality leather, advanced footwear and leather machinery, sewing machines, automation equipment, chemicals, and accessories.

For Details contact:

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Intertex Portugal - International Textile Industry Fair & Intershoes Portugal - International Footwear Industry Fair

Overview:

The Intertex Portugal & Intershoes Portugal fairs are back from 21 to 23 May 2024 at Europarque, in Santa Maria da Feira, to celebrate innovation, sustainability and the future of the textile and footwear industry.

For B Group US, the North American company that organizes these events, this will be the 3rd edition of this event in Portugal that puts these two important sectors of the national economy in parallel in an event that promises to be a platform with unique characteristics for the meeting of the main national and international companies and professionals in the sector, where the latest trends in products and services will be presented.

Intertex Portugal and Intershoes Portugal will bring together the main players in the textile and footwear industry, from designers, raw material producers, finished product manufacturers and well-known national and international brands.

Expecting the participation of more than 190 companies from around 20 countries and thousands of professional visitors from all over the world, these events will be an unmissable opportunity to expand the business network, explore new contacts, establish new partnerships and create business opportunities.

We will once again count on the support and support of prestigious reference entities such as ANIVEC – National Association of Clothing and Apparel Industries, one of the main associations in the national textile sector; UACS – Union of Trade and Services Associations; CFPIC – Professional Training Centre for the Tanning Industry; of the Tourism of the Centre and North of Portugal and the Municipality of Santa Maria da Feira.



Sector Overview

In June 2023, Portuguese exports of textiles and clothing amounted to 526 million euros (a growth of 1.7%) compared to the same month of the previous year.

With regard to footwear, Portugal gains position in the list of exporters, surpassing Hong Kong and placing our country as the 12th largest exporter of footwear, with an increase of 11% in the average price of national shoes.

As Intertex & Intershoes Portugal is an event with a strong component of international visitors looking to get to know the best that is done in the national territory, this will be a unique opportunity for partnerships and international business not to be missed.

Highlights for 2024

"Start-up Space"

In order to encourage and boost emerging companies in textiles and footwear, there will be a zone of new or start-up companies that need to grow and expand their businesses.

"Thinking Textile and Shoes - The New Industry Trends"

It will be a space for lectures, interventions and debates where professionals in the sector will not only present the latest sustainable practices, recycled materials and ecologically correct production techniques, but will also discuss and analyze the evolution and future of the textile and footwear sector.

"Business Talks"

Presentation of new products or services, the latest advances in technology and innovation, the application of specific management systems; these will be just some of the topics that the companies participating in Intertex Portugal and Intershoes Portugal 2024 will have the opportunity to address in this dynamic space for the promotion and dissemination of their products, services, news or even projects that are looking for investors.



"Design Trend Area"

Fashion will have its place in these events, seeking to establish the bridge between imagination and creation, between design and production, between renowned national designers and young creators, shortening the distances between the players in each sector and bringing all the actors together on the same stage.

"Hosted Buyer Program"

Following the previous editions, the organization of the event will invite, through the Hosted Buyers Program, hundreds of international VIP buyers to visit Intertex Portugal and Intershoes Portugal, with the clear intention of increasing the possibilities of internationalization of national companies.

In addition, each company participating in the event may invite a customer or potential customer to be included in this group of exclusive buyers invited by the organization.

"Hosted Buyer Lounge"

An area reserved for Hosted Buyers, which will promote meetings between exhibiting companies and the main visiting professional buyers, stimulating networking, with all the necessary amenities.

"Zen Lounge"

An open space for all visitors, with an atmosphere of relaxation and relaxation that invites the establishment of valuable connections and the realization of business between participants, professional visitors and buyers from all over the world.

"Shuttle Service"

Because the convenience of visitors is fundamental, there will be a permanent free shuttle service for visitors that will connect the Airport, the center of Porto and Europarque.



Impact of the Event

It is clear that the holding of this event has a significant economic impact, not only because of the commercial transactions that will take place between the participants and visitors of the fairs, but also because of the direct impact on the local and national economy, resulting from the hundreds of people from the companies exhibiting the event and the thousands of visitors who will attend it.

In addition to the direct investment made by the North American company BGroup US in the organization of Intertex and Intershoes in Portugal, which is reflected, for example, in the rental of facilities, hiring of staff and service providers for the event, as well as in the payment of national taxes and fees, there is also a very far-reaching economic impact generated by exhibitors and visitors. Both nationals and foreigners, during your stay, which includes expenses with accommodation, restaurants, transportation, shopping, among others.

According to official studies and audits, the direct economic impact on the region where the event takes place can exceed 2 million euros in a short period of time, without considering the additional tourist impact resulting from the possible subsequent visit of many participants and visitors to the region.

Therefore, the holding of the Intertex and Intershoes fairs in Portugal is an advantage in all aspects, contributing directly to the local and national economy.

promoting the growth and internationalization of Portuguese companies and placing Portugal on the international scene of fashion, textiles and footwear.

For details visit: Websites: www.intertexportugal.com https://portugal.intertexshoes.com/index





CONSISTENTLY RELIABLE

Under the campaign motto "BE BOLD", Messe Offenbach will open its doors from 3 to 5 February 2024 for the 159th edition of ILM, the trade fair for leather goods, bags, travel goods and accessories. 250 exhibitors from over 20 countries are expected to attend Including well over 30 new brands.

In addition to the consistently reliable order business, the focus will be on new trade fair segments and innovations. It thus remains true to its mission statement: tradition meets innovation to boldly shape the future of the industry together.

STRONG ORDER BUSINESS. ILM has been a reliable and important hub for the industry's order business for over 70 years. It presents a wide range of brands and products and is also an innovative platform for practice-orientated concepts for the retail trade. "In challenging times like these, we need a reliable trade fair. For us, the ILM is not just an ordering event, but above all the ideal place to hold in-depth discussions with our customers." says Christiane Brunk, Managing Director of Braun Büffel.

DISCOVER CREATIVE TRENDS. The new SIDELINES trade fair segment, which was presented for the first time at the last edition, once again offers a platform for high-quality accessory brands. Here, retailers have the opportunity to supplement their product range with a selection of high-margin additional offers.

INNOVATING RETAIL. The FUTURE HUB presents forward-looking concepts for retail and industry. For the 159th edition, the think tank will have an even more prominent space directly in the entrance area. Visitors and exhibitors can expect a series of practice-orientated presentations, discussion panels and trend forecasts with renowned industry experts. "In 159 editions, ILM has developed from a classic trade fair into an important industry meeting place. ILM stands for strong order business, future concepts and solutions for our retail sector." explains Arnd Hinrich Kappe, Managing Director of Messe Offenbach.

www.messe-offenbach.de





Fashion Access will be in March 19-21 in Hong Kong

The Asia Pacific (APAC) is the region that can lead the growth of the global footwear market in 2024, according to forecasts from GlobalData, a leading market data and analysis company.

As we know, the Covid-19 pandemic has affected the global footwear market in a significant part of the planet. However, the Asia Pacific (APAC) region accounted for 32.9% of the global footwear market in 2019 and is projected to contribute nearly 40% of sales in 2024, supported by strong growth markets such as India, Philippines and China, says GlobalData.

This consulting firm's research reveals that the APAC area will grow at a projected rate of 5%, and will reach a market value of 172 billion dollars in 2024.

For this reason, the next edition of Fashion Access is the right place and the right time to do the best business.

Rukmini Durge, analyst at GlobalData, comments: "APAC will be the fastest growing market through 2024 due to increased awareness and affinity for a greater variety of footwear styles, especially among men's shoes. Consumers will increase shopping frequency to keep up with trends, while rising disposable income in Asia Pacific countries will also help boost sales in the long term. Retailers can rely on the APAC region for continued growth and open new stores smaller cities and towns to attract new Rukmini Durge concludes: "Customers, especially in the fast-growing APAC region, who are increasingly aware of international trends, may be attracted to exclusivity and personalization features to drive sales. "Brands that offer some degree of customization or unique features can generate sales by tapping into the culture that creates excitement around footwear purchasing and creates sales opportunities, especially aided by online channels."

Fashion Access 2024 will be held in Hong Kong from March 19 to 21. This event is a leading business platform for footwear and accessories and is the ideal starting point for footwear manufacturers to penetrate the markets of Asia Pacific countries.

Please visit www.aplf.com or contact us by email for more information info@aplf.com





TEXWORLD EVOLUTION

PARIS

apparelsourcing



D-22 to the opening of *Texworld Evolution Paris* at the Paris Expo Porte de Versailles. From 5 to 7 February 2024, the heart of global sourcing will be concentrated in Paris for a record edition.

Texworld and Apparel Sourcing Paris have put together an exceptional line-up for this first edition of 2024: with 1,260 companies taking part in the two shows, it will surpass the previous record set in February 2019. Once again this year, international suppliers to the global fashion and apparel industry will be demonstrating the central role of the European markets for the fashion sector. It is also a reminder of the importance for buyers of this essential point of contact and exchange for developing their Spring-Summer 2025 collections. Spread symmetrically over the two levels of Hall 7 (7.2 and 7.3) Texworld and Apparel Sourcing will bring together the bulk of the world's supply of fabrics, materials, accessories and finished products for the apparel industry.

The return of Indonesia and Taiwan

On the *Texworld* side, 760 companies will be representing the major sourcing countries: first and foremost, China, but also Korea, with around forty companies represented by the National Union of Textile Manufacturers (KOFOTI), Türkiye, which once again has around a hundred manufacturers, including 76 grouped under the banner of the Istanbul Chamber of Commerce (ITO), and India and Taiwan, to name the most heavily represented delegations. Indonesia will be making a comeback with a very high-quality range of silky products and cotton fabrics, as will Thai manufacturers, whose expertise in embroidery - a sector with a strong presence this year along with knitwear - is remarkable.

Focus on Europe at Apparel Sourcing Paris

Apparel Sourcing, with over 500 companies specialising in finished products, will be welcoming a sizeable contingent of European manufacturers. A pavilion featuring nine Ukrainian companies offering

a wide range of womenswear products will be highlighting the expertise of a country that has long been present in the sourcing schemes of French and European principals. Bulgaria will also be represented, as will the Foursource hub, a long-standing partner of Messe Frankfurt France, which will be showcasing the offerings of about thirty near-sourcing manufacturers based in Europe. The Denim Village will bring

together a selection of international companies (Bangladesh, China, India and Pakistan) offering raw materials and finished products over an area of more than 600 m² in the central part of Hall 7.3.

Texpertise Econogy, a new approach to the sustainable economy

This year's trade fairs will focus on Texpertise Econogy, which combines the concepts of ecology and economic development. This concept is now the framework for the Messe Frankfurt group's approach to its <u>Texpertise Network</u> worldwide. This principle will guide *Texworld Evolution Paris* in its approach to sustainable development and structure the sourcing methods of its sourcing platform. https://texworldpariseconogyfinder.com

Vision, trends and outlook

True to its mission as a trendsetter, *Texworld Evolution Paris* will be doing its utmost to provide visitors with perspectives on market developments and the direction of demand. New for 2024, each show will have its own trend area - the two trends forums will be grouped together on level 7.3 and will unveil the most innovative samples which are closely following the trends - in addition to *Highlight* areas, on level 7.2. The Denim Village and the Elite sector, which brings together exhibitors selected for their performance in terms of quality, competitiveness, responsiveness and logistics, will both have their own *Highlight* areas, as will *Texworld* and *Apparel Sourcing*. As part of the spring-summer collection, certain sectors such as silk will be highlighted at the entrance to hall 7.3, under the nave bathed in natural light. Last but not least, the T-Club has been completely refurbished to encourage professional exchanges.

Website: https://texworld-paris.fr.messefrankfurt.com/paris/en.html

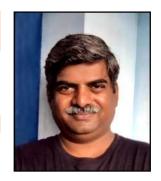


European Green Deal and Indian Leather Industry

M Viswanathan, Leather Industry Expert, LWG Auditor

1. What is European Green Deal

European Green Deal (EGD) is a set of actions that are taken up by European



Commission to meet an ambitious target of transforming European Continent to be climate-neutral by 2050. EGD aims to protect, conserve and enhance natural capital in every location and protect the health and well-being of every citizen from environment-related risks and impacts. The proposals for European Green Deal started during late 2019. This change is expected to bring many benefits, such as improving health and wellbeing, creating new opportunities for innovation, investment, and green jobs.

On the path to achieving climate-neutral Europe by 2050, European Climate Law was adopted by European Commission on 30 June 2021. This law aims to make EU economy fit to meet the challenge of reducing domestic emissions by at least 55% compared to 1990 levels by end of 2030. The contribution of net removals to the Union 2030 climate target shall be limited to 225 million tonnes of CO2 equivalent, which includes removal using natural sinks. By 2030, EU seeks to plant 3 billion additional trees to increase capacity of natural sinks.

The set of actions under reaching EGD are progressively brought into legally binding actions. The Commission has already adopted the following as regulations in response to EGD target while further actions are under proposals.

EU Emissions Trading System (ETS) reform



- New EU Emissions Trading System for building and road transport fuels
- Social Climate Fund
- Effort Sharing Regulation
- Regulation on Land Use, Forestry and Agriculture (LULUCF)
- CO2 emissions standards for cars and vans
- Carbon Border Adjustment Mechanism (CBAM)
- Renewable Energy Directive
- Energy Efficiency Directive
- Alternative Fuels Infrastructure Regulation (AFIR)
- ReFuel EU Aviation Regulation
- FuelEU Maritime Regulation
- Net Zero Industrial Act
- Critical raw materials Act56

Some numbers on the achievements so far within EU on meeting the EGD, although it was not provided on a comparative scale, is provided below:

- Wind and solar renewable energy generation in EU in 2022 was >400 GW
- 4.5 million new Green jobs in 2019
- EU's net-zero start ups have reached beyond 100 billion Euros in 2021, which is double compared to previous year.

Green Deal Industrial Plan

The ambitious target of EGD requires a key action of Net-Zero technology. The International Energy Agency estimates that the global market for key mass-manufactured clean energy technologies



will be worth around USD 650 billion a year by 2030 — more than three times 2023 level. The Green Deal Industrial Plan provides scope for the European net-zero industry to harness the potential by easing the regulatory environment, financing clean tech industry, developing skills and facilitating trade under the principles of fair competition and open trade.

2. Carbon Border Adjustment Mechanism (CBAM)

While appreciating the ambitious plan of European Green Deal, now let us look at one of the legally binding actions, Carbon Border Adjustment Mechanism (CBAM). When there is accountability for businesses within EU committing emissions reduction under the European Climate Law, there is a risk of 'carbon leakage' to non-EU countries when the products are imported to EU. While the regulations related to EGD may require additional investment and costs, which can result in increased cost of manufacturing, there are chances of manufacturing in non-EU countries. This could also lead to imbalance in competitiveness of the industry within Europe.

With an aim to provide a level playing field, EU has brought the Carbon Border Adjustment Mechanism (CBAM). This system puts a fair price on the carbon emitted during production, even if it is produced in non EU countries. This mechanism also encourages cleaner industry in non-EU countries. Within this mechanism, importers in EU will have to declare each year on the volume of imports and total embedded carbon in preceding year. The imports need to compensate for the embedded carbon import by surrendering their Emissions Trading Scheme (ETS) certificates.

In the first phase, the CBAM focuses on goods with carbon intensive and most risk of carbon leakage, namely, cement, iron& steel, aluminium, fertilizer and hydrogen. Now, the transitional phase has started which is until end of 2025. At the full implementation from 2026, the following is the procedure on how the CBAM will work:



- EU importers of goods will register with national authorities, where they can also buy ETS certificates.
- The EU importer will declare each year the quantity of goods and the embedded emissions in those goods imported into the EU in the preceding year. At the same time, the importer surrenders the number of ETS certificates that corresponds to the amount of greenhouse gas emissions embedded in the products.
- If importers can prove, based on verified information from third country producers, that a carbon price has already been paid during the production of the imported goods, the corresponding amount can be deducted from their final bill.

Source: Fact Sheet on CBAM by European Commission, 2021

On 1 October 2023, the CBAM entered into application in its transitional phase, with the first reporting period for importers ending 31 January 2024. During this period, the imports have only to report the embedded carbon in the imports but there is no necessity to contribute for the carbon embedded in the imports. This phase is expected to be use as piloting before full implementation.

During the transition period, the importers can use any of the method to calculate, namely, (a) EU standardized method of calculating GHG emissions, (b) equivalent methods in other standards and (c) use of reference value. But it is expected to change to EU method from 2025 onwards.

The CBAM functioning is expected to be reviewed during the transition period and based on the functioning other products, for example leather or leather products, or downstream productions, may be included.



3. India's positioning in Environmental management and Carbon Emissions in leather industry

Leather Industry in India is better positioned in terms of environmental aspects. In Tamil Nadu, which is one of the major leather and leather products manufacturing centres in India, there are already huge investments in wastewater treatment plants. Most of these investments are in zero liquid discharge (ZLD) systems. The ZLD plants treat the wastewater, even beyond the legal requirements for wastewater discharge, to make clean water. Reverse osmosis technology and complete evaporation of final rejects leaves clean water from tannery effluents, which cannot be affordable to discharge into the environment. Hence, those tanneries having access to ZLD reuse the water in their tannery operations, this making the plants function as zero liquid discharge. However, the energy consumption is presently high in operating the ZLD plants. The CETPs have now further invested in solar photovoltaic power plants and reaping clean renewable energy.



Figure 1: One of the reverse osmosis modules in Ranitec CETP (Photo: Ranitec CETP)

Solar photovoltaic power plants for CETPs in Tamil Nadu

Under the Government of India's Indian Footwear, Leather & Accessories Development Programme (IFLADP) sub-scheme Leather Technology, Innovation and Environmental Issues, common effluent treatment plants established solar photovoltaic power plants to meet the increased energy needs of zero liquid discharge systems. The following table shows the solar photovoltaic power plants established by the leather industry in Tamil Nadu. Chennai Environmental Management Company of Tanners Ltd (CEMCOT) and Ambur Economic Development Organization Ltd (AEDOL) implemented most of the plants.

S. No.	Name of the CETP	Capacity of the CETP, m3/d	Solar power plant, MW
1.	Pallavaram CETP	2500	2
2.	Ranitec CETP	4500	4
3.	SIDCO I CETP	2500	2.5
4.	SIDCO II CETP	1600	1
5.	Amburtec CETP - Thuthipet	2200	2
6.	Amburtec CETP – Maligaithope	1100	1
7.	Vanitec CETP	4500	3
8.	Pernambut CETP	1500	1
9.	Dindigul CETP	2200	2
	Total	22600	18.5

With these levels of solar plants, the CETPs are supplementing up to 30% of their overall energy consumption, as the large of energy for ZLD systems, which is about 100 kWh/m3, is from application of heat energy from firewood for evaporation of rejects.





Figure 2: A solar power plant of Ranitec CETP (Photo: Ranitec CETP)

Kolkata is another major leather manufacturing centrein India. The tanning sector in Kolkata is located within a well-established leather complex and all the wastewater is treated within the leather complex and the treated wastewater is discharged.

Another important leather manufacturing centre in India is Kanpur in Uttar Pradesh, a city in Northern India. Although Kanpur is widely known for the insufficient wastewater treatment in the past, the industry and Governments have taken major step to establish a modern common effluent treatment plant of 20 mld capacity, which is at the advanced stage of completion. Thus, the tannery wastewater treatment is better positioned in India.



Figure 3: 20 mld CETP in Jajmau is at advanced stage of construction (Photo: Sajid Hussain)



Coming to the international certifications recognizing the environmental positioning of Indian leather industry, there are more than 250 companies attained Leather Working Group (LWG) Certification. There has been tremendous growth in LWG certifications in India during the last 5 years and it is expected that more companies will achieve this certification soon.

Relating to Scope 1 – Direct emissions, and Scope 2- Indirect but bought in energy emissions, the leather industry in India considerably uses lesser energy thanks its geographical location, which is tropical climate. Further, related to Scope 3 Indirect emissions, the wastes generated in leather manufacturing are all put into some use or by products, the emissions could be considerably lesser. Thus, overall, it can be expected that the industry may have an advantage in reduced embedded carbon in leather and leather products manufactured in India.

4. Experiences from pilot studies in India on related to carbon emissions in leather manufacturing

Under UNIDO's Kanpur Leather Development Project, among several pilot studies, notably there were four interventions related to energy and carbon emissions, namely, solar energy for leather drying, solar energy for hot water generation, energy audit in a tannery and Product Carbon Footprint assessment in leather.

Solar energy for leather drying and hot water generation

Full scale plants were established under this UNIDO project on applying solar energy for leather drying and hot water generation. The performances of these plants were studied closely on hourly basis throughout one year period, so that all seasonal variations are accounted for prior to bringing the conclusions.

Solar energy for leather drying was done by generating hot air in roof top solar collectors and the hot air is brought by insulated ducts



directly to tunnel driers of an autospray machine. The spray machine used heat from steam from coal. The spray machine was fitted with pneumatic controller for supply of steam, while the hot air is supplied directly from solar collectors. An automatic energy recorder was fitted to measure the energy obtained from solar panels. The temperature of hot air obtained was in the range of 80 to 95°C during daytime for about 6 months. At this temperature of hot air from solar field, the spray machine did not use steam from boiler, as the temperature of solar hot air was enough to dry the leathers. Further, during the winter period where the ambient temperate is about 10-15°C, the hot air was available at about 40 to 45°C. Thus, the steam was used only to raise temperature from 40-45°C to 90°C, which is the desired temperature.

Solar energy for hot water generation is well established as it is widely applied. It was observed that water hardness plays a key role in hot water generation. Hence, in this location, closed loop water heating was applied, in which clean water will be circulating in solar field and process water will be heated using heat exchangers.

The following tables shows the annual average energy savings by the solar energy applications:

Parameter	Solar hot air for leather drying	Solar water heating
Energy savings	7.47 MJ/m ² of leather	6.25 MJ/ m ² of leather
Savings in overall energy	14%	12%
Reduction in CO2 emission	1 kg of CO2/m ² of Leather	0.8 kg of CO2/m ² of leather





Figure 4: Solar hot air energy recorder



Figure 5: A view of solar water heating



Product Carbon Footprint of finished leather

The Energy Controlled Leather Labeling (ECO2L) was used for the assessment of product carbon footprint in this UNIDO project. Ms. Jutta Knoedler, the energy auditor for this scheme, conducted assessment in 6 selected tanneries.

The ECO2L label encompasses the world's first calculation and auditing model for determining the energy efficiency and CO_2 emissions of a tannery. ECO2L was developed by Leather Research Association in Germany together with ITG Environmental Technology as an active contribution towards climate protection. ECO2L audit provides an easier way to determine CO_2 emission in terms of kg CO_2 per unit area of finished leather in a clearly defined boundary by simplifying the much-complicated calculations of CO_2 emissions.

In the boundary conditions for CO2 emission, the following are included:

- Upstream processes transportation of input materials (raw materials, chemicals, hides and skins)
- Production processes
- Downstream processes wastewater treatment and solid waste treatment

The following aspects are not included in the calculation of CO2 emission of a tannery:

- Animal farming
- Slaughtering process
- Chemicals production





Figure 6:During energy audit in Kings International Ltd, Unnao, India

The following are the findings of the energy and carbon footprint assessment is summarized as follows:

CO ₂ emission equivalent contributed from production processes	kg CO₂/m²of leather	3.03 to 6.91
Total CO ₂ emission equivalent including upstream and downstream processes	kg CO₂/m² of leather	3.61 to 8.6

- The energy consumption, which was calculated for all six tanneries for a complete production from Rawhide to finished leather, was in a range of 29 to 53.4 MJ/m² mixed production on site, while one tannery used 160 MJ/m² which has its own Zero Liquid Discharge (ZLD).
- The CO2-emisson from the production process was found in a range of 3 to 6.9 kg CO₂/m² mixed production on site. For the complete production process from rawhide to finished leather, not more than 4 kg CO₂/m² finished leather should be used. The relatively high CO2-emission of some



tanneries are caused by the high CO2-emission factor of the electricity-production in India and on the other side from the higher energy consumption. The CCF (Corporate Carbon Footprint) on site incl. all upstream and downstream processes were evaluated between 3.6 to 8.6 kg CO₂/m² mixed production. Because the waste was mainly recycled, chemicals and rawhides are often bought from India, the total CCF is in a normal range.

• The deviation of the international Benchmark BEET for each tannery was calculated in a range of -37.2% to +4.4 %. (247% from the tannery with ZLD, which do not belong to BEET). Tanneries with less energy than BEET can be found with the "minus". That tanneries can theoretical – if waste amounts are available and the tannery work in legal conditions – get the ECO2L- certificate.

The assessments yielded a total of 27 recommendations to reduce the energy consumption and reduce PCF.

5. Energy auditing by ILIFO and establishment of energy cell

Under the aegis of SIDBI sponsored, EDII implemented, Project on developing Business Development Service Providers, Indian Leather Industry Foundation (ILIFO) conducted energy audit in 5 tanneries in Pallavaram tannery cluster. The scope was to measure the energy input in terms of electricity and fuels such as diesel and firewood and identify areas for reducing the energy consumption. When comparing the electrical energy consumption with heat energy consumption (used), the heat energy consumption was higher and it varies from 61% to 77%. In all these tanneries, the heat energy is consumed for drying of leathers in autospray and toggling machines. Some of the measures were suggested for reducing energy consumption are use of bearing instead of wooden block, use of energy efficient motors, reducing the losses in heat by properly managing production,



reducing wastage of compressed air, stopping leakages of compressed air, optimizing the load on drums, use of HVLP guns and use of solar air heater for leather drying / finish drying. The potential electrical energy savings varied between 20% to 27% over the present level of consumption in these tanneries.

As a measure to continue momentum to the energy conservation, SIDBI came forward to establish an **Energy Cell** within Pallavaram Tanners Industrial Effluent Treatment Company Ltd (Pallavaram CETP). The Energy Cell is equipped with advanced instruments such power analyser, IR thermometer, etc. Tanneries located within Pallavaram leather cluster uses the cell in calculating the energy consumption for the tannery and machine operations.



Figure 7: Energy audit in progress in a tannery in Pallavaram (Photo: Truekem)



6. What happened in COP28?

The ongoing reduction of emissions from fossil fuel yet again saw a consensus to mark the "beginning of the end" of the fossil fuel era at the recently concluded The United Nations Climate Change Conference 2023 (COP28). A considerable outcome is global stocktake, an inventory of actions taken, progress made and gaps to be filled-in. The stocktake seeks to appreciate the science that indicates global greenhouse gas emissions need to be cut 43% by 2030, compared to 2019 levels, to limit global warming to 1.5°C by end of this decade. Another outcome is about 118 countries signed Global Pledge on Renewables and Energy Efficiency, to triple renewable energy capacity and double the rate of energy efficiency improvements by 2030.

Coinciding the occasion of The United Nations Climate Change Conference 2023 (COP28), world's leather industry led by International Council of Tanners (ICT) released a leather manifesto, second in a row. This manifesto highlighted positive role of leather which is a natural fibre on people, lives and livelihoods.

7. Voluntary requirements on carbon emissions

While the mandatory requirements for leather sector to declare carbon embedded in the products, there are already requirements from brands, retailers, multi stakeholder groups, etc. requesting for product carbon footprint and requesting for work plan to reduce the green house gases. World's big tannery groups have also embarked on reducing carbon emissions. Some examples related to carbon emissions are provided below:

 Moore & Giles announces carbon neutral leathers, November 13, 2023 (Source: ILM)



- Italian tannery Dani completed carbon footprint as per ISO14064-1 (Source: ILM)
- ISA Tantec released LCA results claiming lesser global warming potential in cow leather than Higg MSI GWP (Source: ILM)
- Sorensen Leather declared 8.7 kg CO2/m2 of leather, https://sorensenleather.com/carbon-footprint/

8. Roadmap for next actions

So, Is the Carbon Border Adjustment Mechanism (CBAM) is applicable now to leather or leather products exports from India? No, now it is not applicable. However, when the products scope is increased with CBAM ambit, there is a possibility that the CBAM extended to leather and leather products.

The developments in Europe on carbon emissions reduction, particularly the Carbon Border Adjustment Mechanism (CBAM) is expected to have an impact in leather and leather products industry in future. It is expected to provide new opportunities, innovations, and new jobs- not only in leather and leather accessories manufacturing, but also waste management technologies, up-stream and downstream industries, net-zero technologies, including software professionals for leather industry worldwide.

It is necessary to be watchful on the further developments and prepare the industry well in advance as a measure of proactiveness. There are already options available for the industry to reduce the energy consumption levels, and newer innovative methods of waste management. There seems already a gap in information technology related to carbon emissions for the leather industry particularly in data collection, data analysis and modelling. Unless it is measured, it



cannot be controlled or optimised. The leather industry should focus onestimating the carbon embedded within the products which can give a benchmark and move towards reducing the carbon emissions.

Sources: Websites of European Commission, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

UNIDO's Report on Kanpur Leather Development Project and Fact Sheetshttps://leatherpanel.org/content/framework-sustainable-leather-manufacture-second-edition

Let us discuss on the EU Deforestation Regulation (EUDR) and Corporate Sustainability Reporting Directive (CSRD) and corresponding actions in nextpart of this article. The author is a leather technologist, certified energy manager, and UNIDO International Expert, can be accessed at mviswanathan@outlook.com

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THE ITALIAN FOOTWEAR INDUSTRY

Giovanna Ceolini, Chair of Assocalzaturifici: "After a very positive start, the year 2023 ended with a downward slide, partly due to major increases in costs affecting companies' profit margins. Once the post-Covid rebound was over, the pace of sales slowed markedly, beginning as early as the Spring and becoming even more obvious in the third quarter of the year."

THE ITALIAN FOOTWEAR INDUSTRY: POOR PERFORMANCE IN THE THIRD QUARTER. STRONG GROWTH AT THE BEGINNING OF THE YEAR, WITH BOTH TURNOVER (+3%) AND EXPORTS (+3.2%) UP IN THE FIRST NINE MONTHS OF 2023

The domestic market remained steady (-1.3% household spending). Further deceleration is expected in the final figures

Italy's footwear sector grew moderately in the first nine months of 2023, registering an increase in both turnover (+3% according to a survey of a sample of members) and exports by value (+3.2%) compared to the same period in the previous year. This is the snapshot provided by the Confindustria Moda Research Centre for Assocalzaturifici, which however reveals a drop in the volume of sales. After bouncing back in the previous two years, the number of pairs sold abroad began to fall once again (-8.7% on January-September 2022), as did sales on the Italian market (-3.1%), with the ISTAT index of industrial production down by -7.4%. The setback in the third quarter weighed heavily on results, closing with -7.2% in foreign sales in terms of value (-12.3% in terms of quantity) and -1.5% in household spending within Italy.

According to Giovanna Ceolini, Chair of Assocalzaturifici, "After a very positive start, 2023 closed with a downward slide, partly due to major increases in costs affecting companies' profit margins. Once the post-Covid rebound was over, the pace of sales slowed markedly, beginning as early as the Spring and becoming even more obvious in the third quarter of the year. This widely expected trend was

definitely not facilitated by the uncertainty of the difficult international geopolitical scenario, when, in addition to the war between Russia and Ukraine, events in the Middle East came to a head, with a real risk of the conflict spreading, in addition to the weakness of the economy in several important areas of the world."

The report shows how, among the main foreign markets, EU markets performed best overall, growing 8.5% in value despite a -6.1% drop in volume over January-September 2022, while non-EU destinations showed an even heavier setback in terms of quantity (-13.4%), accompanied by a negative sign in value (-1.2%).

Alongside the resilience of France (+1% in volume and +17.1% in value), there was a strong contraction (-32.4% in pairs and -22.5% in value) in flows to Switzerland, traditionally a logistics hub for the fashion multinationals (which have, at least to some extent, replaced transit through Swiss warehouses with direct shipments to their final destination markets).

Sales declined significantly in the third quarter (with a drop of more than -20%) in the USA (which registered a decline of -21.7% in terms of quantity and -7.4% in terms of value in the first nine months) and in Germany (-16.6% in number of pairs, though stable in value). Sales in China continued to perform well (+17.2% in volume and +12.2% in value), despite a downturn in value in the third quarter (though the average price per pair, above 200 euro, remains by far the highest). Russia and Ukraine continued to recover (+40% and +88% in value respectively over January- September 2022), although sales in these two markets still remain below pre-war levels.

On the domestic front, moreover, while 2023 saw increased tourism, with positive repercussions on shopping by foreign visitors to Italy, footwear purchases by Italian households showed a lacklustre trend, closing the first nine months with negative signs (both in pairs, -3.1%, and in expenditure, -1.3%) compared to the same period in 2022 and, above all, about 5% below the pre-pandemic levels of 2019, already largely unsatisfactory after years of continuous



erosion. The abnormally warm weather of autumn, with almost spring-like temperatures, discouraged purchases of winter clothing and shoes.

Finally, the process of natural selection among companies has not ceased (-148 companies, between industry and crafts, in the first nine months, i.e. -3.9%), despite the fact that employment is holding up (+2.1%, although still about a thousand employees below 2019 levels). Increased use of wage support in the leather industry (+6.1%) is, however, a discouraging sign.

Assocalzaturifici Chair Ceolini, took the opportunity offered by the presentation of the figures on performance of the footwear sector to discuss the final approval of the "Made in Italy" bill and the 2024 Budget:

"I am satisfied with these measures, which provide for the enhancement and promotion of strategic assets for relaunching the economy and employment in the country, such as protection of supply chains through the "Made in Italy" sovereign fund and support for international trade fairs. I see these as two indispensable tools for enhancing the value of our country's manufacturing SMEs and boosting their competitiveness on international markets. Like the Digital Transition Fund, which in our case is also relevant considering the commitment and leading role of Assocalzaturifici in environmental certification through the VCS mark. I also approve the increase in resources allocated to fighting counterfeiting and "Italian-sounding" names, two phenomena that are detrimental to our products, and the further extension to 30 July 2024 of the deadline for submitting applications for spontaneous repayment of unduly received R&D tax credits."

"The latter is a thorny issue that is becoming unsustainable for our companies. It is necessary to ensure that the implementing decree for the creation of the registers of accredited certifiers is approved as soon as possible, in order to clearly define what is really to be included in research and development. This is the only solution to protect those who have complied with the rules."







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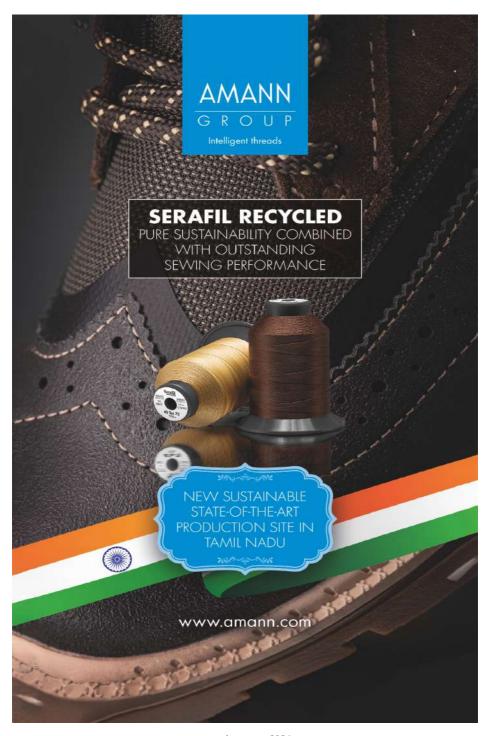
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Solidaridad



Solidaridad is an international civil society organization with over 50 years of experience in developing solutions to make communities more resilient and foster more sustainable supply chains in agriculture and industrial sectors.

With more than 1100 staff, we work in 52 countries worldwide to create fair and sustainable supply chains. Inspired by 50 years of solidarity with under-resourced producer communities, we enable farmers, miners and workers to earn a decent income, shape their own future, and produce in balance with nature.

Funded by the European Union, Solidaridad is implementing a 42 month project in partnership with the Politecnico Internazionale per lo Sviluppo Industriale ed Economico (PISIE), Indian Finished Leather, Manufacturers and Exporters Association (IFLMEA), Council for Leather Exports (CLE) and Tata International Limited (TIL) in 4 leather clusters - Ambur, Pallavaram, Ranipet and Vaniyambadi.

The project aims at promoting circular market-based models by establishing pilot demonstrations on environmentally sustainable leather processing practices and creating capacities among small and medium sized enterprises (SMEs) tanneries and their industry partners for the wide scale adoption of circular practices that creates value from solid waste.



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Brazilian Footwear trade balance falls 23% in 2023

Drop in exports to the United States pulled general results down

As a result of difficulties in footwear exports and the increase in the entry of foreign products into Brazil, the sector's trade balance fell by 23% over the last year. Data prepared by the Brazilian Association of Footwear Industries (Abicalçados) indicate that, last year, the sector's exports totaled 118.34 million pairs and US\$ 1.16 billion, drops of 16.6% in volume and 10.8% in revenue compared to 2022. Segregating only December, the drop was even greater.

The recorded numbers point to exports of 7.45 million pairs and US\$73.44 million, drops of 41.5% and 33.3%, respectively, compared to the corresponding month of 2022.

The executive president of Abicalçados, Haroldo Ferreira highlights that the downward movement was expected, especially given the slowdown in the economies of the United States and Europe, with high interest rates and record inflation.

"The United States, the main destination for Brazilian footwear abroad, pushed the numbers even lower. The drop for that market was three times greater, in proportion, than the drop in exports in general", assesses Ferreira. In addition to the slowdown in the global economy, the leader lists the resumption of Chinese production, which has increased international competition.

Destinations

The main destination for Brazilian footwear throughout 2023, the United States contributed to the drop in exports. Between January and December last year, 10.64 million pairs and US\$227 million



were shipped there, drops in both volume (-40.4%) and revenue (-32%) compared to 2022.

Despite the internal difficulties, especially in relation to scarce international reserves, Argentina was the second destination for Brazilian footwear last year. During the period, 14 million pairs and US\$ 223.8 million were shipped there, a drop of 11.8% in volume and an increase of 24.8% in revenue compared to 2022.

Closing the ranking of destinations in 2023 appeared France. During the year, 2.84 million pairs were shipped to the Old Continent country for US\$58.8 million, drops of 53.5% and 10%, respectively, compared to 2022.

Imports grew 20.6% in 2023

In the opposite direction to exports, footwear imports grew during the year. Between January and December, 28.36 million pairs entered Brazil for US\$442.73 million, increases both in pairs (+9.8%) and in revenue (+20.6%) compared to 2022. The main origins continue to be Asian countries. Vietnam, Indonesia and China alone accounted for more than 80% of the shoes that entered Brazil.

The main origin of imports in the year was Vietnam (9.5 million pairs and US\$213 million, increases of 15.6% and 21.4%, respectively, compared to 2022). Next came Indonesia (4.5 million pairs and US\$87.5 million, increases of 45.8% and 42.2%) and China (9.46 million pairs and US\$47.9 million, drops of 8.9% and 2.9%).

In footwear parts - uppers, insoles, heels, soles, etc. -, imports for the year totaled US\$28.7 million, 5.2% less than in 2022. The main origins were China, Vietnam and Paraguay.

(Abicalcados)





CICB Sustainability Forum will be held at the Fimec fair in 2024



The partnership that brought the leather chain even closer to innovation and relationships with various industry agents will be repeated in 2024. The CICB Sustainability Forum will once again be held during Fimec (International Leather, Chemical Products, Components, Machinery and Equipment for Footwear and Tanneries), in Novo Hamburgo (RS), after the success of the 2023 edition, which brought together more than 400 people around lectures and debates with the theme Paths to Traceability. Also replicating the 2023 model, next year the forum will take place on the second day of the fair: on March 13, 2024.

The event is held by the Brazilian Leather project (an initiative of the Brazilian Tanning Industry Center – CICB – and the Brazilian Export and Investment Promotion Agency – ApexBrasil). The executive president of CICB, José Fernando Bello, and the CEO of Fenac,

director of Fimec, Marcio Jung, signed last Wednesday (10) the agreement that will provide the partnership again. "We were very successful in converging the history, influence and potential of CICB / Brazilian Leather and Fenac / Fimec in promoting the two events. The forum is heading towards its 11th edition and is already a reference in the industry when we talk about trends, directions and ideas for the leather sector. Fimec has an immeasurable tradition, combined with a large audience focused on innovation. So, these are values that added up and resulted in this great success that was the 2023 edition and which will return in 2024", said Bello.

In line with this, Fenac's CEO, Marcio Jung, also reinforced the importance of renewing this partnership. "Fimec, in itself, is already an international fair, bringing together brands and visitors from all over the world, and the union with CICB can enhance this, taking the name of the fair even further. At the same time, Fimec brings together the ideal audience to consume the content of the CICB Forum. Therefore, bringing this activity to the fair is such an important mutual benefit that I see as a natural and perennial connection, one of our best successes", stated Jung, highlighting that both institutions work together for the growth of the leather chain, footwear manufacturer.

All information about the CICB Sustainability Forum 2024 – such as disclosure of the central theme, registrations and news – and the 47th Fimec will be published on the channels of the organizing entities until the events take place. To watch the talks from the 2023 edition of the Forum,

About Fimec 2024 – Recognized as the largest leather-footwear fair in Latin America and the only one that brings together everything for this sector, the 47th Fimec is scheduled for March 12th to 14th, from 1pm to 8pm, in the Fenac pavilions , in Novo Hamburgo/RS. In the next edition, the fair will address the themes "Innovation, Technology and Positive Impact on the World". More information about Fimec through the website.



PORTU GUESE SHOES APICCAPS

Luís Onofre re-elected President of APICCAPS

Luís Onofre has been re-elected President of APICCAPS (Portuguese Footwear, Components, Leather Goods Manufacturers' Association) for a new three-year term.

businessman heads a single list, made up of a team of 26 businessmen, who will be in charge - for the next three years national ٥f the business association. based in Porto and founded in 1975, that represents the entire footwear sector in Portugal (footwear industry, footwear components industry,



leather goods industry and trade of equipment for the industries). Joaquim Moreira will chair the General Meeting and Domingos Ferreira the Supervisory Board.

According to Luís Onofre, "It should be recognised that in recent years, the COVID-19 pandemic has had a major impact on our activities". In addition, highly export-oriented sectors "had to face the consequences of the war in Ukraine, particularly in terms of inflation, and the economic slowdown in our main markets". Nevertheless, the footwear cluster has presented a new Strategic Plan for the next decade to make "the Portuguese footwear industry a major benchmark in the development of sustainable solutions". Under the PRR, two major projects are already underway, with a total investment of around 140 million euros.



In the next term, "we will have a strengthened team of businessmen leading APICCAPS", emphasised Luís Onofre. "Together, we will try to implement what we have proposed in the strategic plan, with a focus on actions related to the internationalisation of our companies. At a time when global economies are still experiencing very modest economic growth, our ability to reach new markets and customers and move into higher value-added segments will be critical". In the coming months, "it is important that APICCAPS and its member companies once again demonstrate their resilience and ability to invest", concluded Luís Onofre.

The footwear and leather goods sector comprises just over 1 500 companies, employing 40 000 people (according to the Ministry of Labour). It exports more than 90% of its production, which at the end of last year amounted to 2 400 million euros. Over the past decade, exports from the footwear and leather goods sector have increased by around 50%.

Portuguese shoes find their way to 173 countries

The Portuguese footwear industry currently exports more than 90% of its production. As a result, 76 million pairs of shoes are sold in more than 170 countries on five continents.

European markets such as Germany, France, and the Netherlands are at the forefront; Spain and the UK also stand out in this geographical space. But Portuguese footwear also reaches countless other countries, including Anguilla, Madagascar, Liberia and Zimbabwe, the last four stamps in the passport of Portuguese companies.

The sector has made considerable efforts to diversify the markets to which it exports its products. While Europe accounted for 93% of



total exports in 2012, exports to non-EU countries represented 18% of the sector's total exports in 2022.

In this context, the US is the market where Portuguese footwear has grown the most.

Portuguese footwear is highly regarded in foreign markets for several reasons, according to Luís Onofre. Right from the start, "Portugal is home to one of the most renowned footwear clusters in the world. Thanks to its responsiveness, quality and excellent service, Portugal exports 80 million pairs of shoes a year to all parts of the world", emphasizes the President of APICCAPS. The head of the association also points out that "the country is one of the 20 safest countries in the world in which to do business". In addition, "the Portuguese industry is constantly evolving and wants to be an international benchmark in the development of sustainable solutions". The sector is currently investing 140 million euros in automation, digitalisation and sustainability.

What's more, "Portugal benefits from a unique geographical location that makes it easy to reach Central Europe by land, while its long Atlantic coast favours long-haul trade operations". Finally, hospitality. "Portugal isn't just a business partner. It's a country that stands out for its hospitality, its unique gastronomy and its extraordinary landscape", says Luís Onofre.

Please visit our website: www.indianleathermagazine.com



NOW MEHTA CAD CAM SYSTEMS PRIVATE LIMITED IS MEHTA HITECHINDUSTRIES LIMITED

-Growing With You

Mehta Cad Cam Systems Private Limited, a distinguished player in the industry for more than three decades, proudly announces its transformation into **Mehta Hitech Industries Limited**. This strategic evolution is a testament to the company's enduring commitment to providing cutting-edge technology through its manufactured machines. With the invaluable support from our stakeholders, we celebrated a significant milestone last year – the establishment of 10 state-of-the-art manufacturing units in Ahmedabad.

The journey has been extraordinary, and we are excited to reveal a new corporate identity that resonates with our dedication to delivering the best possible, **hitech** solutions proudly **made in India**, **made by Mehta**. Today, we are thrilled to introduce Mehta Hitech Industries Limited, embracing a renewed tagline, "*Growing With You*."

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New Tagline: 'Growing With You'

The change in our tagline to 'Growing With You' signifies our focus on partnership, shared success, and continuous advancement.

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IILF 2024 - Promising days ahead

Vasan Suri a Passionate Leather Lover & Professional

Good news for the leather industry is this that the International Stores are running out of stock and are missing the newness.



Fashion industry have become fast fashion and colorful. Color combinations and mixed colors are coming back in to the fashion.

Innovation is the key. Time to come together. Earlier, I have written and spoken many times about coming together and creating consortium by bringing the best of each one of us on to a common table to make it a collective growth.

The more bigger we combine as a supply chain, the better. Look at the American Giants. They have combined together to be a major buying force and we all are made to dance to their tunes of requirements. Be it the fashion, product or the price (in particular when it comes to India, Pakistan & Bangladesh).

Statistics shows the fiscal year 2023, business of leather & leather products at Rs.381 billion.

US\$ 4.87 billion (2021-22) is the export figure from India on Leather & Leather Products against US\$242.85 World Leathergoods market size.

The above figure suggests that we still have a larger market to tap.

What is missing in India?

We are too small a player in the World Market when it comes to supply.



- We create more internal competition and kill each other rather than utilising the strength of our fellow exporter.
- We all end up buying the same machines what we have already in the market and do not compliment each other in buying specific machines that are missing in the market.
- Our volumes are too small to dictate and get the best quality at the best price from our Raw material or Chemical Suppliers.
- We are too busy to explore new sourcing partners be it raw material or Chemicals.
- We remain happy with the multinationals for supplies and why not get to the more promising high quality producers from Italy or Spain and for that matter we have so much of untapped supply sources and brains in India.

Some naysayers, believe that these can be just talks and not practical.

When Brands can unite, when suppliers can unite, when banks can unite, why we as manufacturers cannot unite???

Buyers, Raw Material Suppliers of Leather & Chemicals, Funding partners & Bankers have all got United & Amalgamated to become huge force.

As Manufacturers, if we don't unite now, it will be never. The market have reached the rock bottom and time to bounce back. Unite and bounce with force.

Let us all get together at the IILF 2024, to make it a better year for our Leather Industry.



Let us stay positive in these tough times and look at the untapped areas of our business and look at the possibility of converting that as an opportunity.

Raw Materials - Objective approach

In the recent past, leather garment producers in Delhi and Chennai created a consortium to buy the raw material (import) of Sheep Skins in bulk and shared between themselves.

This effort provided them a great opportunity and advantage with regards to price and quality.

Leather Chemical suppliers from Italy (who were otherwise not exposed to international markets) were able to provide compound fatliquor and liquid syntans to Chinese tanneries with good quality and reasonable prices.

The importing tanneries took advantage of the price and quality and for the manufacturer the quantity and sureity of regular business.

The Chinese tanneries have invested lot of time and money in creating team which would work closely on reducing water input and thereby reducing load on the effluent treatment plants.

Interestingly many Indian technical personnel are involved in such jobs, knowing well and considering their commitment and involvement in getting the job done in the best interest of the Organisation.

Hence, it is high time to combine our strengths and come together and command volumes in buying (for price and quality) and having an upper hand as a volume supplier with quality and better price.

When the Buyers & Brands can come together and when raw material suppliers (Raw hides & skins or Chemicals) can come together, why not we as manufacturers & exporters unite together



and form a formidable supply chain, which would interest the volume customer.

Sustainability in real sense

Today's marketing is all about phrasing or coining words for creating a sensational caption.

Sustainable, Eco-friendly, Compostable, Carbon reduction are those words which interests everyone these days and place a big part in influencing the buying through all generations.

It is high time for Indian Leather & Leather Products Industry to make these Words reach up to the last level of the organisation with real sense.

If every employee and workers understand the real impact of these steps, they will be able to contribute more towards the Organisation.

Moreover, these words are not just words and are to be converted as discipline from home, streets, cities to Organisations.

Once these discipline gets inculcated at the lowest level, the contribution will be much more and we will have the results to be proud of.

Every organisation in the Leather & Leather Products Sector should organise regular visits to schools in their vicinity and conduct regular sessions to talk about the advantages of Leather and that it is only a by-product of the meat Industry and without the existence of the Leather Industry, these waste disposals would affect their generations and future generations to come.

By these programs we will achieve all our agenda at one shot. Importance of Sustainability, Education about Sustainability, Awareness about using Leather and Leather Products.



Let us use the IILF at Chennai to drive this agenda in to every sector of our Industry (Leather, Leather Products, Chemicals and auxiliary industries).

Mental Health of Investors, Employees and Workers

Another important area to be addressed is the "Mental Health", of our employees and workers and thereby it helps the Investors.

Managements are quick to invest in implementation of some process and activities, which help them to score a point with their customers and Brands.

Why not every organisation create their own workers and employees to become a loyal team for long time and avoid jumping of jobs regularly.

It is fine for such jumps in the IT sector but not with the Leather & Leather Products Sector.

For this, it is essential to look after the mental health of their employees and workers.

There is too much pressure in everyone's life these days. Traveling have increased, Targets have become tough and sometimes unrealistic, Wrong planning leads to unwanted pressure, personal ambitions and targets, pressure at home, expectations from Children etc., are making the life difficult.

Best way is to meet them on a common platform and make them relax. Talk to them in such a way with all openness, to be able to relate to their problems and worries.

Make them feel that the business is run not just for the investors to make money but, to take care of their well being as well.

Apparently, their happiness and successful life will be their driving force to achieve any target.



Interact with them to remove the insecurity in their minds. Seniors are not only to command or howl at the juniors, they need to train them and bring them together to achieve the goals.

It is not helpful to pass on the buck to the HR department. Apparently, they also indulge in certain activities to hold on to their seats.

These jobs should be given to personnel who have the flair and art to relate with the workers and staffs at every level to make the work place enjoyable and beneficial for all concerned.

Apart from the ESI/PF/Gratuity - welfare schemes and saving schemes need to be started to assure support in times of need.

School admissions, College admission, Wedding, Health Care all are factors which affect the mental health of everyone.

All these efforts will go a long way for the workers, staffs and other departments to perform whole heartedly and will be the ultimate success formula.

What is New

In today's fashion World, the common question is "what is new"?.

There was a time customers used to come with a big bag full of leather swatches, shoe uppers or garments or bags to show what they want or what sells in their market and we were asked to be a copycat in developing that.

Times have changed. Today, the buying policy, the buying team and the so called buyers are not buyers and they are just an employee of a Big Brand.



They want to know what is new. They are under pressure to perform by bringing in newness to the market and they are expected to bring back something "new" for their Brand and retail customers.

This is where the challenge starts. We as Leather Industry are having tough competition or huge competition from non-leather fabrics.

They are cheaper, colorful and could offer every design. Whereas, we are compelled to say that this is what is possible and cannot make more better than this or match the non-leather products color or look.

Right time for us to start focussing on areas or products where, leather could become a everyday used product rather than allowing it to remain as the luxury product.

Workmen glove is a cheap market and competitive. Our domestic raw materials are having a big quantity of lower medium and lower selection leathers and how these can be made in to products which look attractive and which could be used regularly.

This has to be made colorful and relate to the current trends and fashion taste and must be made affordable and avoid such excuses as Leather being natural product will have defects and blemishes.

Leave the best grade material and medium grade materials to take care of that luxury segment of the market.

How and what can be done to consume our unsold raw materials by making them to be acceptable.

Nay sayers will always have excuses for everything. Result will be a more shrinking market and much more challenges.

What do we offer to quench the fashion thirst of our young generation and at the same time highlight the advantages of a natural product.



This is where all our innovations is to be driven. We should make the fresh minds and fast minds of our industry to work in these direction. Do not allow them to be used in the everyday fire fighting jobs and make them one among the thousands, lakhs already in the Industry.

Innovation is the key. Nokia and Kodak once were dominating players in the International market by their mobile phones and Cameras. Today, both have become obsolete as Apple, Samsung and many other have overtaken the market.

Today a mobile phone is offering many solutions from being a phone, email, social media, bank, investment, camera, health advisor etc. etc.,

Nokia and Kodak openly admit that they did not change themselves with the fast fashion and next gen requirements.

I happened to see a japa mala which we keep in hands to count the times we say the God's name or mantra and instead a small equipment with ten beads with an electronic count does that job. Someone thought different and it is selling.

There are still lot of options and areas which are untapped and we could explore that. Personally, i have 3-4 projects like that. How many more the young boys and girls from NIFT or NID could do.

The designers and innovators should be given job security and guarantee to concentrate on these innovations.

How our big brother is able to come up with something innovative always.

Let this get together during IILF Chennai open up the debate and open up new avenues. Think out of the Box.

There is a risk but, there is also the rusk.



Leather Industries of Kolkata visà-vis Present Status of Cr³⁺ and Cr⁶⁺ Contents in Physical Environment of East Kolkata Wetlands



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Key Words: Chromium, Composite wastewater, East Kolkata Wetlands, Kolkata Leather Complex

Introduction:

The leather industry in India holds a very prominent place in the Indian economy. One of the oldest manufacturing industries of India is leather industry and it has a significant contribution in Indian economy. Nearly 2.5 million People in India are engaged with this leather industry, directly or indirectly. Indian leather industry shares 12.93% of the world's leather (hides/skins) production that annually amounts to 300 million sq. m. India has earned a total of US\$ 1.36 billion during 2017-18 by exporting leather goods of which leather footwear component shares US\$ 340 million, leather garments shares US\$ 519 million while finished leather shares US\$ 874 million (IBEF, 2018; www. Ibef.org).

Indian leather industry has grown unswervingly because of steady availability of raw materials. Compared to global livestock populations, India holds 21% cattle-buffalo and 11% goat-sheep



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population. However, leather making industry has always been considered as an environmentally hostile industry. Interestingly, leather is, in a way, the by-product of meat t industry and processing of huge raw hides and skins that we produce has earned a bad reputation for high degree of environmental pollution. Puntener (2001) already pointed out that around 150 kg finished leather is produced from every 1,000 kg wet salted hides and skins and in this process 150 kg split, 700 kg solid wastes and 30-35m³ of wastewater having 400 kg TSS and TDS are produced. Worldwide, every year, 15 million tons of hides and skins are processed from which a total of 6 million tons of solid waste and 600 million m³composite effluent is discharged (Rajamani, 2010).

Though tannery effluent is characterized by high total suspended solids, total dissolved solids, biological oxygen demand, different salts of sodium, ammonium, chloride, sulfate, carbonate and bicarbonate yetthe most concerning pollutant is the Cr, as basic chrome sulfate, is still the choicest tanning agent for Kolkata's tanning industries. Nearly 80-90% of leather today is tanned with chromium salts (Basic Chromium Sulfate) (Tsumita et al., 2015). Saravanbahavan et al. (2004) mentions that in the chrome tanning processes only 50–70% Cr is fixed in leather moiety and the rest is discharged with effluent. The Cr exists primarily in the trivalent (Cr³⁺) and hexavalent (Cr⁶⁺) states in the environment.

Though Cr³⁺ is considered to have lower toxicity for being impermeable through bio-membranes and it also has a role as essential trace element for living organisms, yet,Cr⁶⁺ is readily permeable through bio membranes and is highly toxic to living organisms, rather carcinogenic to humans when contaminates our ambient environment (Vutukuru et al., 2007).

The present study site, i.e. East Kolkata Wetland (EKW), which is designated as a Ramsar Site (No. 1208) in 2002, is located on the eastern fringe of Kolkata city. Leather making industries over nearly a century have been developed on the western border of EKW



three prominent agglomerates (Tangra, Topsia at and agglomerates). However, Tiljala due to rapid east-bound expansion of Kolkata city nearly 30% growth between 1981 and 2001, (http://www.indiaonlinepages.com/population/ kolkatapopulation.html), the pollution related issues started coming to the forefront.

Meantime, in sequel of the Honourable Supreme Court verdict, these leather industries are shifted nearly 20 km away from Tangra, Tiljala and Topsia agglomerate to southeastern boundary of EKW at Bantala and has been named Kolkata Leather Complex (KLC). However, in the process of shifting of tanneries has brought this environmentally challenged industry in the context of safety of delicate ecosystems nearer to the Sunderbans Biosphere Reserve and Bay of Bengal. A total of 438 relocated tanneries have received lease hold land at the KLC and 138 new tanneries have purchased land to set up industry afresh. Out of the relocated tanneries, nearly 300 are presently operating at KLC.

Even after establishment of KLC equipped with Common Effluent Treatment Plants (CETSs), operations in some smaller units at the past industrial agglomerates cannot be ruled out. Before relocation of tanneries from east Kolkata tannery agglomerates, composite tannery effluent being mixed with Kolkata municipal wastewater, wastewater from different small-scale industries and Kolkata city runoff, used to run through the EKW as a composite wastewater. Nearly 0.71 million m³d^{"1} (CPCB, 2009) composite wastewater used to pass through the Dry Weather Flow (DWF) and Storm Water Flow (SWF) channels of EKW and around 30% of the wastewater is drained into the wetlands, available for nutrient recycling (Sarkar et al. 2009). This wastewater has been productively used in agricultural and piscicultural practices for last 100 years (Ghosh, 2010; Pal et al. 2016a, 2018). Previous studies (Chattopadhyay et al. 2000ab, 2002, 2004; Chatterjee et al. 2002, 2007; Goswami et al. 2013; Pal et al. 2014, 2018b)have recorded that composite wastewater contained different organic and inorganic materials, including metals, shared majorly by Cr. Previous works (Chattopadhyay et al., 2002,



Chatterjee et al., 2010, Aich et al., 2017) also pointed out that the wastewater is excellently ameliorated by the way of use and reuse of wastewater in agriculture and pisciculture on the journey through the EKW.

However, use of tannery effluent mixed waste water to grow human edibles at the EKW always raised several questions and attracted the attention of the environmental scientists, especially to explore the harmful effects of waste Cr, if any. The present study mainly focuses on the current status of Cr^{3+} the Cr^{6+} levels in wastewater, wastewater-fed fish ponds and sediments of EKW areas. The present dataset are compared with the dataset as published 18 years ago (Chattopadhyay et al. 2000a) to focus on the changes, if any, in both Cr^{3+} and Cr^{6+} contents at the EKW areas. This work will also compare the present amelioration efficiency of the wetland system with the recorded past efficiency so far as Cr is concerned.

Material and methods:

Study sites

The area of interest is EKW (lat. $22^{\circ}33^{2}$ - 22° 40^{2} N; long. $88^{\circ}25^{2}$ -88°35² E) ecosystem, which is the only large-scale formal system of wastewater-fed pisciculture and known as the Waste Recycling Region (Bunting et al. 2010). The total area of EKW is 12,741 hectare of which water spread area is 5852 ha (including degraded area), 4959 ha area is used for agriculture, 602 ha is used for garbage farming area and settlement area covered 1326 ha. Within EKW 109 villages, located in 37 mouzas, which account for 11% of the total land use. The elevation of EKW area ranged from 3-6.5 m with a gradual slope towards east from west. In summer (March-May) temperature was laid between 35-41°C and in winter (November -February) 10-16 □ C. In EKW average rainfall was 1000-1600 mm yr^{*1} and 80% of rainfall was occurred during Monsoon (June to October). In EKW nearly C"3000 t of solid wastes were deposited daily in the EKW areas (Pal et al. 2016b). The EKW areas are recorded to produce C"150 tons d"1 vegetables and 18000 tons yr"1 fish (Ghosh, 1999; Bunting et al., 2010).



The sampling sites are shown in Fig. 1 and distinctive characters of each sites are given below: Site 1 (22° 322 26.5" N, 88° 242 19.1" E) is a tannery effluent carrying canal, located around 1 kilometre (km) away from Tangra-Topsia-Tiljala tannery agglomerate; Site 2 (22° 322 27.7" N, 88°242 18.3" E) is adjacent to Site 1 and it is a tannery effluent-fed fish pond; Site3 (22° 312 44" N, 88° 252 14.2" E) is a composite wastewater carrying canal where tannery effluent, municipal sewage, other small- scale industries wastewater and Kolkata city run off are mixed.

This site is located in Chowbaga and it is around 8 km away from tannery agglomerates and 4 km away from site 1;; Site 4 (22°302 28.9" N, 88°312 14.3" E) is located around 15 Km away from Site-I, where pre-treated tannery effluent from the CETPs of Kolkata Leather Complex (KLC) is mixed with the composite wastewater carrying SWF and DWF canals. Site 5(22° 312 21.7" N, 88° 412 14.4") is on the same canal at Kultigong lock gate. It is nearly 40 Km away from the Site 1 and in this site the composite wastewater is finally discharged in the Kultigong river.

Sample collection and analysis

From each sites the water samples were collected between 8 am and 10 am during 1st week of every month, in clean glass- stopper bottles. The bottom soils/sediments were collected from the same in Zip-pouch. The soil samples were then dried in hot air oven at 60°C. Then the dried samples were handpicked of visible roots and leaves, grounded to powder and sieved with a 2-mm sieve. The water and soil samples were then prepared by following the standard methods of Eaton et al. (2005) and Jackson (2000). The Cr³⁺ and Cr⁶⁺ concentrations were analysed by Metrohm 844- Ion-Exchange Chromatograph. However, previous published work Chattopadhyay et al. (2000a) followed Bassett et al. (1978) for determination of Cr3+ and Cr6+ concentrations. All gravimetric analyses were done by using Mettler AE 240 monopan electronic balance. All graphical representation was prepared by Origin 2016 software.



Results and Discussion

Cr in wastewater

In the present study the Cr^{6+} (367.67 ± 39.85 µg L^{-1}) and Cr^{3+} (2.98 ± 0.78 mg L^{-1}) concentrations are highest in Site 1. Because the composite tannery effluents from units those are yet to be relocated from East Kolkata tannery agglomerates to KLC are directly discharged here without any pre-treatment. However, due to long residence time of wastewater at the composite effluent-fed fish pond, i.e., in Site 2, the Cr^{6+} (21.87 ± 4.84 µg L^{-1}) and Cr^{3+} (0.87 ± 0.47 mg L^{-1}) concentrations in water are comparatively much lower than in Site 1. As Kolkata city sewage through Ballygunge Drainage Pumping Station and composite tannery effluents from east Kolkata tannery agglomerates are mixed at Site 3, both the Cr^{6+} (4.93 ± 0.72 µg L^{-1}) and Cr^{3+} (0.44 ± 0.18 mg L^{-1}) are further dropped down possibly due to dilution by municipal wastewater that is almost devoid of Cr (https://www.keiip.in/bl3/PDF).

However, in Site 4, despite reintroduction of pre-treated tannery effluent from CETPs of KLC, the Cr^{6^+} (38.83 ± 4.76 μg L⁻¹) and Cr^{3^+} (1.09 ± 0.17 mg L⁻¹) are marginally increased compared to the concentrations in Site 3. Interestingly, these concentrations state the excellent efficacy of the CETPs of the KLC as the concentrations are well below the safe limits set by CPCB (2017), WHO (2008) and USEPA (2011). At the final discharge point in Site 5 both Cr^{6^+} (1.4 ± 0.7 μg L⁻¹) and Cr^{3^+} (0.13 ± 0.09 mg L⁻¹) concentrations are lower than all sites. The notable efficiency of Cr removal from wastewater may be, due to the prevailing hydrodynamic condition of wetland ecosystem, slow movement of water and favourable pH in the 40km canal stretch as well as in the wastewater-fed fish ponds. Except Site 1, Cr^{6^+} concentration of all other sites are well below WHO (50 μg L⁻¹), USEPA (100 μg L⁻¹) and CPCB (100 μg L⁻¹) safe limit for inland waters.

However, Cr^{6+} concentrations in Site 1, although also below the CPCB (2017) public sewers standard (2000 $\mu g L^{-1}$), yet the

concentrations are higher than the safe limits for inland water set by CPCB (2017), WHO (2008) and USEPA (2011). On the other hand, Cr³⁺ content is above the CPCB standard set for total Cr for public sewersonly in Site 1. Present concentrations when compared with those of recorded 18 years ago (Chattopadhyay et al. 2000a) we find that at present Cr³⁺ values in Site 1, Site 2 and Site 4 is higher than the values recorded in the past.

However, A reduction of 99.6% for Cr⁶⁺ and 95.8% forCr³⁺ contents have been recorded between Site 1 (primary source point) and Site 5 (final discharge). Whereas, a reduction of 89.4% forCr⁶⁺ and 88.6% forCr³⁺ content have been recorded between Site 4 (KLC area) and Site 5. Moreover, may be due to the long wastewater residence time and uptake by wetland flora and fauna, a reduction of 94% for Cr⁶⁺ and 70.9 % for Cr³⁺ contents have been recorded between Site 1 and Site 2, the wastewater-fed fish pond.

Cr in soil/sediment

Before discharging the chrome-liquor it is treated to increase the pH level to precipitate out Cr in the processes of chrome- recovery. Thereby, while discharging composite wastewater into the environment the waste Cr is readily precipitated in the sediment. For this reason, the Cr species are present in very low amount in water but found in high concentrations in soil and sediment. Like wastewater, the Cr^{6+} (0.42 ± 0.04 g kg⁻¹) and Cr^{3+} (29.4 ± 4.2 g kg⁻¹) concentrations are highest in Site 1 followed by Site 2 (Cr^{6+} : 0.15 ± 0.01 g kg⁻¹; Cr^{3+} : 10.32 ± 2.29 g kg⁻¹).

However, the degree of reduction of Cr⁶⁺ and Cr³⁺ between Site 1 and Site 2 is not similar with that of wastewater. The Cr⁶⁺ and Cr³⁺concentrations are reduced 65.5% and 64.9% respectively between Site 1 and Site 2. Besides, when compared the present value with that of recorded in the past for Site 3 we observe a drastic change. In fact, at present the volume of discharge of composite tannery effluents is reduced in Site 1 due to relocation of majority of big tanneries at the KLC.



Though the concentrations of Cr species in wastewaters are recorded slightly higher in Site 4 than in Site 3, however, in sediment the Cr^{6+} (0.06 \pm 0.12 g kg⁻¹) and Cr^{3+} (1.55 \pm 0.24 g kg⁻¹) concentrations of Site 4 is lower than Site 3 (Cr^{6+} : 0.12 \pm 0.01 g kg⁻¹; 1 Cr^{3+} : 2.78 \pm 0.5 g kg⁻¹). Composite wastewater discharged after treatment at CETPs of KLC together with high growth of macrophytes in canal water and intense agricultural activities in and around Site 4 could account for such result. Lower concentrations of Cr in wastewater due to treatment processes and further removal by macrophytes and agricultural activities in Site 4 decreased the Cr concentrations in sediment partition. In Site 5 the Cr^{6+} (0.002 \pm 0.001 g kg⁻¹) and Cr^{3+} (1.07 \pm 0.17 g kg⁻¹) concentrations are negligible and the finding corroborated with the Chattopadhyay et al. (2000a).

From Site 1 to Site 5 $\rm Cr^{6+}$ and $\rm Cr^{3+}$ are reduced to the extent of 99.62% and 96.36% respectively, whereas from Site 4 to Site 5 the $\rm Cr^{6+}$ and $\rm Cr^{3+}$ are reduced in the tune of 97.17% and 94.73% respectively. This result amply reflects the efficiency of EKW ecosystem in ameliorating waste chromium in the environment. Unlike Chattopadhyay et al. (2000a), present study records a significantly low $\rm Cr^{6+}$: $\rm Cr^{3+}$ ratio at all sites (Fig. 4), which may suggest a situation that lacks optimum physico-chemical and biological conditions for $\rm Cr$ oxidation (Chattopadhyay et al., 2010) in one hand and lower bioaccumulation of $\rm Cr^{3+}$ species or higher uptake of $\rm Cr^{6+}$ by macrophytes on the other.

Conclusion

The harmful activities of Cr is reliant on its valance. Tanning operations discharge the unutilised Cr with its effluent in trivalent state. Though ${\rm Cr}^{3+}$ is reported an essential micronutrient and helps as glucose tolerance factor (Scawarz and Mertz, 1959; Vincent, 2013) in carbohydrate and lipid metabolism (Anderson, 1995; Davis and Vincent, 1997) yet some studies (Rutland 1995; Sawyer 1997) reported that both ${\rm Cr}^{3+}$ and ${\rm Cr}^{6+}$ are interfering with human physiological processes depending on their concentrations in ambience.



Actually, Cr^{3+} released in the environment with tannery effluent is very much subject to conversion to various valence states. Murray and Tebo (2007) and Chattopadhyay et al. (2010) point out the role of soil microbes along with some physico-chemical agents (UV ray, Mn and Fe) in conversion of Cr^{3+} to Cr^{6+} . Photochemical oxidation of Cr^{3+} to Cr^{6+} is also found to be significantly high at the surface level of the soil. As a result the released Cr in the environment has ample potential to migrate from water and soil system to bio-system.

However, different study has reported the presence of high concentration of detoxification pathways via the superoxide dismutase, catalase and the metal arresting protein, metallothionein, in the flora and fauna of EKW (Singha Roy et al. 2011; Goswami et al. 2013; Pal et al. 2014; Aich et al. 2017). Biota growing at the area with high Cr concentrations in their ambient environment have their innate capability to protect their physiological activities against Cr toxicity.

From the present study a steady natural amelioration of waste Cr along the 40 km course of the canal is observed, which signifies the intrinsic capacity of wetlands in water treatment and quality improvement. From the present study it is also revealed that on an average 95.8-99.6% reduction of Cr species in wastewater and 96.4-99.6% in sediment between Site 1 and Site 5 in EKW is evident.

However, nearly 37% of the wetland area and 75% of the water spread area of this wetland are lost in the meantime (Chatterjee et al., 2016; Li et al., 2016). Even after such onslaught on the natural wealth, by which Kolkata city is blessed the EKW is working with such amazing efficiencies. May be the technological intervention in ameliorating composite tannery wastewaters in CETPs at KLC and surely the declining population growth in Kolkata Metropolitan Area (KMA population is estimated to be 15,001,383 in 2018, and thereby, between years 2001 and 2018, the growth of population in KMA has declined to 12.6% from estimated growth rate of 30% in previous two decades; http://www.indiaonlinepages.com/population/kolkata-population.html) have positive roles in encouraging the conditions to



sustain ameliorating efficiency of this wetland system even today, so far as waste Cr is concerned. Interestingly, such ameliorating efficiency of EKW is recorded to be similar, and even higher, when compared to the previous report published decades back (Chattopadhyay et al., 2000a).

However, absence of any treatment plant at Site 1 the Cr concentration is higher than CPCB safe limit, thus action should be taken in this regard. Also attention must have to be taken to recycle Cr in KLC area to protect nature from any harmful effect of Cr in near future in one hand and to minimize wasting global Cr resource. In India a substantial amount of valuable mining resources are wasted by different industries.

The tanning industries, likewise, drain out 30-50% Cr after tanning operation. Thus, we would urgently look forward to sensitive attitude towards handling the waste Cr and in-house technological improvisation and application of modern technologies to recover and reuse of waste Cr from tanneries. Therefore, to enjoy the sustained ecological subsidy from EKW in wastewater treatment, social awareness, technological improvement and a holistic management plan are much needed to protect this Ramsar site which serves the KMA for nearly a century. If we externalize the cost of a single ecosystem service of this wetland, the amelioration of wastewater, we can estimate that this EKW areas save Kolkata city (India's seventh most populous city with 5.5 million population) a staggering Rs 4,680 million a year in sewage treatment costs (Kundu and Chakraborty, 2017).

Acknowledgements

First author thankfully acknowledges UGC for DSKPDF and the contingency grants to carry out this work. Prof. BC is thankful to IUC-DAE for financial assistance. Last author is also thankful to the UGC for awarding Emeritus Fellowship. Authors express their thanks to Dr. Anjan Biswas and Mr. Sandip Das, GCELT, Kolkata, for providing the laboratory facilities and necessary help.



References

- Aich, A., Chattopadhyay, B., Mukhopadhyay, SK. (2010) Immunolocalization of metallothionein in hepatocytes of guppy fish (Poeciliareticulata) exposed to tannery effluent: A biomarker study. Chemosphere 169:460-466.
- 2. Anderson, RA. (1995) Chromium and parenteral nutrition. Nutrition. 11:83–86.
- 3. Bunting, SW, Pretty, J, Edwards, P. (2004). Wastewater-fed aquaculture in the East Kolkata Wetlands, India: anachronism or archetype for resilient ecocultures? Reviews in Aquaculture (2010) 2:138–153.
- 4. Bassett, J., Denney, RC., Jeffery, GH., Mendham, J. (1978) Vogel's Testbook of Quantitative Inorganic Analysis. Longman Groug, London. pp. 738.
- 5. Chatterjee, S., Chattopadhyay, B., Mukhopadhyay, SK. (2006) Trace metal distribution in tissues of cichlids (Oreochromis niloticus and O. mossambicus) collected from wastewater-fed fishponds in East Calcutta Wetlands, a Ramsar site. Actalchthyologica Et Piscat. 36(2):119-125
- 6. Chatterjee, S., Chattopadhyay, B., Mukhopadhyay, SK. (2007) Sequestration and localization of metals in two common wetland plants at the contaminated East Calcutta Wetlands, a Ramsar site in India. Land Contamination & Reclamation 15(4):1-16
- Chatterjee, S., Datta, S., Das, T.K., Veer, V., Mishra, D., Chakraborty, A., Chattopadhyay, B., Datta, S., Mukhopadhyay, S. K., Gupta, D. K.(2016) Metal accumulation and metallothionein induction in Oreochromis niloticus grown in wastewater fed fishponds. Ecological Engineering 90:405–416.
- 8. Chattopadhyay, B., Chatterjee, A., Mukhopadhyay, SK. (2002) Bioaccumulation of metals in the East Calcutta Wetland Ecosystem. Aquatic Ecosystem Health Management 5(2):191–203



- 9. Chattopadhyay, B., Chatterjee, A., Datta, S., Mukhopadhyay, SK. (2000b) Calcutta Wetland: Past and Present vis-à-vis Calcutta tannery agglomerates. JILTA 50(8): 55-63.
- Chattopadhyay, B., Singha Roy, U., Mukhopadhyay, SK. (2010)
 Mobility and Bioavailability of Chromium in the Environment:
 Physico-Chemical and Microbial Oxidation of Cr (III) to Cr (VI). Journal of Aplied Science Environment and Management 14 (2) 97 101
- Chattopadhyay, B., Datta, S., Chatterjee, A., Mukhopadhyay, SK. (2000a) The Environmental Impact of waste chromium of tannery agglomerates in the East Calcutta wetland ecosystem. JSLTC 84(2): 94-100.
- 12. CPCB (2009) Status of water supply, wastewater generation and treatment in Class I cities and Class II towns of India. Series: UPS/70/2009-10. Central Pollution Control Board, India.
- Davis, CM. Vincent, JB. (1997). Chromium in carbohydrate and lipid metabolism. Journal of Biological Inorganic Chemistry 2: 675 – 679.
- Eaton, AD., Clesceri, LS., Greenberg, AE. (2005)Standerd Methods of the Examination of Water and Wastewater, 21stedn. APHA, Washington D.C.
- 15. Ghosh D. 1999. Wastewater Utilisation in East Calcutta Wetlands. UWEP Occasional Paper, WASTE,
- Goswami, RA., Aich, A., Pal, S., Chattopadhyay, B., Mukhopadhyay, SK. (2013) Antioxidant response to oxidative stress in zooplanktonthrived in wastewater-fed ponds in East Calcutta WetlandEcosystem, a Ramsar site. Toxicology & Environmental Chemistry 95(4):627–634
- 17. Kundu, N., Chakraborty, A. (2017) Dependence on Ecosystem Goods and Services: A Case Study on East Kolkata Wetlands, West Bengal, India. In: Prusty B., Chandra R., Azeez P. (eds) Wetland Science. Springer, New Delhi



- 18. Li, X., Mitra, C., Marzen, L., Yang, Q., 2016. Spatial and temporal patterns of wetland cover changes in East Kolkata Wetlands, India from 1972 to 2011. International Journal of Applied Geospatial Research 7:1–13.
- 19. Murray, KJ., Tebo, BM. (2007). Cr (III) is indirectly oxidized by the Mn(II)-oxidizing bacterium Bacillussp strain SG-1. Environmental Science and Technology 41(2):528-533.
- 20. Pal, S., Chakraborty S, Datta S, Mukhopadhyay SK (2018a) Spatio-temporal variations in total carbon content in contaminated surface waters at East Kolkata Wetland Ecosystem, a Ramsar Site. Ecological Engineering 110: 146-157
- 21. Pal, S., Chattopadhyay, B., Mukhopadhyay, SK. (2014) Oxidative response of wetland macrophytes in response to contaminants of abiotic components of East Kolkata wetland ecosystem. Limnological Review 14(2):101-108
- Pal, S., Chattopadhyay, B., Mukhopadhyay, SK. (2016a) Spatiotemporal study of carbon sequestration through piscicultural practice at East Kolkata Wetland. Journal of Environmental Biology 37(5):965-971
- 23. Pal, S., Chattopadhyay, B., Mukhopadhyay, SK. (2016b) Importance of agriculture and crop residues in carbon sequestration and nutrient enrichment at agricultural farms of East Kolkata Wetland area, a Ramsar site. Current Science 110(7):1330–1337
- Pal, S., Mukhopadhyay, SK. (2018b) An overview of carbon input and output from Calcutta Leather Complex. 2018. Journal of Indian Leather Technologist's Association (JILTA) 68(2): 85-89.
- 25. Puntener, A. (1995) The Ecological Challenge of Producing Leather. J. Am. Leather Chem. 90:206-219.
- Rajamani, S. (2010) World Environmental Update in Leather Sector - Bio-Energy Generation from Tannery Effluent and Solid



- Wastes, Leather News India.
- 27. Rutland, F.H., (1991) Environmental compatibility of chromium-containing tannery and other leather product wastes at land disposal sites. JALCA 86:364-375.
- 28. Saravanbahavan, S., Thaikaivelan, P., Rao,RJ., Nair, BU., Ramasami, T. (2004). Natural leathers from natural materials: progressing toward a new arena in leather processing. Environment Science & Technology. 38:871–9.
- Sarkar, S., Ghosh,PB., Mukherjee, K., Sil, AK., Saha, T. (2009) Sewage treatment in a single pond system at East Kolkata Wetland, India. Water Science and Technology 60(9):2309– 2317.
- 30. Sawyer, HJ. 1997. Occupational Medicine. Mosby Pub, London. pp. 487-495.
- 31. Scawarz, K., Mertz, W.(1959)Chromium (III) and the glucose tolerance factor. Archives of Biochemistry 85:292-295.
- 32. Singha Roy, U., Chattopadhyay, B., Datta, S., Mukhopadhyay, SK.(2011). Metallothionein as a biomarker to assess the effects of pollution on Indian major carp species from wastewater-fed fishponds of East Calcutta wetlands (a Ramsar Site). Environmental Research Engineering & Management 4:10-17.
- 33. Tsumita, D., Ashish, Y., Premendra, DD, Mukul, D. (2015) Toxic hazards of leather industry and technologies to combat threat: a review. Journal of Cleaner Production 87:39-40.
- 34. USEPA. Chromium in drinking water (2011) (http://water.epa.gov/drink/info/chromium/index.cfm.)
- 35. Vincent, JB. (2013)Chromium and Glucose Tolerance Factor. In: Encyclopedia of Metalloproteins. Springer- Nature, Switzerland.
- 36. WHO. (2008) Who Guidelines for drinking water Quality, Vol. 1, 3rdEdn.., World Hwalth Organization, Geneva, Swizerland.



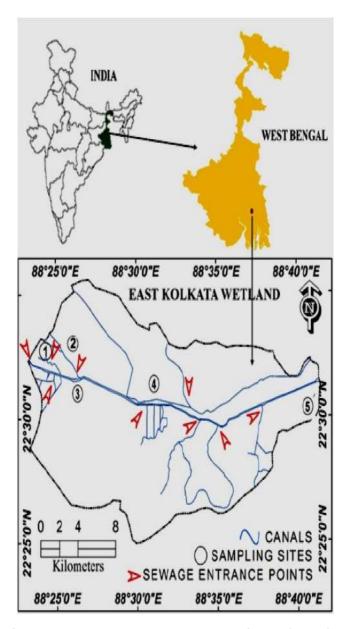


Fig. 1.Study sites and wastewater input map of EKW (India & West Bengal maps are not in scale)

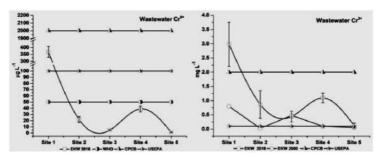


Fig. 2. Comparison of present Cr⁶⁺ and Cr³⁺ concentration (EKW 2018) in EKW wastewater with Chattopadhyay et al. (2000; EKW 2000), CPCB public sewers standard and WHO (2008), USEPA (2011) drinking water standard

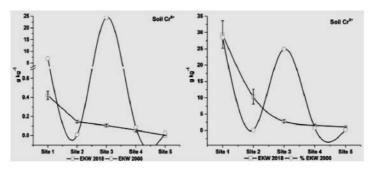


Fig. 3. Comparison of present Cr⁶⁺ and Cr³⁺ concentration (EKW 2018) in EKW soil with Chattopadhyay et al. (2000; EKW 2000)

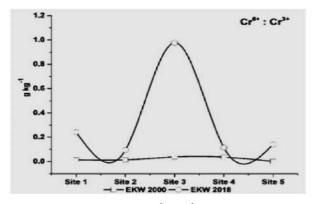


Fig. 4. Comparison of present Cr⁶⁺: Cr³⁺ concentration ratio (EKW 2018) in EKW soil with Chattopadhyay et al. (2000; EKW 2000)





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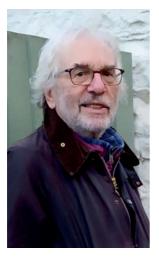
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"Making Leather: An overview of Manufacture"



Mr Richard P Daniels, one of the renowned leather technologists, has recently come out with a study "Making Leather: an overview manufacture" intended for entering the leather sector who aspire to become technicians. This study is based on his rich technical experience from training (basic to MSc level and counterpart both directly also distance learning modules that has authored plus numerous profiles/reports and field works etc.etc).. This was released at the IULTCS Congress in Ethiopia and is recommended by UNIDO, IULTCS and SLTC (going on their websites).

It contains information for those who need more than the most basic understanding of commercial leather manufacture. It follows the processes and operations used, and their purposes for making leather from bovine hides, sheep and goat skins. This study is intended for self-training and distance learning within the global leather sector. This great work is divided into 10 parts comprising 30,000 words in a condensed format and 300 integrated technical images/diagrams. It is essentially a self learning package and designed for use by smart phone, tablet and computer. It suits display and use by suitably qualified staff within formal education for discussion and expansion.

The author has gracefully made this comprehensive study available to readers at free of cost in our website. It is about making leather!

Please visit our website:

www.indianleathermagazine.com and click "<u>Articles Tab"</u> to view this great work.



Trade in products containing benzene increased EU imports of hazardous chemicals

The reported volume of hazardous chemicals imported to and exported from the European Union (EU) under the Prior Informed Consent (PIC) Regulation continued to increase in 2022.

The European Chemicals Agency's (ECHA) annual report on the trade of chemicals that are banned or severely restricted in the EU shows that the imports of PIC chemicals increased over 20 fold, from 883 119,74 tonnes in 2021 to 19 698 668,33 tonnes in 2022, due to benzene as a constituent being added to the list of chemicals subject to PIC in 2022.

Substances containing benzene is the first "substance in substance" entry under the PIC Regulation, with 96 % (18 845 530,34 tonnes) of imports reported in 2022 concerning these substances.

The report also found a 24 % increase in exports of banned or severely restricted chemicals to non-EU countries from 2021 to 2022. Overall, almost 980 941,51 tonnes of PIC chemicals were exported during the year.

Background

24 EU countries and 543 companies provided data to ECHA on the export of PIC chemicals from the EU in 2022. Three EU countries and Northern Ireland declared that they had not exported PIC chemicals.

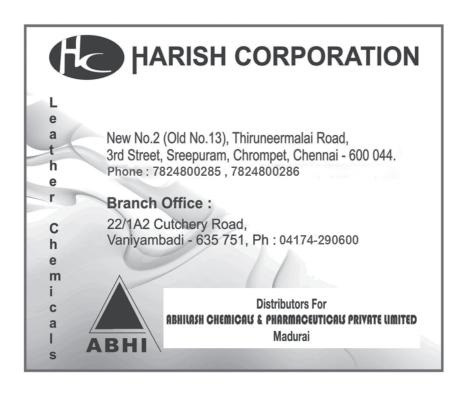
21 EU countries and Northern Ireland provided data on imports of PIC chemicals into the EU in 2022. The information came from 191



companies. Six EU countries declared that they had not imported PIC chemicals.

Article 10 of the PIC Regulation requires importers and exporters to give information about the annual trade of chemicals listed in Annex I of the regulation to their designated national authorities by 31 March of the following year. Each EU country must then provide the aggregated information to ECHA so that it can be summarised at EU level and non-confidential information can be made publicly available.

https://echa.europa.eu/



Shoe Care Systems and Shoe Finishing NSK SRINIVASAN¹& HASMUKH SHAH² UMTA Management & Texstyles Academy, Vapi, Gujarat, India ^{1&2} nsk sriya@yahoo.com¹textiles.vapi@gmail.com²

1. Introduction

Manufacturing of shoes is a fascinating and intricate process that combines art, science, and craftsmanship. From the initial design concept to the final product, every step requires careful attention to detail and a deep understanding of materials, techniques, and technology. ¹

Footwear manufacturing is basically a process of transformation and assembly of various components made up of several materials.

The growth in disposable and per capita income has revolutionized customer buying patterns towards apparel and footwear. A significant number of the urban population, mainly in tier I and II cities have considerably higher spending power. This is a major reason for the growth of the footwear market.

Both, Shoe Finishing and Shoe Care Systems play a vital role for the manufacture of quality Footwear meeting Standards and enhanced Customer Satisfaction.

The Indian footwear and leather industry is export-oriented and the government is taking initiatives to increase the leather and footwear export. Indian footwear industry is one of the top employment generating industries in the nation. While it holds an important position in the Indian Government's drive, the sector dramatically contributes to the nation's economic growth.

Leather Footwear Industry is a vertical integration of Leather Industry. It is a value-added activity for finished leather.



1.1 Footwear industry value chain 1.1

The leather value chain starts with the recovery of hides and skins from slaughtered animals followed by their treatment in tanneries which requires substantial investment. This is followed by the manufacturing of leathers products in small labour-intensive workshops which require very limited investment or in large capital-intensive factories, post which the product is ready to be marketed.

The footwear manufacturing process begins once the leather has been treated in the tanneries and

generally, follows the following steps – Designing, Pattern Cutting, Clicking, Preparation, Closing, Lasting, Bottoming & Finishing leading to final Shoe.

2. Shoe Care Systems

Shoe care refers to cleaning and maintaining the appearance of footwear by using various products in order to extend the product lifespan. Shoe care products include polishes, creams, sprays, brushes, etc.²

Shoe care includes products such as polish, sprays, creams, wax, and brushes that are used for maintenance of the footwear. The desire to keep them in appropriate shape, color, and quality is a must factor for regular users, and has augmented the demand for shoe care products across the globe.

Additionally, shoe care products come in variety of categories - shoe clean, shoe care, and other maintenance accessories that are useful in keeping the shoes looking as near as new and shining.

3. Global Shoe Care Market-Drivers^{3A}

- Increasing demand for footwear, coupled with a growing global population are among some of the key factors projected to drive the growth of the global market.
- In addition, the high cost of certain types of shoes, leather shoes for instance, and the need to take proper care in order to maintain its properties such as shine, appearance, etc. is another major factor driving the market growth.



- 3. Increasing awareness regarding ongoing fashion trends, increasing Internet penetration and smartphone adoption, coupled with rising preference for online shopping are among other factors expected to propel the growth.
- 4. The availability of shoes in various shapes, sizes, and materials, and application-specific categories may require different types of shoe care products in order to maintain product hygiene, appearance, shape, and lifespan depending upon material and other aspects.
- The increasing working population globally is resulting in high demand for formal footwear among men as well as women, which is another factor anticipated to fuel the growth of the target market.
 - 6. Key factors that are driving the shoe care market growth include the increasing growth of female professionals worldwide, the steady growth of the luxury footwear industry, and the rising popularity of the e-commerce platform for the distribution of shoe care products.³

4. Leather shoe care creams and products that protect and nourish⁴

Leather doesn't look after itself. Over time, body oils, perspiration and acids that naturally come into contact with leather through general use cause cracking, delamination and discoloration. Footwear, like other leather items, benefit from proper cleaning and protection to prevent this. Stahl has the leather shoe care products you need.

4.1 Protect leather shoes against dirt and stains⁴

Our shoe care product range protects and shields leather by creating an invisible breathable barrier that makes shoes easier to clean and more resistant to stains. The comprehensive range contains products for cleaning, protecting, refinishing and repairing:

 Leather shoe base coats and top coats: applied by sponge or sprayed onto the leather to produce the desired level of gloss,



protection, elegant appearance and finish. Both our base and top coats are available in water-based and solvent-based versions.

- Leather shoe creams and protection products: applied by sponge and suitable for all types of leathers to reach the desired level of gloss and finish. We also offer Colored creams to create antique fashion effects.
- Leather shoe cleaners and preparations: mild cleaners suitable for the retail sector and strong, industrial preparation cleaners for professional use.
- Leather shoe edge inks and paints: specialty products for finishing the cut edge of a piece of leather and creating a higher value appearance to leather shoes and others goods such as bags, belts and wallets. We also offer sole finish products for shoe manufacturers.

5. MATERIALS USED FOR SHOE FINISHING 5

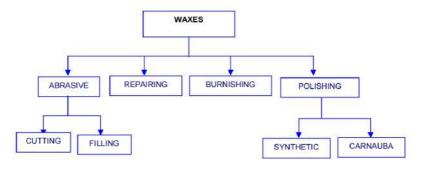
Common materials used for Shoe finishing are - • Creams for finishing; • Dyes for repairing;

• Repairing crayons; • Liquids for finishing; • Waxes; and • Cleaner.

5.1 Waxes

Waxes are used for burnishing, repairing and polishing. They are of different types as shown below :

5.2 Waxes Used in Shoe Finishing Figure 5 A





5.3 Waxes Used in Shoe Finishing

Abrasive Wax - Used for cutting or smoothening of grain surface, and for filling and special effects, for example brush-off and burnish effect. These are available in three Colours – black, brown and natural. This is to be applied on cotton roller.

Repair Wax - These are gap-filling crayons and do not shrink on flexing.

Burnishing Wax - It is a medium-hard dyed wax, which enhances the burnishing effect on burnished leather. This is to be applied on cotton roller.

Polishing Wax - Used as the final operation to polish and protect the finish that is done in the shoe finishing room. It also enhances the gloss of the shoe. This is to be applied on woollen roller.

Two types of polishing wax are used: Synthetic and Carnauba. Available in three Colours – Black, Brown and Natural. White Polishing wax is synthetic carnauba wax whereas natural carnauba wax is yellowish in colour.

5.4 Cleaning of Various Soiling Materials Table 5 B

Cleaning of Various Soiling MaterialsTable 5 B	
Soiling Material	Cleaning Agent
Color code paint (on material edge),Thread lubricant, Spray marking	Detergent
Silver pen	Solvent
Grease	Solvent /Detergent
Thermoplastic adhesive	Blunt knife
Rubber adhesive	Rubber
PU adhesive	Rubber/Solvent
Neoprene adhesive	Rubber



5.5 Top Dressing

This operation is often the final treatment, which gives the shoe its luster and determines its final appearance. Top dressing is either water based or solvent based.

5.5.1 Types of Dressings and Applications - Water Based Dressings & Solvent Based Dressings & PU Based Dressings

Water Based Dressings

- Wax-based dressing requires brushing, which gives a natural shine to the shoe and
- PU-based dressing normally does not require brushing. It gives an artificial shine.

Both wax-based and PU-based dressings can be applied by hand or by spray.

Solvent Based Dressings

These are more durable, resistant to water spotting and scuffing, can be made in wide range of luster from matt to high gloss and impart a kind of handle to the surface. They must be applied with spray and give very bright colorfast Finish.

• PU Based Dressings It is not repairable.

5.5.2 Types of Dressings and Applications - Polishes and Creams

Polishes and Creams are non-film forming.

 Normally wax polishes are used and are widely available either neutral or pigmented to match the color. Surface waxes can impart a measure of water repellence to footwear although they cannot be regarded as water proofing agents. They will help against light showers or occasional splashes but persistent water contact will soon penetrate the wax particularly where flexing breaks the surface layers.



- Waxes and creams are also suitable for gloss enhancement or to give some special appearance (antique effect) on leather look synthetic material.
- Creams could be SOFT, MEDIUM or HARD. Soft and medium creams are those that require to be polished, and are referred to as the CREAMS TO BE POLISHED. Hard creams are available as SELF-SHINING CREAMS. That is, they don't require cutting or brushing operation necessarily. Creams are applied by sponge – sea sponge or synthetic sponge.

5.5.3 Finishing

Further, top dressing also includes Nubuck renovators, which can be water or solvent based. And oil pull-up, finishing material, which comprise oil and oil emulsion.

Reference: 5. &Figure 5 A &Table 5 B .UNIT 4 INTRODUCTIONS TO SHOE FINISHING

- 6. High Performance Chemicals for Footwear and Leather Accessories Haryana Leather Chemicals ⁶
- 1. BRUSHABLE CREAMS Neutral / Black / Brown .SELF-POLISHING CREAMS Neutral / Black / Brown
- 2. FEEL MODIFIER CREAMS Neutral . SOLID WAXES Neutral / Black / Brown .
- 3. BURNISH WAX BAR Neutral. WAX BASED AQUEOUS DRESSINGS Neutral / Brown.
- 4. RESIN AND NC BASED DRESSINGS Neutral .ADHESION PROMOTERS: Neutral.
- 5. REVIVER, PULL UP OILS AND CRAZY FINISHES.
- 6. RECTIFICATION OILS AND RESINS. WATER REPELLING AGENT.
- 7. COLORING DYES. REPAIRERS -PIGMENTS AND BINDERS.
- 8. DETERGENTS AND CLEANERS. SPECIAL PRODUCTS.



7. Global Shoe Care Market 7

The global shoe care market size was valued at USD 4.6 billion in 2018. The global shoe care market size was estimated at USD 4.74 billion in 2019 and is expected to reach USD 4.92 billion in 2020. The global shoe care market is expected to grow at a compound annual growth rate of 3.9% from 2019 to 2025 to reach USD 5.97 billion by 2025.

7.1 Some of the leading global companies offering shoe care?^{7.1}

Some of the leading companies providing shoe care are S.C. JOHNSON & SON, Fiebing Company, Inc., Caleres Inc., C.A. Zoes Mfg Co., Woodland Worldwide, Collonil Company, RSPL Limited, New Balance Athletics, Inc., C&J Clark International Limited, Salamander France SAS, Lincoln Shoe Polish c/o Maxton & Company, Griffin Shoe Care, TARRAGO BRANDS INTERNATIONIAL, S.L., and OTTER WAX LLC.

7.2 Indian Shoe Care Market Overview 7.2

- The India shoe care market has been steadily growing as people recognize the importance of maintaining their footwear for longevity and comfort.
- Shoe care products, including polishes, cleaners, and accessories, help in keeping shoes in good condition.
- As fashion and footwear industries thrive, consumers are increasingly investing in shoe care to protect their shoes and make them look their best.
- The market offers a range of products for different types of footwear, from leather to sneakers, meeting the diverse needs of consumers seeking to extend the life of their shoes

7.3 Key Players in the Indian Shoe Care Market^{7.3}

- In the India Shoe Care Market, several key players have a significant presence, contributing to the maintenance and enhancement of the country's footwear.
- Renowned brands such as Bata India Limited and Kiwi, a product of SC Johnson, dominate the market.



- These companies offer a wide range of shoe care products, including shoe polish, creams, brushes, and sprays, ensuring that consumers can keep their shoes in excellent condition.
- With their established reputation and high-quality products, they play a vital role in preserving the longevity and appearance of various types of footwear in India.

8. Historical Trends Vs. Future Market Outlook⁸

- Augmented Internet retailing, continuous innovations in product design, and high focus on marketing strategies by manufacturers are shaping the global shoe care market.
- Continuous product innovation is expected to lead to higher market growth across the globe over the coming years.
 Partnerships among key players and rising customer preference for eco-friendly products are expected to augment sales in this space.
- Increasing preference toward using exclusive and premium shoes and shoe care products coupled with high disposable income for sustainable approach and continuous technology developments are factors expected to propel market growth at a significant CAGR of close to 5% through the forecast period.

8.1 How will Technological Developments Continue Driving Sales of Shoe Care Products?⁸

- Footwear manufacturers are continuously focused on the development of technology and product innovation. For instance, in 2018, Adidas announced the use of 3D-printing technology, which is better in terms of costs and efficiency than conventional production methods.
- To overcome the tough competition, market players are continuously striding their product innovation through R&D.
 When new shoes are introduced, the obligation for



maintenance solutions for the problems concerning the shoes also increases.

- With the introduction of new technologically developed shoes, the need for their maintenance products is also positively impacting the shoe care industry. Key players in the industry are increasingly focused on offering high quality material with features such as waterproof, dust-proof, etc.
- Besides, important features such as accelerometers, gyroscopes, and magnetometers, product design such as ergonomics and layout are other aspects where players are aiming to stimulate the evolution of unique products.

8.2 Will Increasing Adoption of Leather Shoes Play a Key Role in Revolutionizing

the Industry?8

- The trending style of high-ankle leather shoes has caught the attention of a large number of customers across the globe. Since the past few years, increasing endorsements and television commercials featuring famous celebrities is on a high.
- With this, adoption of leather shoes among customers is surging across the globe, in turn, progressively impacting demand for related shoe care products. Being sensitive to fluctuations in temperature, leather needs regular maintenance, which, in turn, increases demand for leather shoe care products.

8.3 How Will Introduction of Medical Footwear Offer More Opportunities for Key Players?⁸

Amplified innovation and R&D in the medical sector with the introduction of orthopaedic and medical shoes can be a factor for augmented demand of shoe care products. Awareness among people about physical health is growing with every passing day.

Patients suffering from diabetes and having other orthopaedic concerns have opted for medically approved orthopaedic shoes.



With this, demand for shoe care products that are used in the maintenance of these medical shoes is expected to grow during the forecast period.

8.4 How Will Rapidly Changing Consumer Preferences Impact Demand for Shoe Care?⁸

- Availability of products at economical prices is likely to impact demand for shoe care. The option of choosing shoes from a vast sea of similar products is changing consumer preferences. Customers are shifting to shoes that are easy to buy and can be replaced in a short span of time, hindering the sales of shoe care accessories.
- Increasing adoption of use-and-throw shoes due to their low prices and low maintenance factor is having a downward impact on the sales of shoe care products.
- Apart from this, players in the industry facing tough competition and are introducing products that have less maintenance and alternative costs. Hence, customer preference toward such products is impacting the sales of shoe care products adversely.

8.5 Shoe Care Market Share (%) By Product Figure - 8 A



Reference: 8.& Figure – 8 A .Shoe Care Market, Global Market Study on Shoe Care: Medical Footwear Sector to Provide Added Impetus to Market Expansion. Persistence Market Research.

9. Introduction to Footwear Finishing⁹

Footwear manufacturing is basically a process of transformation and assembly of various components made up of several materials.

The growth in disposable and per capita income has revolutionized customer buying patterns towards apparel and footwear. A significant number of the urban population, mainly in tier I and II cities have considerably higher spending power. This is a major reason for the growth of the footwear market.

The Indian footwear and leather industry is export-oriented and the government is taking initiatives to increase the leather and footwear export. Indian footwear industry is one of the top employment generating industries in the nation. While it holds an important position in the Indian Government's drive, the sector dramatically contributes to the nation's economic growth.

Leather Footwear Industry is a vertical integration of Leather Industry. It is a value-added activity for finished leather.

9.1. Footwear Finishing ⁹

Most of the operations during the manufacture of Footwear, are meant to give it a proper shape. During this, the upper material is subjected to a wide variety of abrasive and stretching operations, which can adversely affect its appearance, and sometimes even its inherent characteristics.

The process, which enhances the appearance and restores the inherent characteristics of the upper leather, is called Shoe Finishing. Finishing is done to upgrade the quality and the aesthetic appeal of the product or to give some special appearance, e.g., Shadow effect or Antique effect. It also imparts the desired color and level appearance to the material.

9.2 . Shoe Finishing Process Based On Leather 9

Methods of Shoe finishing - Shoe Finishing is done normally in two ways. The Sequence of operation for both the methods are as below.



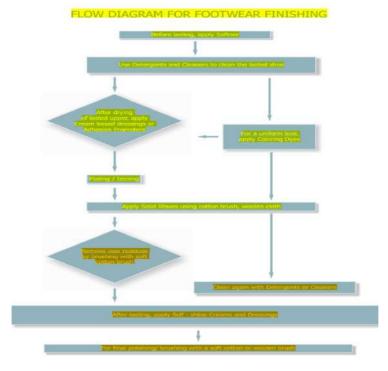
Method - I.

Dry Cleaning - Wet Cleaning - Edge Coloring , Repairing - Wrinkle Chasing if Required - Base Coat Application - Cutting - Polishing - Cutting - Top Coat Application.

Method - II

Dry Cleaning - Base Coat Application - Heat Setting - Wrinkle Chasing if Required - Lasting Operation and Delast - Polishing - Cutting - Top Coat Application - Edge Coloring , Repairing - Cleaning (Dry & Wet).

9.3 .Flow Diagram For Footwear Finishing Figure - 9 A



Reference: Figure - 9 A .Flow Diagram for Footwear Finishing, Haryana Leather Chemicals Limited.www.leatherchem.com

10. Finishing in Footwear Manufacturing 10

- Finishing is done with the aim of ensuring the best treatment on the surface of the shoe, improving the visual appearance of the product and making it more attractive, both visually and to the touch. If through the finishing operations the product becomes more beautiful, attractive and with a softer touch, we can get the difference that makes selling the product.
- There are several ways of finishing. The various types of finishing depend mainly on the type of leather used, the desired final appearance and the model configuration.
- The same model may even have different finishes, depending on the type of leather used, thus giving rise to a variety of Finishing Types.
- The main types of finishing used in footwear are: waxy, oily, casein, polished & plasticized.

11. Finishing Department- Shoe Finishing - Insock Fitting, Edge Inking, Cleaning / Repair, Burning Thread Ends ¹¹

11.1. Insock Fitting

This operation consists of placing and/or gluing the insock.

Nowadays preformed insocks are used, which are only inserted inside the shoe, and there is no need to glue to fix the insock. This type of insocks is used mainly in sports or casual footwear. For gluing the insock there are several processes used, namely:

 Mechanical glue application: the glue is applied onto the insock by means of a machine with a glue roller, where the insock passes before an operator inserts it into the shoe,



 Manual glue application: An operator applies the glue with a brush on the back of the of the insock and then fits it into the shoe.

11.2 Edge Inking

This operation is performed when upper leather edges (open edges) are visible and do not have the color of the upper leather (for leather which has not been through-dyed), or when the lining edge is visible. In these cases, it is necessary to dye the edges in the hue of the upper leather

11.3 Cleaning / Repair

At this stage the shoe is checked and cleaned, which consists of removing glue residues, which can be found in the area where the sole is joined to the upper and inside the upper.

Various tools, equipment and products can be used for cleaning. The type of cleaning to be performed depends on the shoe materials.

To remove the glue from the assembling edge, the glue cleaning machine can be used. For the materials in which this process cannot be used, use a rubber crepe, a wooden spatula, a water sandpaper or a flannel cloth soaked in a suitable cleaning liquid.

11.4 Burning Thread Ends

With this operation it is intended to eliminate the small thread ends that sometimes stay from the sole stitching or from the upper stitching.

For the execution of this operation a small burner with an open flame can be used (but be careful not to leave burn marks on the shoe)

11.5 Finishing 11

After carrying out the operations previously described, the finishing is carried out properly. At this stage a considerable diversity of shoe finishing products is used, which vary according to the surface and



the desired effect, always considering the initial finishing of the leather.

If the initial skin finish is waxy, natural and synthetic wax-based creams, wax emulsions combined with resins and solid waxes should be used.

If the initial skin finish is lacquer based, emulsions of nitrocellulose lacquer, aceto butyrate and aqueous emulsions of polyurethane resins should be used.

If the initial finish of the skin is oily based, combinations of synthetic oils, sulfated and sulphited, should be used to achieve color revival on sanded leather (nubuck) and also to get touch.

11.6 Shoe Finishing - Applying Cream, Brushing ,Applying Spray Paints ,Ironing, Inserting Fillers and Labeling, Controlling and Boxing ¹¹

11.6.1. Applying Cream

It consists of the application of a cream on the leather, which aims to standardize the color of the shoe and standardize the pore of the leather. Always use soft sponges when applying the cream, and always perform circular movements to avoid risks caused by continuous application.

It is important to mention that for better performance, it is advisable to distribute the cream evenly on the sponge by pressing the sponge with cream on a smooth surface or on a tile or glass, before the operation.

11.6.2. Brushing

Brushes are very important in the finishing process as they have functions as polishing, smoothness, brightness and removal of excess of finishing products.

The model of footwear, leather and other operations must be taken into account, since for each type of purpose there are suitable



brushes, which vary in texture, width, diameter, degree of abrasiveness, number of rings, absorption and hardness.

Rotating machines, with manual speed selector, are the most suitable because they allow control of the speed, which is very important for obtaining the best results.

11.6.3. Applying Spray Paints

It is recommended to use compressed air guns in the paint booth for applying finish bases, applications of brightness, oils, inks for color correction and color enhancers.

The pistols have the advantage of uniformity of application and must have pressure control and always be well cleaned

11.6.4. Ironing

This operation is performed to remove some wrinkles from the leather. Hot air irons and/or dryers are used to obtain smoothness and to remove wrinkles resulting from the manufacturing process or from the properties of the leather, such as loose or wrinkled grain.

It is very important that the temperature of the iron is not excessive because it can burn the leather or the seam line as well as cause a loss of brightness. It is recommended to use hot irons with temperature control.

11.6.5. Inserting Fillers

This operation is performed at the end of the finishing. It consists in filling place inside the shoe so that it maintains its look and will not deform. There are several types of filling, cardboard, pad, etc.

11.6.6. Labeling, Controlling and Boxing

These are the last operations to be performed in the finishing process.

At this stage the operator places the labels provided, verifies the quality of the product, and if he does not detect any non-conformity,



proceeds to placing it in a box. Any product identified as non-compliant should be separated and placed in the intended location for repair.

12. Shoe polish¹²

- Shoe polish (or boot polish) is a waxy paste, cream, or liquid that is used to polish, shine, and waterproof leather shoes or boots to extend the footwear's life and restore its appearance.
- Shoe polishes are distinguished by their textures, which range from liquids to hard waxes. Solvent, waxes, and colorants comprise most shoe polishes.
- Shoe polish can be classified into three types: wax, creamemulsion, and liquid. Each differs in detailed composition but all consist of a mixture of waxes, solvent, and dyes.

Nigrosine is a common dye in black shoe polish.

Waxes, organic solvents and colorant (either soluble dyes or pigment) compose this type of polish. Waxes are 20–40% of the material. Natural waxes used for the polish include carnauba and montan as well as synthetic waxes. The composition determines the hardness and polishing properties after solvent has evaporated. Solvents are selected to match the waxes.

About 70% of shoe polish is solvent. A variety of solvents are used including naphtha. Turpentine, although more expensive, is favored for its "shoe polish odor". Dyes make up the final 2–3% of the polish. A traditional dye is nigrosine, but other dyes (including azo dyes) and pigments are used for oxblood, cordovan, and brown polishes.

Owing to its high content of volatile solvents, wax-based shoe polish hardens after application, while retaining its gloss. [2] Poorly blended polishes are known to suffer from blooming, evidenced by the appearance of a white coating of stearin on the polish surface.



13. SWOT Analysis of the Indian Footwear IndustryFigure –13 A



Source: Figure – 13 A. White Paper – Footwear Industry in India - Technology Cluster Manager (TCM) Technology Centre System Program (TCSP) Office of DC MSME, Ministry of MSME October 2020, KPMG

14. Going Forward

Key factors that are driving the shoe care market growth include the increasing growth of female professionals worldwide, the steady growth of the luxury footwear industry, and the rising popularity of the e-commerce platform for the distribution of shoe care products. ^{14.1}

From the INDIA'S EXPORT OF LEATHER & LEATHER PRODUCTS staring from 2014-15 to 2020-21 and 2022-23 vis-a-vis 2021-22 as well as During April – August 2023 – 24 vis-a-vis April – August 2022 – 23, it is inferred that

The export of Leather Footwear is higher than the export of Non-Leather Footwear.

The export of Leather Footwear is higher than the export of Footwear Components.

The export of Leather Footwear is higher than the export of Finished Leather.

This trend is expected to continue for value added activity of making Footwear, not only conventional but also Luxury, Smart & Medical Shoes as well as other Functional Shoes and Innovation Imbedded



Footwear. Focus is to be given for Value added Shoes and Footwear meant for Ladies. 14.2 & 14.3 & 14.4.

The Auxiliary and Chemical Manufacturers of Leather , Leather Footwear & Textile in most of the cases, manufacture and market as well as provide Technical Service to the user of Shoe Care Systems - Footwear Industry & Leather Goods & Garment Industry. It is an added advantage to get the benefits of Innovation , Improved Services , Common Service Centers and Value-added formulations from Textile & Leather to Shoe Care Systems.

Historical Trends Vs. Future Market Outlook 14.5

- Augmented Internet retailing, continuous innovations in product design, and high focus on marketing strategies by manufacturers are shaping the global shoe care market.
- Continuous product innovation is expected to lead to higher market growth across the globe over the coming years.
 Partnerships among key players and rising customer preference for eco-friendly products are expected to augment sales in this space.
- Increasing preference toward using exclusive and premium shoes and shoe care products coupled with high disposable income for sustainable approach and continuous technology developments are factors expected to propel market growth at a significant CAGR of close to 5% through the forecast period.

The global shoe care market size was valued at USD 4.6 billion in 2018. The global shoe care market size was estimated at USD 4.74 billion in 2019 and is expected to reach USD 4.92 billion in 2020. The global shoe care market is expected to grow at a compound annual growth rate of 3.9% from 2019 to 2025 to reach USD 5.97 billion by 2025. 14.6

Indian Shoe Care Market - The India shoe care market has been steadily growing as people recognize the importance of maintaining their footwear for longevity and comfort. The market offers a range of products for different types of footwear, from leather to sneakers,



meeting the diverse needs of consumers seeking to extend the life of their shoes. 14.7

India as Footwear Hub-India has always been seen as one of the top footwear production centres in the world. The leather and footwear industry in India is a high employment generating sector, contributing significantly to the country's export earnings and economic growth. It is the 2nd largest producer of footwear in the world. It has an excellent and ever-growing domestic market.

15. References:

- 1. How to Manufacture Shoes By Fredrick Miller November 3, 2023.
- 1.1 White Paper Footwear Industry in India Technology Cluster Manager (TCM) Technology Centre System Program (TCSP) Office of DC MSME, Ministry of MSME October 2020. KPMG.
- 2. Global Shoe Care Market 2020: Size, Global Trends, Comprehensive Research Study, Development Status, Opportunities, Future Plans, Competitive Landscape And Growth By Forecast 2029.marketresearch.biz
- 3 .Shoe Care Market Size, Share & Trends Analysis Report By Product (Polish, Cleaning), By Application (Formal, Casual), By Distribution Channel, By Region, And Segment Forecasts, 2019 2025. Grand View Research, Inc. 3 A. Global Shoe Care Market 2020: Size, Global Trends, Comprehensive Research Study, Development Status, Opportunities, Future Plans, Competitive Landscape And Growth By Forecast 2029.marketresearch.biz
- 4. Leather shoe care creams and products that protect and nourish, Stahl.
- 5. 5. & Figure 5 A & Table 5 B .UNIT 4 INTRODUCTIONS TO SHOE FINISHING.
- 6. Haryana Leather Chemicals Limited .www.leatherchem.com
- 7. Shoe Care Market Size, Share & Trends Analysis Report By Product (Polish, Cleaning), By Application (Formal, Casual), By Distribution Channel, By Region, And Segment Forecasts, 2019 2025.Grand View Research, Inc. 7.1 Shoe Care Market, Global Market Study on Shoe Care: Medical Footwear Sector to Provide Added Impetus to Market Expansion. Persistence Market Research.



- 7.2 & 7.3 INDIA SHOE CARE MARKET OUTLOOK,6WRESEARCH.
- 8. 8. & Figure 8 A . Shoe Care Market , Global Market Study on Shoe Care: Medical Footwear Sector to Provide Added Impetus to Market Expansion. Persistence Market Research.
- 9. 9. Unit 5- Shoe Finishing Process and Quality Checking. 9 A . Flow Diagram for Footwear Finishing, Haryana Leather Chemicals Limited .www.leatherchem.com
- 10. & 11. Integrating Companies in a Sustainable Apprenticeship System .Train-the-Trainer Manual Finishing.
- 12. Shoe polish From Wikipedia, the free encyclopedia.
- 13. Figure 13 A. White Paper Footwear Industry in India Technology Cluster Manager (TCM) Technology Centre System Program (TCSP) Office of DC MSME, Ministry of MSME October 2020. KPMG.
- 14.1.Shoe Care Market Size, Share & Trends Analysis Report By Product (Polish, Cleaning), By Application (Formal, Casual), By Distribution Channel, By Region, And Segment Forecasts, 2019 2025. Grand View Research, Inc.
- 14.2. COUNCIL FOR LEATHER EXPORTS (CLE), Highlights of Product Segments of Indian Leather and Footwear Industry https://leatherindia.org/indian-leather-industry/
- 14.3. INDIAN LEATHER INDUSTRY OVERVIEW, EXPORT PERFORMANCE & PROSPECTS.
- 14.4. Leather Age December 2023 issue.
- 14.5. Shoe Care Market , Global Market Study on Shoe Care: Medical Footwear Sector to Provide Added Impetus to Market Expansion. Persistence Market Research.
- 14.6 Shoe Care Market Size, Share & Trends Analysis Report By Product (Polish, Cleaning), By Application (Formal, Casual), By Distribution Channel, By Region, And Segment Forecasts, 2019 2025.Grand View Research, Inc.
- 14.7. INDIA SHOE CARE MARKET OUTLOOK, 6WRESEARCH.

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Shri NSK Srinivasan has About 50 Years' experience in the area of Colouration of Textiles, Leather and Paper. Done M.Tech from University of Madras as well as awarded FSDC – a fellow of the Society of Dyers and Colourists, UK for the contribution in the area of Colouration of various substrates for more than four decades.



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He has rich experience in Technical Services, Quality Assurance, Product Promotion and Marketing, Projects, Providing Solutions to Customers and within the Organization. Participated in National & International Fairs and presented Papers on Leather, Textiles, Dyestuffs and Quality. Visited Customers in India extensively for Technical Discussion, Promotional efforts, Trials & Demonstrations, Business Development and Receivable Management.

Widely travelled in India visiting customers from Textile, Leather Paper and related application areas. Visited USA, UK and Turkey for Technical Services, Business Promotion, Marketing and Innovation Approaches. Lived in Turkey for one and half years for Technical Services, Business Promotion and Marketing

Contributed to the sustainable & profitable growth and diversification of the Organization. From QA, Business Development, Product Management, Promotional Efforts, Paper Publishing and Presentation, Customer Interactions and Corporate Image Enhancement.

Papers Published - More than 60 Nos. Papers Presented - Lectures - 50. Consultancy Projects carried out - 3 Nos in the areas of Colourants, Textiles, Leather, and Colouration and related areas. Also participated and interacted in more than 200 seminars.

He is presently with UMTA Management & Texstyles Academy, Vapi - a non-profit & service-oriented organisation involved in creating awareness as well as imparting training & skill development in Eco Needs and Sustainable Solutions.

Born at Madurai in 1951, married, having two well settled daughters, one in USA & another in Pune and settled in Valsad with wife.



Shri Hasmukh M Shah has more than five decades of experience in Textile Field involving Yarn Trading for handlooms and power looms, Yarn Dyeing and Yarn Mercerizing as well as Supplying of products including RFD yarn and Fabrics for standardization of Dyes, Pigments and Auxiliaries and preparation of Shade Cards,



Lab Instruments and Standards for Textile and Colour Industry.

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He has served as a board member of Bombay Yarn Merchants Association for 25 years and is actively associated with Vapi Industries association, Vapi - holding the position of Chairman for the committee of Textiles, Railway as well as Skill Development. He is also a member of SDC, UK and AATCC, USA. Excellent interactions and relations with Institutions like, ICT, DKTE, MS University, LD Engineering, Textile College, Sirempur - involving Knowledge Sharing, Skill Development and Innovation.

Mr. Shah is presently involved in the business of RFD Fabrics and Yarns for testing of Dyes, Pigments and Textile Auxiliaries, Lab Instruments for the Laboratories of Colours and Textiles, Consumables – Staining Fabric, Mulitifibers, Detergents, International Standards and related areas, supplying to leading organizations like Huntsman, Archroma, Dystar, Atul, Colourtex, Jay Chemicals, Longshen - Kiri and others.

Assisting students doing PhD, M.Phil and research in Colours & Textiles by providing RFD Fabrics, Yarns and Consumables and Helping them in Placements in Industries. Assisted more than 300 students in Industrial Training in Industries in Vapi and surrounding areas.

Visited UK & Europe and ITME Paris & Birmingham .Actively associated with establishment of a Service Centre for Textile Machineries near Bardoli with involvement of 50 Crores investment for Developmental initiatives from Government of India. Paper Publications, Presentations in Seminar and Interaction with Industry Team for development activities.

Active collaborations with Uka Tarsadia University, Gujarat: MANTRA Surat, Vapi Industries Association, Vapi; SDC, Mumbai; ICT, Mumbai and Institutions in Silvassa, Daman & Vapi for Training, Skill Development, Placement, Education and Development Initiatives in the areas of Textiles, Colors and related fields. Interactions with Institutes in Mumbai, Surat and Ahmedabad for Textile Policy Initiatives and Development work. Running two apps in Whatsapp in Textiles for development initiatives and knowledge dissemination efforts - Texstyles Technocrate and Texstyle Academia. Members are well learned people and progressive contributors.









UMTA Management & Texstyles Academy

It is a non –profit & service-oriented organisation involved in creating awareness as well as imparting training & skill development in Eco Needs and Sustainable Solutions. It is based at Vapi, Gujarat, India.

The focus activities are:

- 1. Training and Skill Development in Textile Colouration, Denim Wash, Fibre & Fabric Evaluation, Recycling of Textiles, Customized Formulation and in related subject matters.
- 2. Assisting and training students in their Bachelor, Master as well as Doctorate programmes and special training to Research Students in their Projects.
- 3. Conducting Seminars, Giving Presentations, Interactive Programmes as well as Report Preparations on behalf of Customers like Associations, Brands & Retailers and Governmental Agency, NGOs and others
- 4. Environmental Awareness. Best Available Techniques and Cleaner Production.
- 5. Colouration of Textiles Practical approach based on Industry experience, Understanding Theory and Fundamentals, Providing Solutions and Auditing, Preparation of Marketing & Promotional Aids, Assistance in preparing Business Plan for Sustainability.
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- 7. Current Areas of Interest Texstyles & Colours
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- Sustainability, Best Available Techniques, Textile Recycling, Textile Industry Review, Technical Textiles, Non Wovens, Textile Coatings, Smart Textiles



- Conducting Seminars, Giving Presentations, Interactive Programmes as well as Report Preparations on behalf of Customers like Associations, Brands & Retailers and Governmental Agency, NGOs and others.
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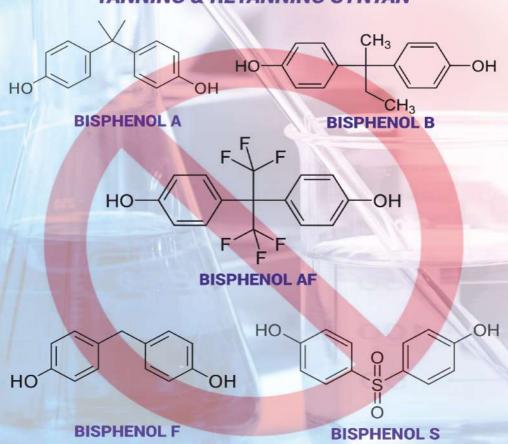


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