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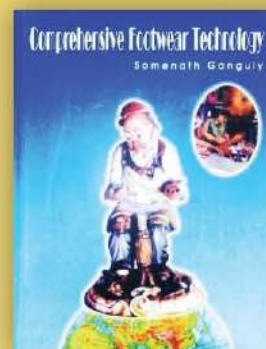
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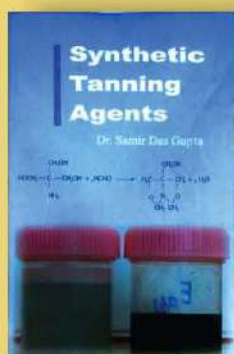
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Indian Leather Technologists' Association

[A Member Society of International Union of Leather Technologists' and Chemists Societies]

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Happy Durga Puja & Navratri



*Executive Committee
of
JILTA*



JOURNAL OF INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION (JILTA)

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JOURNAL OF INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION (JILTA)

Indian Leather Technologists' Association is a premier organisation of its kind in India was established in 1950 by Late Prof. B.M.Das. It is a Member Society of International Union of Leather Technologists & Chemists Societies (IULTCS).

The Journal of Indian Leather Technologists' Association (JILTA) is a monthly publication which encapsulates latest state of the art in processing technology of leather and its products, commerce and economics, research & development, news & views of the industry etc. It reaches to the Leather / Footwear Technologists and the decision makers all over the country and overseas.

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(Member Society of International Union of Leather Technologists and Chemists Societies)

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Carbon Capture and Its Future



The concept of producing ethanol from captured CO₂ is a fascinating and potentially groundbreaking approach to addressing climate change and energy needs. By utilizing carbon dioxide that would otherwise contribute to global warming, this process offers a sustainable and renewable source of fuel. Few of the benefits are listed below :

- **CO₂ Capture** : Carbon dioxide is captured from industrial emissions, such as those from power plants or manufacturing facilities.
- **Hydrogen Production** : Renewable energy sources, like solar or wind power, are used to produce hydrogen through electrolysis.
- **Synthesis** : The captured CO₂ and produced hydrogen are combined in a chemical reaction to form methanol.
- **Conversion** : Methanol is then converted to ethanol through a process known as Fischer-Tropsch synthesis.
- **Carbon Neutrality** : By using captured CO₂, this process effectively reduces net carbon emissions, contributing to climate mitigation efforts.
- **Renewable Fuel** : Ethanol produced in this way is a renewable fuel source, reducing dependence on fossil fuels.
- **Reduced Emissions** : Ethanol burns cleaner than gasoline, producing fewer harmful emissions.
- **Economic Opportunities** : The development of this technology can create new industries and jobs.

While the concept holds great promise, there are several challenges to overcome :

- **Energy Efficiency** : The process of capturing CO₂ and converting it to ethanol requires significant energy input. Improving the efficiency of these steps is crucial.

- **Cost** : The current cost of producing ethanol from captured CO₂ is relatively high. Technological advancements and economies of scale are needed to make it more economically viable.
- **Infrastructure** : Building the necessary infrastructure to capture CO₂, produce hydrogen, and synthesize ethanol requires substantial investment.

Despite these challenges, ongoing research and development efforts are making significant strides in advancing the technology of ethanol production from captured CO₂. As the technology matures and costs decrease, it has the potential to play a vital role in a sustainable and low-carbon energy future.

Ethanol produced from captured CO₂ has a wide range of potential applications, making it a versatile and valuable fuel. Here are some of the most promising areas :

- **Direct Fuel** : Ethanol can be used as a direct fuel in vehicles, either as a pure fuel or blended with gasoline.
- **Fuel Additives** : Ethanol can be added to gasoline to improve octane ratings and reduce emissions.
- **Biofuels** : Ethanol can be used as a component of biofuels, such as E85 (a blend of 85% ethanol and 15% gasoline).
- **Chemical Feedstock** : Ethanol can be used as a feedstock for the production of various chemicals, including acetic acid, ethyl acetate, and ethylene.
- **Solvents** : Ethanol is a versatile solvent used in many industries, including pharmaceuticals, cosmetics, and cleaning products.
- **Biofuels** : Ethanol can be converted into other biofuels, such as biodiesel and butanol.
- **Power-to-Liquid (PtL)** : Ethanol can be produced through the PtL process, where excess renewable electricity is

converted into liquid fuels like ethanol. This provides a way to store renewable energy for later use.

- **Reduced Emissions** : Ethanol burns cleaner than gasoline, producing fewer harmful emissions such as carbon monoxide and particulate matter.
- **Carbon Neutrality** : When produced from captured CO₂, ethanol can be considered carbon neutral, as it effectively offsets the carbon emissions associated with its production and use.

The foundation stone for India's first of its kind CO₂-to-Methanol pilot plant with an overall capacity of 1.4 Tons Per Day (TPD) was unveiled virtually by Prof. Abhay Karandikar, Secretary, Department of Science and Technology (DST), Government of India, at Thermax Limited premises in Pune, Maharashtra.

The foundation stone for India's first of its kind CO₂-to-Methanol pilot plant with an overall capacity of 1.4 Tons Per Day (TPD) was unveiled virtually by Prof. Abhay Karandikar, Secretary, Department of Science and Technology (DST), Government of India, at Thermax Limited premises in Pune, Maharashtra.

It will demonstrate CO₂ capture and utilization (CCU) technologies, playing a crucial role in India's journey towards achieving net-zero carbon emissions. The Indian Institute of Technology Delhi (IIT Delhi) and Thermax Ltd. will collaborate to develop the CCU technology. The plant with an overall capacity of 1.4 Tons Per Day (TPD) has been designed considering CO₂ emissions from a diverse range of sources, including power plants, cement and steel plants, fertilizer plants, and refineries.

A team of faculty members from the Department of Chemical Engineering at IIT Delhi will carry out the project-aligned R&D work, complementing the pilot plant activities and engaging in R&D for future developments.

Source of CO₂ for capture in the project :

- Syngas produced during coal gasification.
- Flue gas from the combustion of carbonaceous fuels, and subsequently convert it to methanol.

Objective :

- The project is anticipated to serve as a design template for many industrial applications, building capacity and preparing indigenous manufacturers to meet future demands for catalysts, absorbents, solvents, and other technology solutions at a commercial scale.

Funding of Project :

- This pioneering project, supported by DST, Ministry of Science and Technology, Government of India is to be implemented in collaboration with the Indian Institute of Technology (IIT) Delhi and Thermax Limited, Pune.
- This project will be under Public-Private Partnership (PPP) mode.
- With an overall cost of approx, Rs. 31 crores.

Significance :

- This initiative also aligns with India's goals of energy self-reliance (Atmanirbhar Bharat) and sustainable development (Viksit Bharat).
- Additionally, NITI Aayog, in partnership with the Ministry of Petroleum, is developing policies for 15% methanol-blended diesel to reduce crude oil imports.
- The findings from the pilot plant could lead to scaling up CO₂-to-methanol conversion technologies, aiding in the decarbonization of the coal-based thermal power sector, which contributes to 30% of India's emissions.
- CCUS (Carbon Capture, Utilization and Storage) involves the capture of CO₂, generally from large point sources like power generation or industrial facilities that use either fossil fuels or biomass as fuel.
- If not being used on-site, the captured CO₂ will be compressed and transported by pipeline, ship, rail or truck to be used in a range of applications, or injected into deep geological formations such as depleted oil and gas reservoirs or saline aquifers.

Goutam Mukherjee

Dr. Goutam Mukherjee
Hony. Editor, JILTA



Stahl Leather solutions

Stahl is proud to launch the renewed Stahl Neo® range: a future-proof portfolio of low-impact solutions covering the entire wet-end and finishing stages of leather production.

With growing awareness of environmental and health and safety impacts, the Stahl Neo® portfolio has been extensively reviewed and tested to help customers meet today's fast-evolving certification and compliance landscape for leather chemicals. This includes the recently updated Zero Discharge of Hazardous Chemicals (ZDHC) Manufacturing Restricted Substance List (MRSL) 3.1.

Following a rigorous internal review and testing programme, all products in the Stahl Neo® portfolio are in compliance with the following three criteria:

1. ZDHC: All Stahl Neo® products are compliant with Version 3.1 of the ZDHC MRSL for leather manufacture.
2. EU CMR: Stahl Neo® products are certified free from carcinogenic, mutagenic or reprotoxic (CMR) substances as per EU criteria.
3. EU REACH SVHC: Stahl Neo® products meet EU REACH criteria for substances of very high concern (SVHC) (less than 0.1% concentration).

As a result, Stahl is now able to offer tanners the most comprehensive range of future-proof solutions on the market – providing peace of mind for stakeholders across the leather article value chain.

Scan the QR code to [download the Stahl Neo® brochures](#) and discover the specific benefits of each product in our portfolio.

www.stahl.com



Stahl is a world leader in speciality coatings and treatments for flexible materials. Around the world, nearly 2,000 Stahl colleagues are driven by a clear purpose:

Touching lives, for a better world.

Our diverse teams work on creative and innovative surface solutions that enable our customers to make fantastic products. Our coatings are found on everyday materials in the automotive, luxury goods, packaging, apparel and home furniture market, among others. When consumers touch everyday products, we touch their lives.

Being a world leader means we are dedicated to contributing to a better world together with our value chain partners. At Stahl, we aim to impact the market through innovation and sharing knowledge and by reducing our own operational footprint. Our approach is underpinned by our robust ESG strategy and our strong sense of social responsibility, a characteristic shared by leading global companies.

We promote:

- Teamwork
- Initiative
- Personal development
- Innovation
- Creativity

Working at Stahl, means being part of a versatile, ambitious team that is committed to working on innovative, high-quality coating solutions for our customers while making the world a better place. You will also be joining a diverse global community: headquartered in Waalwijk, the Netherlands, Stahl operates a network of 16 production sites and 37 application laboratories, supported by sales offices in 22 countries.

stahl.com



STAHL COMPLETES ACQUISITION OF WEILBURGER GRAPHICS

Stahl, the world leader in speciality coatings and treatments for flexible materials, has completed the acquisition of WEILBURGER Graphics GmbH, a leading German-based manufacturer of water-based and energy cured coatings for the graphic arts and packaging industry. The transaction significantly strengthens Stahl's new packaging coatings division and supports its strategy to broaden its franchise for coatings for flexible materials.



The acquisition of WEILBURGER Graphics, a division of Grebe Holding GmbH strengthens Stahl's strategic position in Europe, positioning the company as the second-largest player in the region. WEILBURGER Graphics had 2023 sales of 70 million euros and over 140 employees – primarily based in Germany.

Maarten Heijbroek, CEO of Stahl: "I am very excited to now officially welcome our new colleagues to the Stahl Group. We have been highly impressed by WEILBURGER Graphics' quality, advanced technology, and the deep customer knowledge of their people. We can't wait to work together as of today. We are committed to ensuring a continued service to all customers during and after the integration."

Günter Korbacher, managing director of WEILBURGER Graphics GmbH, comments on the acquisition: "The affiliation with Stahl is a perfect strategic fit for WEILBURGER Graphics. With our long and successful growth story of more than 140 years and a high level of brand awareness as an innovative and trustworthy supplier of packaging and graphics coatings, this decision offers excellent synergy effects and growth opportunities for our site in Gerardshofen. We are confident that we have made the right decision for our continued success. Becoming part of Stahl will accelerate our growth and offer our customers even greater added value."

(Stahl News – 30/09/2024)

STAHL MAINTAINS PLATINUM ECOVADIS RATING FOR THREE CONSECUTIVE YEARS, REAFFIRMING ITS COMMITMENT TO SUSTAINABILITY

Stahl, the world leader in speciality coatings and treatments for flexible materials, is proud to announce that it has again been awarded the Platinum rating by EcoVadis, the world's leading provider of business sustainability ratings. This marks the third consecutive year that Stahl has achieved this prestigious recognition, placing the company in the top 1% of over 100,000 companies assessed worldwide. In the 2024 assessment, Stahl earned their highest overall score to date of 85/100, further solidifying its position as a leader in sustainability.

EcoVadis provides globally recognized ratings in business sustainability, assessing over 100,000 companies across 175 countries. The evaluations are based on four key pillars: Environment, Labour & Human Rights, Ethics, and

Sustainable Procurement. With a maximum overall score of 100, a Platinum rating is awarded to the top 1% of companies globally. The 2024 ratings process has become more rigorous because of the updated benchmarks, making it even more challenging to maintain such high standards year after year.

Driving sustainable growth through innovation

Stahl's success in the EcoVadis assessment underscores its mission to drive responsible innovation and sustainable development throughout its operations and supply chain. The company's impressive EcoVadis track record reflects its long-term commitment to sustainability. Starting with a Bronze rating in 2015, Stahl has progressively improved its performance, achieving Silver in 2017 and 2020, Gold in 2021, and Platinum from 2022 onwards.

The 2024 EcoVadis assessment revealed the progress Stahl is making in multiple categories, scoring 90 out of 100 points on Environment, 80 out of 100 points on Ethics, and 90 out of 100 points on Sustainable Procurement. These scores reflect the company's ongoing efforts in stringent environmental practices, a commitment to employee well-being, and ensuring ethical standards across its global operations.

Laura Willemsen, Group Director Sustainability and Marketing at Stahl : "The continuous improvement in our EcoVadis score is a testament to the hard work and dedication of our global teams. Achieving a Platinum rating for three consecutive years in such a competitive landscape is no small feat. While we are honored to have achieved a Platinum rating again, we recognize that there is still room for improvement for both Stahl and the wider market. We remain committed to driving further improvements in sustainability, transparency, and responsible practices."

Continuous innovation to meet 2030 ESG ambitions

Stahl has set ambitious sustainability targets for 2030, aiming to maintain its Platinum rating and continue improving across all ESG pillars. The company is working closely with its supply chain partners to reduce environmental impact, drive social responsibility, and promote ethical business practices worldwide. In line with its commitment to employee well-being, Stahl has also been awarded the Living Wage certification by the Fair Wage Network, ensuring that its nearly 2,000 employees receive fair compensation. With this renewed Platinum recognition, alongside the Living Wage certification, Stahl reaffirms its commitment to a sustainable future — one where innovation and responsibility go hand in hand.

(Stahl News – 17/09/2024)

STAHL STRENGTHENS PACKAGING COATINGS BUSINESS WITH WEILBURGER GRAPHICS ACQUISITION

Stahl, the world leader in speciality coatings and treatments for flexible materials, has agreed to acquire WEILBURGER Graphics GmbH, a leading German-based manufacturer of water-based and energy cured coatings for the graphic arts and packaging industry, subject to customary approvals.



The transaction significantly strengthens Stahl's new packaging coatings division and supports its strategy to broaden its franchise for coatings for flexible materials.

The acquisition of WEILBURGER Graphics, a division of Grebe Holding GmbH from Weilburg, will enable Stahl to accelerate the global expansion of its growing packaging coatings offering. WEILBURGER Graphics had sales of 70 million Euro in 2023 and employs over 140 people, mainly in Germany.



Maarten Heijbroek, CEO of Stahl: "I am very excited to welcome WEILBURGER Graphics to the Stahl Group. This is another important step on our strategic journey. The acquisition further strengthens our packaging coatings business, building on the acquisition of ICP Industrial Solutions Group (ISG) in March 2023. Importantly, it will enhance our position in the European packaging coatings market with its innovative portfolio in growth markets like food and beverages, cosmetics and pharmaceuticals, unique expertise, state-of-the-art manufacturing facilities and a distinct focus on sustainability. I have gotten to know the WEILBURGER Graphics team as one of the best in the industry."

Günter Korbacher, Managing Director of WEILBURGER Graphics: "We look forward to joining the Stahl Group to combine our expertise and grow our worldwide presence in packaging coatings. Stahl is a prominent and respected brand, and with our complementary product portfolios, geographical coverage and our alignment with the QIS principle, which covers the success factors of quality, innovation and sustainability, we will create a well-rounded and truly global offering for the market."

(Stahl News – 29/08/2024)

STAHL ACHIEVES LIVING WAGE CERTIFICATION, STRENGTHENING COMMITMENT TO FAIR COMPENSATION AND EMPLOYEE WELL - BEING

Stahl, a global leader in speciality coatings and treatments for flexible materials, has been awarded with the Living Wage certification by the Fair Wage Network. A vital recognition that reflects the company's deep commitment to ensuring that all of its nearly 2,000 employees worldwide receive compensation that allows them to live with dignity and security. This certification signifies more than just compliance with a standard – it represents a significant step towards improving the lives of employees and their families across the globe.

A living wage means more than a paycheck. It provides employees with the ability to cover the essential costs of living, such as housing, food, healthcare, and education for their children, while still being able to save for the future and participate fully in their communities. Stahl's decision to pursue this certification stems from a belief that fair compensation is not just a business responsibility but a moral one, impacting the overall quality of life for its employees.

“This certification underscores that at Stahl we are serious about taking our responsibility. We are making sure that all employees working for Stahl can support themselves and their families” said Maarten Heijbroek, CEO at Stahl. “We know that when people are paid fairly, it gives them a sense of security, well-being and belonging. That is the kind of environment we want to pursue at Stahl”

This Living Wage certification further aligns with Stahl’s ambitious ESG objectives, which prioritize achieving its carbon emission reduction targets, the well-being of its employees, and the promotion of diversity, equity, and inclusion (DEI).

This certification is a confirmation of Stahl’s belief that fair wages are essential not only for individual well-being but for the health and resilience of entire communities. It’s also sending a clear message to its employees: their hard work is valued, and the company is committed to ensuring that they are compensated in a way that reflects that value. It goes beyond mere business practices – it’s about Stahl taking responsibility for the impact it has on the lives of the people who make its success possible.

(Stahl News – 19/08/2024)



CREATE UNIQUE APPEARANCES WITH STAHL EDGE PAINT



Stahl’s Edge Paint portfolio gives manufacturers the ability to customize and protect the edges of accessories, unlocking the creativity of designers and providing a final touch of class. Alongside its aesthetic appeal, our Edge Paint offers outstanding performance and low environmental impact while opening up efficiencies in the production process. For any producer of accessories, our Edge Paint delivers the quality and responsible chemistry that today’s customers expect.



From the desk of General Secretary

WEBINAR ON HEALTH TALK ORGANIZED BY ILTA

ILTA in collaboration with M/s Narayana Health organized a Webinar on Health Talk on 13th September, 2024 at 07.00 PM on the digital platform of zoom.

Dr. Kaushik Manna delivered the lecture on the topic ***“How to Keep your Heart Healthy”*** in lieu of Dr. Saurabh Digambar Dhumale, who could not participate in the program due to his uncertain occupancy.

This was an initiative of the HRD Committee of ILTA.

For detailed report of this Webinar, please follow Page No.

The video of this webinar will be available on the official YouTube Channel and the Facebook Page of ILTA within a short while.

TALK SHOW ON CAREER BUILD UP AT GCELT, KOLKATA ORGANIZED BY ILTA



ILTA in collaboration with GCELT, Kolkata & in association with Calcutta Management Association, organized a Talk Show on Career Build Up in the GCELT Conference Room on 24th September, 2024 at 02.00 PM.

Dr. Arijit Banerjee, Executive Director of Ramaesis RPL Perfect Pause & Executive Committee Member, Calcutta Management Association, delivered a lecture titled ***“Innovation, Ambition and Beyond : Your Journey Starts Now”***.

Mr. Subir Verma could not participate in the program due to some of his uncertain happenings.

Mr. Ramesh Juneja, Vice Chairman, Council for Leather Exports, has graced this occasion as the Chief Guest.

This was an initiative of the HRD Committee of ILTA.

For detailed report of this event, please follow Page No.



66TH ANNUAL GENERAL MEETING OF ILTA



As intimated to all eligible Members vide 66th AGM Notice posted through Registered Book Post on 5th September' 2024, this was held on 27th September, 2024 at 03.00 PM IST (Registration started from 02.30 pm IST) at the Seminar Hall-19A of Science City, Kolkata, as per the following Agenda :

A. Confirmation of the Draft Proceedings of 65th Annual General Meeting held on 29th September, 2023.

Being no question raised this was passed unanimously.

Proposed by Mr. Asit Baran Kanungo and seconded by Mr. Bibhas Chandra Jana.

B. To consider and adopt the audited Balance Sheet and Statement of Accounts for the Financial Year ending 31st March 2024.

Mr. Susanta Mallick, General Secretary explained the above and being no question raised this was passed unanimously.

Proposed by Sk. Gholam Mohammad and seconded by Mr. Tarak Chandra Saha.

C. To consider and adopt the Annual Report of the General Secretary on behalf of the Executive Committee.

This also explained by Mr. Susanta Mallick, General Secretary and being no question raised this was passed unanimously.

Proposed by Mr. Tarak Chandra Saha and seconded by Mr. Analdyuti Bhattacharjee.

D. Formal announcement of the result of the election for reconstitution of ILTA Executive Committee for the term 2024 - 26.

Mr. Dhiman Chakraborty, Chief Finance Controller, Asiatic Society, Kolkata who acted as the Returning Officer for the election read out his report and declared the following members elected for the post shown against them for the term 2024-2026 in order of highest votes secured.

- | | | | |
|----|----------------------------|---|--|
| 1. | President | : | Mr. Arnab Jha |
| 2. | Vice-President (C.R.) | : | Mr. Asit Baran Kanungo |
| 3. | Joint Secretaries (2 No.s) | : | Mr. Pradipta Konar
Mr. Bibhas Chandra Jana |
| 4. | Treasurer | : | Mr. Keshab Chandra Mondal |
| 5. | Exc. Comm Members (7 Nos.) | : | 1. Mr. Kunal Naskar
2. Mr. Abhijit Das
3. Mr. Amit Kumar Mondal
4. Mr. Ajay Kumar Mishra
5. Mr. Dipayan Adhikary
6. Mr. Aniruddha De
7. Mr. Laxminarayan Sahoo |

In addition to above, the following members were declared as 'Elected Unopposed' to the posts shown against them.

- | | | | |
|----|--------------------------|---|---------------------|
| 1. | Vice-President (N.R.) | : | Mr. Pulok Majumdar |
| 2. | Vice President (S.R.) | : | Dr. S. Rajamani |
| 3. | General Secretary (C.R.) | : | Mr. Susanta Mallick |

So far as the election to ILTA, Northern/Western Regional Committee for 2024-2026 is concerned, the following members were declared as 'Elected Unopposed', there being no other nominations :-

- | | | | |
|----|----------------------------|---|--|
| 1. | President | : | Mr. Jai Prakash Saraswat |
| 2. | Vice-President | : | Mr. Deepak Kumar Sharma |
| 3. | Secretary | : | Mr. Sudagar Lal |
| 3. | Treasurer | : | Mrs. Sunita Devi |
| 4. | Executive Members (5 No.s) | : | (1) Mr. Jaswinder Singh Saini
(2) Mr. Kamal Sharma
(3) Mr. Mohinder Lal
(4) Mr. Rajvir Verma
(5) Mr. Sunil Kumar |

As far as election to ILTA, Southern Region is concerned, the following members were declared 'Elected Unopposed', there being no other nominations.

- | | | | |
|----|-------------------|---|--|
| 1. | President | : | Mr. N. R. Jaganathan |
| 2. | Vice-President | : | Dr. J. Raghava Rao |
| 3. | Secretary | : | Dr. R. Mohan |
| 4. | Treasurer | : | Dr. Swarna V. Kanth |
| 5. | Committee Members | : | (1) Dr. K. Krishnaraj
(2) Dr. N. Nishad Fathima
(3) Dr. P. Thanikaivelan
(4) Dr. S. V. Srinivasan
(5) Dr. Subhendu Chakraborty |

E. To appoint the Auditor in place of M/s Ray & Ray who are retiring but are eligible for reappointment.

The house unanimously decided to re-appoint M/s Ray & Ray as the Auditor of our Association for the next 5 years.

However, the newly elected Executive Committee for the term 2024-2026 was empowered to negotiate with M/s Ray & Ray regarding fixation of their remuneration time to time.

Proposed by Mr. Debasish Chakraborty and seconded by Mr. Ratan Chowdhury.

With the Vote of thanks to the Chair the meeting winded up.

14TH ASIA INTERNATIONAL CONFERENCE ON LEATHER SCIENCE & TECHNOLOGY (AICLST)

ILTA is going to organize the 14th Asia International Conference on Leather Science & Technology (AICLST) in the year 2026 at Kolkata, India. Official confirmation has been received so far from IULTCS.

The event will be organized as a part of the Platinum Jubilee Celebration of ILTA in 2025.

Planning and details of both the program would be shared in due course.

HEALTH CARE BENEFIT FOR ILTA MEMBERS

ILTA has launched Health Care Benefits for all the Members of the Association in collaboration with M/s Narayana Health w.e.f. 1st April, 2024. Initially the scheme has been launched for the members of Eastern Region only as the Pilot Project.

For benefits and other details about this project, you may kindly follow the HRD Corner.

DIGITALIZATION OF ILTA PUBLICATIONS

ILTA is going to launch a digital platform for availing all its publications including Leather Text Books, JILTA and different articles from renowned authors of Leather Fraternity online.

Work on this project is under process. The details of the same will be published very soon.



(**Susanta Mallick**)
General Secretary



YOUTUBE CHANNEL & FACEBOOK PAGE OF ILTA

An official **YouTube Channel** namely **ILTA Online** and a **Face Book Page** namely **Indian Leather Technologists' Association** has been launched for sharing the activities of our Association since November' 2020 and July' 2021 respectively.

You may find all the Lives / Video recordings of different Seminar, Symposiums & Webinars on both of these social medias along with our website **www.iltaonleather.org** time to time.

You are requested to kindly do **Like & Subscribe** the YouTube Channel and **"Follow"** the FaceBook Page to get regular updates on the activities of our Association.

PUBLISH YOUR TECHNICAL ARTICLE

Faculties, Research Scholars and students of various Leather Institutes may wish to publish their Research / Project papers in an Article form in this monthly technical journal, JILTA.

Interested author may sent their paper (in MS Word format) along with a PP Photograph and Contact details like Email, Mobile etc. to our email IDs : admin@iltaonleather.org / jiltaeditor@gmail.com

Members are requested to :-

- Kindly inform us your '**E-Mail ID**', '**Mobile No**', '**Land Line No**', through E-Mail ID: admin@iltaonleather.org or over Telephone Nos. : 24413429 / 3459. This will help us to communicate you directly without help of any outsiders like Postal Department / Courier etc.
- Kindly mention your **Membership No.** (If any) against your each and every communication, so that we can locate you easily in our record.

RECEIVING PRINTED COPY OF JILTA EVERY MONTH

We have started to post Printed copy of JILTA from April' 2022 to members and all concerned as it was before Covid period. Simultaneously we have been sending the e-copy of JILTA through email also to all the concerned receivers.

If you are not receiving JILTA by Post or through email, may please verify your Postal Address and/or Email Id with our office at the earliest.

General Secretary and the Members of the Executive Committee are available to interact with members at 18.30 hrs, at our Registered Office on every Thursday

SNAPSHOTS

66TH ANNUAL GENERAL MEETING ON 27TH SEPTEMBER 2024 :



TALK SHOW ON 24TH SEPTEMBER 2024 :





ILTA
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Leather



Textile



Palm Oil



Aquaculture



Dairy



Fruits &
Vegetables



Gold



Soy



Cocoa



Coffee



Livestock



Medicinal Plant



PROJECT PARTNERS



CLC TANNERS ASSOCIATION
(We Care for the Environment)



Pradipta Konar, Sr. Programme Manager- Leather (Kolkata): pradipta.konar@solidaridadnetwork.org

Solidaridad Regional Expertise Centre

158/5, Prince Anwar Shah Road, Kolkata-700045 | Contact: 033-4060211, +91 98302798666

Solidaridad



**EFFECTIVE WASTE MANAGEMENT AND SUSTAINABLE
DEVELOPMENT OF MSME TANNING COMPANIES IN KOLKATA
LEATHER CLUSTER (BANTALA)
2022-2023**



PROJECT PARTNERS IN ASIA



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Solidaridad Regional Expertise Centre

158/5, Prince Anwar Shah Road, Kolkata-700045 | Contact: 033-40602211, +91-9830279866

PROMOTING CIRCULARITY IN TAMIL NADU LEATHER CLUSTERS FOR SOLID WASTE MANAGEMENT



An EU-India sustainability project 'Promoting Circularity in the Tamil Nadu Leather Clusters for Solid Waste Management' was launched by Thiru Siva. V. Meyyanathan, Minister for Environment and Climate Change, Tamil Nadu and Ugo Astuto, Ambassador of the European Union to India, in Chennai, Tamil Nadu.

The project is funded by the European Union under its SWITCH-Asia Programme, and Solidaridad Regional Expertise Centre (SREC) along with its partners - Politecnico Internazionale per lo Sviluppo Industriale ed Economico (PISIE), Indian Finished Leather Manufacturers and Exporters Association (IFLMEA), Council for Leather Exports, Tata International Limited and the European Union (EU) – will work with 100 tanneries in the 42-month initiative.

The project will follow four key approaches:

- Solidaridad will work with its partners and technical experts to introduce techno-commercially viable practices in the tanning processes on water efficiency and pollution reduction
- Establish scalable pilot demonstration units on 'Waste to Value' citing examples of circularity
- The capacities of the workers will be developed on innovative waste management solution
- Sectoral cooperation and market linkages for 'Waste to Value' products will be facilitated. A digital portal as Sustainability Matrix will be developed
- A public-private partnership platform will be established that represents the interests of key stakeholders. These stakeholders will come together to create a roadmap for improving waste management at the cluster level.

The event brought together participants from India and EU, the Council for Leather Exports, key industry leaders and representatives from development partner communities

In line with Tamil Nadu's effort to transition to a resource-efficient and circular economy model, this initiative supports clusters to adopt cleaner and sustainable production practices and entails pilot demonstration of sustainable technologies in tanneries.

Stepping on a Sustainable Walkway

How one of the largest leather clusters in India is turning to sustainability, one block at a time, with Solidaridad Regional Expertise Centre's 'Waste to Walk' initiative

The newly paved 2,000 sq. ft. checkered pathway outside the Dugros Leather (India) factory at Kolkata's Bantala leather cluster has a story to tell. The paver tiles gracing the revamped driveway are not to be mistaken for only cement-concrete material. They also contain solid-waste from the leather manufacturing unit — the same waste that is instrumental in causing stress to the tanneries as well as the environment.

Solidaridad Regional Expertise Centre (SREC), along with its EU-Switch Asia Kolkata project partner, Dugros Leather (India) Pvt. Ltd., has successfully completed the first pilot trial, under the revolutionary 'Waste to Walk' initiative, at the latter's premises. Tests conducted on these sludge-incorporated paver blocks to check for their physical property and commercial viability have concluded they have a high load-bearing capacity.

The Menace of Solid Waste

The Kolkata Leather Cluster is one of the largest leather clusters in India, housing around 350 tanneries and more than 4,000 leather goods manufacturing units (mostly small and medium enterprises). The industry generates enormous employment as well as export earnings. Despite its huge growth potential, the sector falls in the red category (= critically polluting) of the Central Pollution Control Board, Government of India. The transformation of skins/hides to finished leather involves several intensive processes which ultimately release huge amount of sludge as by-products—including lime sludge, PTP and Common Effluent Treatment Plant (CETP) sludge.

Disposing of the sludge at landfill sites is both cost-intensive for tanneries and detrimental for the environment. Tanneries incur additional expenses for collecting and transporting sludge, and the accumulated waste at a dumping zone degrades the land and leaches into the ground to contaminate groundwater. This puts the entire surrounding ecosystem at risk. The sludge thus exists as a huge liability on the industry as long as its economic potential remains unrealised.

A Revolutionary Route

Solidaridad approached the solid waste disposal issue as a wake-up call for a market-based solution. Trials were conducted with tile manufacturers for use of sludge as a constituent for making tiles. Paver blocks were thus produced by mixing the solid waste from tanneries and the CETP sludge with other constituents such as cement, sand, stone chips etc. The strength of the blocks also demonstrated a high load-bearing capacity of 44 N/mm².

The utilisation and conversion of PTP and CETP sludge into paver blocks holds significant potential to revolutionise the industry practices towards ecological restoration and a circular economy. The approach is not only saving tanneries the cost of transportation of sludge, but also creating new business opportunities by tapping into unutilised resources.

Solidaridad

Line Balancing, Pareto Analysis and Industry 4.0 in an Indian Footwear Industry



Mr. P. Anantha Narayanan

PhD student, Department of Industrial Engineering, College of Engineer,
Anna University, Chennai

ABSTRACT

Line Balancing algorithm like Kilbridge and Wester Method is discussed in detail and noted that it can implemented in footwear industry too. An example of Pareto Analysis in Indian footwear industry is also discussed. Industry 4.0 concept is discussed.

KEYWORDS : Line Balancing, Pareto Analysis, Indian footwear industry.

1. EXAMPLE PROBLEM FOR LINE BALANCING

A small electrical appliance is to be produced on a single-model assembly line. The work content of assembling the product

has been reduced to the work elements listed in Table 1.1. The table also lists the times for each element and the precedence order in which they must be performed. The line is to be balanced for an annual demand of 100,000 units/yr. The line will operate 50 wk/yr, 5 shifts/wk, and 7.5 hr/shift.

There will be one worker per station. Previous experience suggests that the uptime efficiency for the line a) will be 96%, and repositioning time lost per cycle will be 0.08 min. Determine (a) total work content time T_{wc} , (b) required hourly production rate R_p to achieve the annual demand, (c) cycle time T_c , (d) theoretical minimum number of workers required on the line, and (e) service time T_s to which the line must be balanced.

Table 1.1. Work Elements for Example

No.	Work Element Description	T_{ek}	Must be preceded by
1	Place frame in work holder and clamp	0.2	-
2	Assemble plug, grommet to power cord	0.4	-
3	Assemble brackets to frame	0.7	1
4	Wire power cord to motor	0.1	1,2
5	Wire power cord to switch	0.3	2
6	Assemble mechanism plate to bracket	0.11	3
7	Assemble blade to bracket	0.32	3
8	Assemble motor to brackets	0.6	3,4
9	Align blade and attach to motor	0.27	6,7,8
10	Assemble switch to motor bracket	0.38	5,8
11	Attach cover, inspect, and test	0.5	9,10
12	Place in tote pan for packing	0.12	11

Corresponding author E-mail : ananth126089@gmail.com

SOLUTION :

- The total work content time is the sum of the work element times in Table 1.1. $T_{wc} = 4.0$ min
- Given the annual demand, the hourly production rate is $R_p = 100,000 / 50 (5)(7.5) = 53.33$ units/hr
- The corresponding cycle time T_c with an uptime efficiency of 96% is $T_c = 60(0.96) / 53.33 = 1.08$ min
- The theoretical minimum number of workers is given by $w^* = \text{Min Int } e'' 4.0 / 1.08 = 3.7$ rounded up to 4 workers
- The available service time against which the line must be balanced is $T_s = 1.08 - 0.08 = 1.00$ min

1.1 KILBRIDGE AND WESTER METHOD

This method has received considerable attention since its introduction in 1961 and has been applied with apparent success to several large line balancing problems in industry. It is a heuristic procedure that selects work elements for assignment to stations according to their position in the precedence diagram. This overcomes one of the difficulties with the largest candidate rule in which an element may be selected because of a high T_e value but irrespective of its position in the precedence diagram. In general, the Kilbridge and Wester method provides a superior line balance solution to that provided by the largest candidate rule.

In the Kilbridge and Wester method, work elements in the precedence diagram are arranged into columns, as shown in Figure 1.1.1. The elements can then be organized into a list according to their columns, with the elements in the first column listed first. Such a list of elements has been developed for the example problem in Table 1.1.

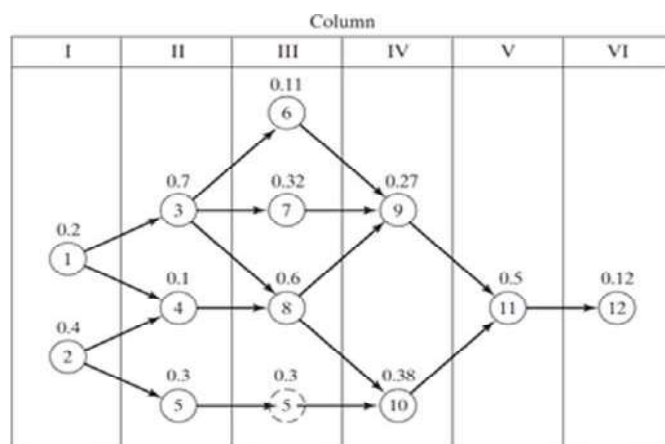


Figure 1.1.1. Work elements in example problem arranged into columns for the Kilbridge and Wester method.

Table 1.1.1. Work Elements Listed According to Columns from Figure 1.1.1 for the Kilbridge and Wester Method

Work Element	Column	T_{ek} (min)	Preceded By
2	I	0.4	—
1	I	0.2	—
3	II	0.7	1
5	II, III	0.3	2
4	II	0.1	1, 2
8	III	0.6	3, 4
7	III	0.32	3
6	III	0.11	3
10	IV	0.38	5, 8
9	IV	0.27	6, 7, 8
11	V	0.5	9, 10
12	VI	0.12	11

If a given element can be located in more than one column, then all of the columns for that element should be listed, as in the case of element 5. An additional feature of the list is that elements in a given column are presented in the order of their T_{ek} value; that is, the largest candidate rule has been applied in each column. This is helpful when assigning elements to stations, because it ensures that the larger elements are selected first, thus increasing the chances of making the sum of T_{ek} in each station closer to the allowable T_s limit. Once the list is established, the same three-step procedure is used as before.

Example 1.1.1. Kilbridge and Wester method

Apply the Kilbridge and Wester method to Example 1.1.

SOLUTION :

Work elements are arranged in order of columns in Table 1.1.1. The Kilbridge and Wester solution is presented in Table 1.1.2. Five workers are required and the balance efficiency is $E_b = 0.80$. Note that although the balance efficiency is the same as in the largest candidate rule, the allocation of work elements to stations is different.

TABLE 1.1.2. Work Elements Assigned to Stations According to the Kilbridge and Wester Method

Station	Work Element	Column	T_{ek} (min)	Station Time (min)
1	2	I	0.4	1.0
	1	I	0.2	
	5	II	0.3	
2	4	II	0.1	0.81
	3	II	0.7	
3	6	III	0.11	0.92
	8	III	0.6	
4	7	III	0.32	0.65
	10	IV	0.38	
5	9	IV	0.27	0.62
	11	V	0.5	
	12	VI	0.12	

Similarly, one can go for -

- Largest Candidate Rule
- Ranked Positional Weights Method¹

The above concept can be used in Line Balancing in shoe manufacturing industry by listing the precedence relationship.

2. PARETO ANALYSIS

a) What Is Pareto Analysis ?

Pareto analysis is a technique used for business decision-making, but which also has applications in several different fields from welfare economics to quality control. It is based largely on the “80-20 rule.” As a decision-making technique, Pareto analysis statistically separates a limited number of input factors - either desirable or undesirable - which have the greatest impact on an outcome.

Pareto analysis is premised on the idea that 80% of a project’s benefit can be achieved by doing 20% of the work - or, conversely, 80% of problems can be traced to 20% of the causes. Pareto analysis is a powerful quality and decision-making tool. In the most general sense, it is a technique for getting the necessary facts needed for setting priorities.

b) How to Create a Pareto Chart ?

A common part of Pareto analysis is to graphically depict the occurrence of each variable being tracked. This depiction is called a Pareto chart, and it organizes and displays information to show the relative importance of various problems or causes of problems. It is similar to a vertical bar graph in that it puts items in order (from the highest to the lowest) relative to some

measurable effect of interest : frequency, cost, or time. Here is the process of making a Pareto chart.

1. Develop a list of problems to be compared.
2. Develop a standard measure for comparing the items. For example, how often it occurs: frequency (e.g., utilization, complications, errors); how long it takes (time); how many resources it uses (cost).
3. Choose a timeframe for collecting the data.
4. For each item, tally how often it occurred (or cost or total time). Then, add these amounts to determine the grand total for all items.
5. Find the percent of each item in the grand total by taking the sum of the item, dividing it by the grand total, and multiplying by 100.
6. List the items being compared in decreasing order of the measure of comparison: e.g., the most frequent to the least frequent. The cumulative percent for an item is the sum of that item’s percent of the total and that of all the other items that come before it in the ordering by rank.
7. List the items on the horizontal axis of a graph from highest to lowest. Label the left vertical axis with the numbers (frequency, time, or cost).
8. Label the right vertical axis with the cumulative percentages (the cumulative total should equal 100%).
9. Draw in the bars for each item.
10. Draw a line graph of the cumulative percentages. The first point on the line graph should line up with the top of the first bar.

The final step is analysis. You can now analyse a Pareto chart by identifying those items that appear to account for most of the difficulty.

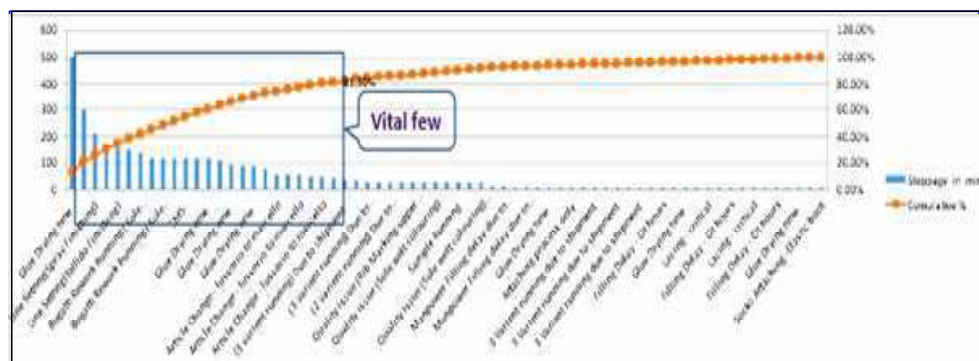


Figure 2.1. Some examples of Pareto Analysis in footwear industry

3. INDUSTRY 4.0

The scientific term — Industry 4.0 — was first introduced in Germany in 2011 at the Hanover fair, where it was used for denoting the transformation process in the global chains of value creation. In the report - The Fourth Industrial Revolution, presented by K. Schwab at the World Economic Forum, it is stated that Industry 4.0 includes business processes in industry that envisage organization of global production networks on the basis of new information and communication technologies and Internet technologies, with the help of which interaction of the production objects is conducted.

The Basic Characteristics of Industry 4.0 are :

- ❖ transition from manual labour to robotics, which ensures automation of all production processes
- ❖ modernization of transport and logistical systems, caused by mass distribution of unmanned vehicles
- ❖ increase of complexity and precision of manufactured technical products, manufacture of new construction materials due to improvement of production technologies
- ❖ development of inter-machine communications and self-management of physical systems, conducted with the help of “Internet of things”
- ❖ application of self-teaching programs for provision of constant development of production systems

Technologies usually mentioned in Industry 4.0 frameworks :

1. **Big data/advanced analytics** — The industrial world is filled with mountains of unanalysed products and process data. Analyzing it and turning it into actionable information can optimize production quality, improve services, and enable faster and more accurate decision making.
2. **Advanced robotics** — As robots become more flexible, cooperative, and autonomous, they will interact with one another, work safely with humans, and eventually learn from humans, too. Industry 4.0 provides a manufacturing context for these opportunities.
3. **Advanced simulations** — In Industry 4.0 environments, 3D simulation of product development, material development, and production processes will enable operators to test and optimize processes for products before production starts.

4. **AI/cognitive computing** — Cognitive manufacturing uses the assets and capabilities of the IoT, advanced data analytics, and cognitive technologies such as AI and machine learning. When used together these technologies will drive improvements in the quality, efficiency, and reliability of manufacturing processes.
5. **Industrial Internet of Things** — In the IIoT, an ever-greater number of products will incorporate internet-connected devices, which link with each other with standard protocols. This approach to manufacturing will decentralize analytics and decision making and enable real-time responses.
6. **Cybersecurity** — Industry 4.0 environments include connectivity and communications protocols as well as sophisticated identity and access management systems. These technologies enable manufacturers to provide secure, reliable communications and data flow throughout Industry 4.0 systems.
7. **Additive Manufacturing** — In Industry 4.0 manufacturing environments, these technologies are the best choice for producing small-batch, customized, and high-performance products.
8. **Cloud-based service-enabling technologies** — Industry 4.0 manufacturing operations require more data sharing across sites and companies than earlier processes do. Shifting data storage and management to the cloud will drive the development of more manufacturing execution systems (MESs) that use cloud-based machine data.
9. **Augmented reality** — AR provides an effective way to represent production processes by overlaying real-world views of production with virtual information. In ASEAN countries, the most likely role of AR lies in training future workers and technicians how production systems behave



Figure 3.1. Industry 4.0

4. CONCLUSION

Line balancing algorithm that can be used in Indian footwear industry is discussed Kilbridge and Wester Method is discussed in detail. The most sought tool in management, Pareto analysis is implemented in an Indian footwear industry for productivity improvement. Industry 4.0 concept is touched upon.

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NEWS RELEASE FROM IULTCS

IULTCS YOUNG LEATHER SCIENTIST GRANT PROGRAMME 2025 ANNOUNCED

IULTCS and the IUR Commission headed by Dr. Volker Rabe are extremely happy to announce that the IULTCS Young Scientist Grant Programme for 2025 is underway. The details are as follows and further information can be found on the IULTCS website <https://iultcs.org/> or by contacting the IUR chair Dr. Volker Rabe (Volker.rabe@tfl.com)

Background :

The IULTCS is committed to further intensifying co-operation between the individual member societies and to providing a platform to promote the latest innovations in the field of leather science and technology. For this reason, the latest findings in this field are shared with a broad public in the form of presentations at the global IULTCS congresses organized every two years by a regional member society.

In addition, the IULTCS would like to make a more direct contribution to leather research through its IUR Commission and at the same time provide additional support for younger scientists. For this reason, the Young Leather Scientist Grants were created to recognize outstanding achievements in three different categories by individual young scientists. The grant is freely available to the winners. Optionally, the winners are also given the opportunity to present their award-winning work at an IULTCS congress.

Award categories

1) **Basic Leather Research Grant** – Sponsored by TYSON Leather (1500 €)

- Basic research in collagen and/or leather.
- Analytical method development
- Innovative leather processing or new chemicals thereof
- Hide/skin preservation.
- Tannery waste treatment
- Environmental studies applied to the tanneries

2) **Professor Mike Redwood Sustainability/Environmental Grant** sponsored by Leather Naturally (1000 €)

- Innovative environmental techniques e.g., wastewater treatment, solid waste and emissions
- Studies on sustainability leather processing
- New chemicals for leather processing improving environmental impact e.g., carbon footprint and/or water management.



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3) Leather Machinery/Equipment Grant sponsored by Italprogetti (1000 €)

- Innovative new machinery for leather processing
- Simplification and/or rationalization of leather production
- Increased efficiency through e.g., energy savings

Admission requirements for applicants

- Not older than 35 years (date of submission)
- Student or Scientist on a university or a leather school
- Having an advisor at his/her institution

Application Procedure :

The Document Form must be completed and saved as one PDF file only and identified as: *YLSG_year_applicantname*.

- ❖ Leave one empty page between the documents.
- ❖ Applications must be assigned to one of the categories.

The complete application form to be submitted to the IUR chair Dr. Volker Rabe (Volker.rabe@tfl.com) must have the following parts :

- 1) Application Form
- 2) Research Project Plan. Include Title, Introduction, Objectives, Methods, Hypothesis / Expected results, benefit for the local and/or global leather industry in one sentence and Literature. Maximum 3 pages.
- 3) Curriculum Vitae of the applicant (one page)
- 4) Curriculum Vitae of the advisor (one page)
- 5) Letter of recommendation from the advisor (one page)

Note : Applicants that do not follow the above rules will have their submission rejected.

Award criteria & Selection :

The application will be evaluated and ranked based on the following criteria :

- 1) Clear aim of the research
- 2) Methods
- 3) Expected results
- 4) Originality of the research



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- 5) Correct citation
- 6) Global or local benefit of the research

The qualifications of the researcher and the advisor will also be evaluated. The Selection Committee has not been established; it will be made by renowned scientists on the field.

Timeline :

- ❖ September 2, 2024, launch the YLSG 2025, with rules on the IULTCS web site and press release
- ❖ November 30, 2024, deadline for submissions
- ❖ January 30, 2025, winner selected and press release
- ❖ February 15, 2025, payment of the award and sending the IUR/IULTCS certificate

Report :

The winners must complete a final project report which has to be submitted to the IUR Commission Chair by February 28, 2026.

The report should be accompanied by a one-page review of the project by the advisor and will be posted on the IULTCS/IUR web page.

(Email from Julian Osgood - 10/09/2024)



ANNOUNCEMENT

ILTA LAUNCHED HEALTH CARE BENEFIT FOR ITS MEMBERS

Indian Leather Technologists' Association (ILTA), a member society of IULTCS and a pioneer organization in the field of leather industry, has now tied up itself with the hospital the Narayana group for Eastern India with a view to giving Indoor, Outdoor and Medical testing services to all of its registered (both life and ordinary) members at concessional rates.

Offer & Discount :

1. **OPD Service:** 10% discount on Doctor's Consultation, Prevailing Health Check-ups available at hospital, day care procedures, Investigations except outsourced tests.
2. **IPD:** 5% on total IPD billing as per prevailing hospital tariff excluding medicine / consumable / implant / outsource & blood bank services. (Not applicable on insurance cases/ Govt scheme / ESIC and any other schemes & promotional package or offers & discounts).
3. **Ambulance:** As per Availability & as per Narayana Health ambulance policy & charges.
4. **Payment Terms:** Payment should be only in Cash Mode, Debit Card, Credit Card, NEFT/RTGS/ IMPS. No cheques shall be accepted.

These facilities will be extended to its existing members (both Life & Ordinary) only. Six family members including spouse, two children (below 25 years) and dependent parents will be entitled to avail these facilities. The persons concerned may contact Mr. Bibhas Chandra Paul, OSD, ILTA (Mob. No. 9432553949) and / or Mr. Subha Paul, Assistant Manager - Payor Relation, Narayana Health (Mob. No. 8334847000) for further details.

ILTA will issue a Health Card in favour of each Member. Thus, Members are requested to collect the prescribed application format to avail this facility either from ILTA Office or through email.

ILTA IS NOW ON DIGITAL PLATFORM

Indian Leather Technologists' Association is now set for digitalization of its all publications. The members and non-members alike are eligible for this facility. The association has been publishing number of books on leather & footwear technology since inception. Also, the Association has a great collection of number of articles from renowned personalities & scientists of leather fraternity worldwide which has been publishing in our only technical journal namely "Journal of Indian Leather Technologists' Association (JILTA)".

All the above facilities will be available to all the interested peoples on digital platform through the official website of the Association very soon.

REPORTS

WEBINAR ON COMPREHENSIVE HEART CARE

ILTA, a Member Society of IULTCS, is working as a non-profit making voluntary organization among the leather fraternity of India since 1950. Its tireless efforts have endeared itself among the peoples concerned with leather fraternity throughout the country.

Now, it has started its public awareness programme on health sector. As a part of its various public awareness programme, ILTA organized a “Webinar” (On Zoom Platform) on 13th September, 2024 where Dr. Kaushik Manna, Cardiologist, on behalf of Narayana group of hospitals, delivered a lecture on the topic “**How to Keep your Heart Healthy**” in lieu of Dr. Saurabh Digambar Dhumale, who could not participate in the programme due to his uncertain occupancy. Dr. Manna delivered the lecture in a very lucid way to be understandable to general public.

He elaborately spoke on the subject and took questions from the audience & addressed everybody with answers in a lucid way. He spoke on the scope of the cares to be taken for maintaining healthy heart.



TALK SHOW AT GCELT, KOLKATA ORGANIZED BY ILTA

The above was organized by ILTA in collaboration with GCELT on Tuesday, the 24th September, 2024 in the **Conference Room of GCELT, Kolkata at 02.00 PM.**

The program resumed with the introductory speech by Mr. Ratan Chowdhury, Co-ordinator, HRD Committee, ILTA who emphasized the use & benefit of this Talk Show to the students towards building up their future professional career.

Mr. Arnab Jha, President, ILTA, was then requested for delivering Welcome Address to the Dignitaries, hon'ble Speaker of the day, Members of ILTA, Professors and students of GCELT in the audience and after that, the Chief Guest, Mr. Ramesh Juneja, Vice Chairman, Council for Leather Export, was greeted with a bouquet by Sk. Soyel, student of GCELT, shawl by Mr. Susanta Mallick, General Secretary, ILTA and a memento by Mr. Ratan Chowdhury, Sr. Life Member of ILTA, followed by greetings offered to Mr. Zia Nafees, Vice President, CLCTA & the Guest of Honour by Mr. Mallick.

Both the guests were then requested to say a few words towards the audience followed by speeches by Mr. Susanta Mallick & Dr. Sanjoy Chakraborty respectively.

Dr. Arijit Banerjee, Executive Director of Ramaesis RPL Perfect Pause & Executive Committee Member, Calcutta Management Association, was then greeted with a bouquet by Mr. Susanta Mallick & shawl by Dr. Sanjoy Chakraborty, Principal, GCELT.

After introduction of Dr. Banerjee with the audience by Sri Ritam Chatterjee, a student of GCELT, he was requested to deliver his lecture titled ***“Innovation, Ambition and Beyond : Your Journey Starts Now”***. It was a highly attractive & mesmerizing presentation by Dr. Banerjee followed by an excellent interaction session with the audience. After completion of the session, Dr. Banerjee was recognized with a memento & citation as a token of thanks from our Association.

However, another speaker, Mr. Subir Verma, Executive Director & CHRO, CESC Ltd., could not attend this programme due to some of his uncertain happenings.

During the conclusion session, Mr. Abhijit Dutta, Alumni, GCELT & Sr. Life Member of ILTA, was requested to offer the Vote of Thanks to the gathering.

Near about 80 participants joined this program.

SNAPSHOTS



Hands of Leather Finishing

(Concluding Part)

Pulok Mazumder

Vice President, ILTA - Northern Region



Is drum imprignation possible ?

Yes, with newer technology and research it is possible with branded product based on dispersion of butadiene co-polymer which is particularly suitable for filling and firming loose structured skins and hides in the wet end process. This types of products acts best on PH of 6. After the neutralisation and retaining steps. These condition allows polymer to penetrate through the cross section and there by fill and firm leather. Important application notes : vacuum drying treated leather at a plate temperature of 60°C provides the best firming, tightening and sealing conditions. Setting out and vacuum drying to takes place right after the wet end process, horsing up the leathers overnight, is not recommended.

It gives very good buffing property with short fibre too. Author made white Shoe Upper leather and successfully demonstrates one of key customer at Kanpur who serve USA market with American Style Cow Boy BOOT with lot of enforcement and ornamenting very difficult to achieve tightness by only imprignation in finishing process.

Before going to Practical aspects of Corrected Imprignation of crust leather once it come out from wet yard it is pertinent to update reader that sensitive leather like high veg belting leather, softer shoe nappe, harder tiny crust is treated with Oil Ground or conditioning oil of slightly cationic or amphoteric oil. Imprignation - where cationic oil emulsion /neutral mineral oil applied alone or in combinations with small particles polyacrylate.

The introduction of fatty substances further reduces the absorbing and swelling capacity of leather, especially vegetable tanned or intensively re-tanned leather s. in order to prevent impaired adhesion of the finish as the oil emulsions should not be applied in excessive amounts.

Here is some thumb RULE for both Corrected Grain and Full Grain imprignating product to adopt in Imprignation.

- Corrected grain leather
 - Acrylics with 40% solid - approx. 200-250 gm/kg
 - Acrylics with 20% solid - approx. 100-150 gm/kg, combination of both to regulate temper and other aspects
- OR,
- Acrylic Co - polymer having 36%-40% solid – approx. 300-400 gm sq ft² alone
- Penetrator according to the penetrating behaviour (drop test / cross section estimation / measuring one sq ft)
 - Softener maximum 30 gm/kg
 - Alcohol according to the test
 - Water to make 1000gms

Excellent weatherability and optical clarity. Full grain leather

- RESIN with 20% solid - approx. 250 gm/kg
- Penetrator according to the penetrating behaviour (drop test / cross section estimation / measuring one sq ft leather)
- Softener is optional if necessary then maximum 30 gm/kg
- Water to make 1000 gms.

A brief description of resin binder used in leather finishing specially in imprignation :

Resin binder or Acrylics are based on monomer commonly used in imprignating acrylics are typically derivatives of acrylic acid and methacrylic acid. These monomers polymerise to form acrylic polymers, which valued for their durability, clarity and resistance to UV radiation and weathering.

Corresponding author E-mail : mazumderpulok@gmail.com

In leather finishing we are using two types of acrylics with higher and lower molecular size - common Acrylic Monomers based on :

1. Methyl Methacrylate (MMA)

- Structure : $\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}_3$
- Properties : Most commonly used monomers for producing polymethyl methacrylate (PMMA), a clear strong and light weight acrylic. It provides excellent weatherability and optical clarity.

2. Butyl Methacrylate (BMA)

- Structure : $\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}(\text{CH}_2)_3\text{CH}_3$
- Properties : BMA offer flexibility and impact resistance, making it useful in applications requiring these properties.

3. Ethyle Methacrylate (EMA)

- Structure : $\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}_2\text{CH}_3$
- Properties : EMA is known for its excellent adhesion and quick curing time, beneficial in impregnating processes.

4. Hydroxyl Methacrylate (HEMA)

- Structure : $\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}_2\text{CH}_2\text{OH}$
- Properties : HEMA provides hydrophilicity, improving interaction with polar substrates and enhancing adhesion.

5. Acrylic Acid (AA)

- Structure : $\text{CH}_2=\text{CHCOOH}$
- Properties : Acrylic Acid can be copolymerised with other acrylic monomers to introduce carboxyl grouped into polymer, enhancing adhesion and compatibility with various substrates.

6. Methacrylic Acid (MAA)

- Structure : $\text{CH}_2=\text{C}(\text{CH}_3)\text{COOH}$
- Properties : Similar to Acrylic Acid, Methacrylic Acid introduces reactive sites in to polymer, improving adhesion and crosslinking capabilities.

So far we are using above types of Monomers in impregnation processes to helps to reinforce the structural integrity of the leather, improving resistance to environmental factors and enhance over all performance.

But now a days, Co-polymer can offer several advantages over monomer-based acrylics when used as impregnating agents, primarily due to tailored properties that co-polymer can provide.

Author recently came thru CO-POLYMER BASED impregnating resin where one can avoid using two resin or acrylics which advantage in all aspects.

1. Improved Performance - Better temper as like as crust, better roundness without hampering feel.
2. Reduced Shrinkage and cracking of leather.
3. Enhanced Compatibility.

Comparison with Monomers -based acrylics

- **Homo polymer Acrylics** : Monomer based acrylics, such as those formed from MMA alone, tend to have specific properties that may be excellent in some area's e.g., hardness and clarity) but limited in others (e.g., Flexibility, adhesion to certain substrates).
- **Co-Polymer** : By incorporating multiple types of monomers, co-polymers can mitigate the limitations of homopolymers. For Example, a co-polymer of MMA and Butyle Methacrylate (BMA) can combine clarity and hardness of MMA with the flexibility and impact resistance of BMA with the flexibility.

Co-polymer is more expensive to produce due to the additional complexity in their synthesis and the potential needs for specialised monomers.

Author having personal opinion that co-polymer acrylics of impregnating offer enhanced and customised properties that can make them more effective as impregnating agents compared to monomer-based acrylics marketed by MNC's and local manufacturer in leather industry.

A few measure before taking trials and ascertain qty of deposition required before administer in leather :

Drop Test : A standard method to ascertain dosages cum penetration thickness prior to Impregnating Production lot.

In order to avoid this in convenience, the drop test must be done on each lot of leather before going through with imprignation, with a consequent dosing of penetrator in function of penetration time that has been established as a standard.

Technician having tendency to add excessive penetrator as a security matter, damages penetration, since cessatives, in excess promote pressure around the fibre forming a shield that does not permit penetration of imprignation system. Instead, they should study the optimum amount of penetrator for certain imprignation and for the given leather lot, not only aiming towards obtain result but to avoid distortions that can worsen defects or result or specific problems.

Application Method or Machine and system :

Application method is very crucial for tannery to tannery and availability of required machine decide application method to choose. It's a now Technician to choose exceptional resource to optimize leathers properties.

Technician to have an absolute control over each step of the imprignation in order to reach the desired result or objective. He is the person who knows the importance of application methods, the load applied to be ,the perfect distribution he is eyeing for, the penetration control etc depends on his experience and understanding the leather. The mechanical action applied in imprignation process must always to be tested for each application method.

Penetration Time Differ

Having said this, several imprignation methods on leather are there accordingly with machine :

- Curtain Coating Machine - Available in very few tanneries in India
- Reverse Roller Coating Machine (Mostly Available in India)
- Air less / Airless Machine
- Padding
- Hand roller

Curtain Coater

The best application method is by Curtain Coater machine, the fact is it is fast and permits the deposition of ideal amount

tanners eyeing for (The amount of Resin) on leather surface in one shot. The distribution and absorption on the leather surface is uniform and imprignation by Curtanin Coater does not leave any stain and it standardises the production smoothly.

The curtain coating float is poured on to the leather being fed through the machine through a slot in the head or by means of an overflow system. The unspent float flows back into the supply tank and is continuously recirculated. To ensure an even flow of curtain it is important that the float be free from foam bubbles and possess adequate viscosity so that it does not break off abruptly due to air whirls or trapped air. For aquas floats the average viscosity is 17-25 sec Ford up 4. The required qty is measured by speed of conveyor speed and the height of fall. Furthermore, leather should be placed on to conveyor belt free of creases to avoid so called shadow. The pre-caution related to machine prior to application 1st cleaning of machine, protection against dusts which interrupts or distort the film (Curtain) and the perfect regulation of doctor blade in order to provide uniform supply of the imprignation solution in entire area. The operator is on continuous vigil during application if the distort film happen due to dust in doctor blade, he then clears the block to get uniform curtain on leather.

Reverse Roller Coating Machine

In reverse Roller Coating machine, we can control load of imprignation solution. This machine does the application very well for Full Grain and Corrected Grain imprignation too. For CG leather with intensively loose grain the roller coaster machine is effective as much as Curtain Coater machine.

The effective deposition is measured or governed by synchronization of the roller speed vs conveyor belt speed. The operation is similar like Curtain coat pumping solution to roller and doctor blade slot, extra unspent solution recirculated continuously, a mechanical action also exerts by roller on leather, making it possible to wet hydrophobic chrome leather wettable during operation.

The roller mechanical action which helps penetration overcoming chrome leathers initial hydrophobia .

Padding

Tanneries who do not have machine for imprignation, this method is widely used - author does this in production before

1990 in Tangra areas of Kolkata those time Roller Coaster was not available (1980-1986) during 1986-1990 very few Chinese tanneries installed both Roller Coaster and Auto Spray those times.

The padding method having great inconveniences ,here is few examples experienced by author working with renowned tannery in Kolkata.

- Non-Uniformity in the application (Uneven deposition of the solution with mechanical action caused by the friction of the pad).
- Stain or stripes when doubling the brush.
- You need to start from belly to back bone (Less resin in the brush will spoil deposition qty - causing resin shortage).
- Skill labour required to avoid overlapping which varies with person to person (Lack of control).

Airless / Airless Machine

Both the operation is satisfactory but not as good as Curtain Coater Machine. Overlapping must be avoided, loss of products by exhaustion ,adjustment of spray in order to avoid application out of leather limit.

There must be well trained operators require for these type of application. In steering wheel leather preparation from Split this type of application still used in South East Asian Tannery.

Author did production lot in Kanpur Area to make Shoe-buck Leather Article (From Split Shoe upper imprignation and followed by dressing to make leather used in Industrial boot and as well as using said leather in ornamenting of shoes.

Now a days all Steering Wheel Upholstery from split need to be imprignated which is practice in South East Asia's tannery by this method.

Hand roller

During Authors last 40 Years' experience hand roller application not seen, but author make fashion articles for localised action of imprignation by hand roller or sponge, problem is similar like Padding by Brush to imitate similar effects uniformly.

Application of Stucco (Optional for Corrected Grain Leather)

It is now optional if technician uses Stucco after imprignation coat right after vacuum drying and before re-scaffing. Its Author experiences its very much helpful of lower grades crust and buffalo JHUTIA (SIZE 18-20 FEET) where buffing operation is deeper and coarser where stucco application compensates lost substance. It will improve the smoothness of the surface and easy and proper buffing after application is possible.

This has to be checked individually depending upon climate (Especially humidity) to improve buffing behaviour as well as subsequent finishing adhesion and flex performance too.

Author successfully introduces Stucco in Smooth Finish Brush off and Patian leather made from Buff Zhutia in Kanpur and Delhi Area imitate Cow Smooth from Buff Substrate.

Orenge Peel Issue also minimised as possible which is difficult to achieve one making from Buffalo leather due pore size of buffalo and caorser garin structure and buffing.

Application and other mechanical operation after imprignation

The imprignation coat applied preferably by curtain coater or roller coaster to ensure uniform dosage, piled overnight grain to flesh to aid penetration and then dried, either by vacuum drier and then air off by hanging.

Here one should take care of atmospheric temperature in and around tannery or geographical locations; if it is very cold weather pre heating of crust to warm it up so that it can take imprignation solution; author has seen in cold weather of New Jersey or it is in China and Kanpur at 0°C - 3°C or more, it's always better to Pre-Heating / Warming leather prior to administer imprignating resin. Preheating the leather and the liquid or conducting process in a controlled environment can mitigate the effects of cold weather.

Autor experiences cold weather directly impacting surface tension of liquid interacting with porous grain of buffed leather, temperature control by maintain an optimal temperature for both the imprignating resin solutions and leather surfaces helped ensured effective imprignation.

Testing of Footwear leather where imprignated leather are subject of consideration

Many test covering range of parameter that are performed in Corrected Grain and Full Grain Shoe Upper leathers-low-cost CG leather to high-cost Patent Leather tested to ensure premature failure does not occur either in manufacturing or during wear.

Testing of break peppiness :

Recently author and his colleague had to change a well-established system performing well in shoe making-article was white corrected grain shoe upper of American long boot with ornamenting with stitches with thread to be visible on upper.

It was ok accepted in production but found while making footwear during the operation of inside out after stitch looseness peppiness occurring. The reinforcement of stitching with thread is the risk of wrinkling (peppiness) this is where lining or reinforcement prevent the flesh of the leather from stretching. As a result, the leather structure will open up, allowing the grain to buckle or pipe. Sheep and Goat leather are more vulnerable to this, as they have looser fibre structure than calf leather. The break peppiness of the leather with the reinforcement assessed using "SATARA TM36 : 1999-Break/Peppiness".

Author has to change imprignation combinations as well as crust re-tanning infusing drum imprignation in wet process several trial to standardise recipe. And satisfactorily performed well with reinforcement stitching and inside out during shoe making.

Hence significant improvement in break can be obtained by the use of imprignating Resins. It is practice here by author using co-polymer based imprignating resin reinforce fibrous structure here in corium major and minor spaces is reduced and break improved.

Testing of Scuff Resistance :

Significant improvement in scuff resistance can be obtained by the use of imprignating resins.

Scuff resistance are widely tested in corrected grain shoe upper where imprignation operation is part of leather making especially school kid leather where durability is key property include sports footwear. There is no single test to predict but the performance of these leather and so a combination of three test is normally used : SATRA TM31 : 2003(2014) METHOD A, SATRA TM95 :

2020-ABRASION and Snagging resistance-drum method and SATRA TM140 : 1996-Scuff Resistance - CHIESEL METHOD. SATRA TM31 carried out in both dry and wet conditions; it is mild but continuous rubbing abrasion which may occur during prolonged wear. The test is particularly useful where any finish used and the underlying layer have marked contrast in colour, which like to lead rejection or failure in test.

SATRA TM 95 TEST is more severe test and corresponds to prolonged abrasion and snagging that can occur against various hard or sharp objects encountered in wear.

The SATRA TM 140 test represents severe accidental scuffing and snagging, a disc of leather, finish side up, is rotated against chisel of defined dimension under a contact force. The test normally stopped once chisel has worn through the finish to expose the leather substrate, although other end points can be used-such as colour contrast shows.

Author recently experiences with one of biggest shoe maker of North India doing well and performing set process of School Kid Leather above three test set by author and his team reported not passing the test on checking it was found crust colour i.e., dyeing. Process changes lot to lot has resulted contrast colour in both TM31 and TM 140 resulting failure. This should be avoided.

Normally above Martindale Test are common in Automotive Sector where finish is made tough from base but in Corrected Grain and FG upper leather of School Kid and Sports Footwear now a days fashion meets with Performance.

In this type of leather one coat staining or using dye solution along with imprignating resin will serve the purpose.

Flex Test i.e., Flexing Endurance :

Flex test is one of Key test for Shoe upper whether it is Corrected or full Grain - an improper imprignation combination can cause failure in Flex Test.

The shoe upper over the vamp flexed during normal walking, so it is important that cracking and other damages do not occur. Testing is therefore conducted in dry and wet conditions. Patent leather generally corrected or full grain can be susceptible to cracking of grain at cold temperature, so testing can also carry in -5°C to -15°C.

In footwear preferred method is TM 25 : 2020-Vamp Flex test-resistance to flexing damage rather than flexing of upper material SATRA TM 55 : 1999-flexing resistance upper material - Bally Flexometer. This because Vamp flex will give a more accurate replication of the flex pattern that occurs on upper during normal wear.

Author has practical experience with one of biggest tannery in West part of India where cold flexing was failed after repeated trial by author correct method opted from imprignation to finishing process in ORGANIC patent leather production.

In north India one of Tannery in Kanpur faced similar experiences in their shoes in Srinagar Show Room reported

customer came with cracking of vamp in cold temperature, author has to change their process with correct combinations of imprignation and a base coat formulations.

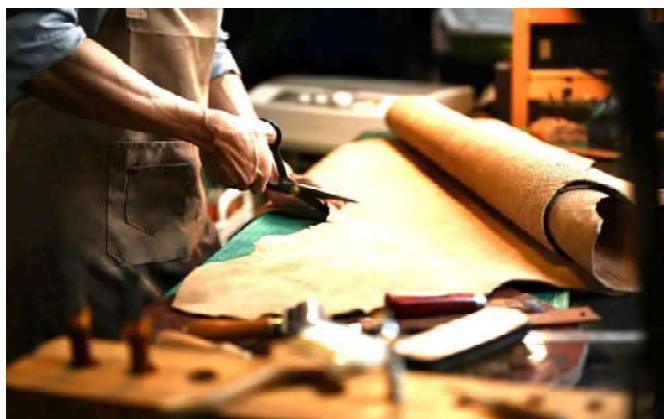
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THE WELLBEING THAT COMES WITH LEATHER



After the recent ACLE fair in Shanghai, the industry should arrive this week in Milan for Lineapelle, hopefully in an optimistic mood. While there is some overlap, the clients are different so there will be a lot to learn in a few days. Allow me to add a suggestion.

After decades of denial about the need to have a proper narrative to promote leather, the industry has become determined to build on the sustainability story in the past decade. Many individuals opening new social media accounts appear to have discovered this story afresh and forget the steady, hard-working effort put in to building the story on supportable facts.

Facts that themselves only exist because so many leading tanners changed their approach in the 1990s and invested heavily in all aspects of waste and process management, not just to be compliant with all regulations, but leaders in sustainable working whether defined by Brundtland, CSR or ESG.

This approach is both defensive and promotable; all the more so since most competing materials are fossil-fuel based polymers, which we colloquially term plastics. Now we know more about plastics like these, it is clear we need more, not less leather – whatever Stella McCartney and PETA may argue. In fact, by thoughtlessly promoting plastics, McCartney and PETA have done considerable harm to nature and climate in this century.

A Biophilic Solution for Modern Urban Living

Is it now not time for leather to add a new dimension to these discussions? Add truth about natural materials and the wellbeing they offer. The wonder of their feel, their smell, their appearance and the wellbeing that comes with it. How leather is an essential part of the biophilic solution for modern urban living.

There is no better place in the world than Italy to remind ourselves of the amazing aesthetics of leather. The joy of holding and looking at a well-crafted leather, a memory of the happiness it brings and the contrast with the ugliness of most alternatives, which so quickly become dirty and disfigured.

To celebrate their centenary in 1958, the Milwaukee tannery Albert Trostel & Sons commissioned the well-known artist Franklin Boggs to paint a series of pictures about their tannery. They were futuristic and dramatic and nine of the set “Art in Tanning” were shown at the 1958 World Fair in Brussels. Many prints were hanging in the corridors of tanneries and suppliers in the U.S. for decades after.

Is it not time to return to that mode of thought and for tanners to support artists and poets in residence? Not just to provide promotional material but also to remind us of all that in our work and use of leather there is a beauty and peace of mind in being involved with all that is wonderful about nature.

Yes, leather is about science and technology used with precision, but it is also about every hide and skin being unique and allowed to tell its own story. It does this over many years of use in every chair, bag or phone cover.

If we are returning to even a small level of optimism and excitement, let us celebrate our material and promote its humanistic qualities alongside its technical advantages.

(internationalleathermaker.com – 16/09/2024)

NBR EASES SUBCONTRACTING REGULATIONS FOR LEATHER AND FOOTWEAR EXPORTERS



The National Board of Revenue (NBR) has declared that subcontracting laws will be relaxed to boost exports and foster a more favourable economic climate for Bangladesh's non-readymade garment (non-RMG) sectors, particularly leather and footwear.

In a recent notification, the NBR announced that non-RMG firms, particularly those having bonded warehouse permits, can now subcontract with other manufacturers. This regulatory reform intends to assure timely deliveries and enhance export orders, responding to the leather industry's concerns.

Historically, subcontracting was permitted in all export-oriented sectors; however, earlier government laws restricted this privilege to the RMG sector. This ban had a substantial impact on non-RMG sectors, particularly leather exporters, who struggled to acquire fresh orders without subcontracting possibilities.

The latest NBR notification also included new provisions for subcontractors involved in legal issues with the NBR. These subcontractors can now handle orders using an undertaking, indenture, or letter of agreement, rather than having to submit a bank guarantee as was previously required.

Furthermore, all industrial activities must be compliant with the Contract Act of 1872. When working in export processing zones or economic zones, both contracting manufacturers must keep their warehouse licenses current and renewed, as well as get approval from necessary authorities.

Additionally, the NBR underlines that firms with suspended warehouse licenses or Business Identification Numbers (BIN) are not permitted to subcontract. The notification includes 15 comprehensive guidelines for subcontracting production and exporting goods.

Among these is a requirement that contracts between original owners of imported materials and contract producers follow the rules of the Contract Act of 1872.

The decision to relax subcontracting regulations follows appeals from industry bodies such as the Leathergoods and Footwear Manufacturers and Exporters Association of Bangladesh (LFMEAB), which advocated for equal subcontracting privileges for the non-RMG sector, similar to those enjoyed by the RMG sector. The RMG industry currently

accounts for more than 80% of the country's export profits, with the remainder going to non-RMG sectors such as leather, footwear, and plastics.

Industry executives have praised the NBR's move, claiming that the new restrictions will allow them to gain more orders.

However, industry stakeholders expressed disappointment with the non-RMG sector's previous inability to participate in subcontracting arrangements, emphasising the importance of this policy change in improving operational capabilities and global competitiveness.

(apparelresources.com – 27/09/2024)

LEATHER JACKET SEASON IS BACK... BUT NOT AS YOU KNOW IT



The impact of Saint Laurent's spring/summer 2025 show is already being felt on the streets. The morning after the night before, *Vogue's* Daniel Rodgers boss-bitched his way into The Adelphi wearing a gently outsized pinstripe blazer as a subtle nod to Bella Hadid's tailored return to the runway. In Paris, Rosie Huntington-Whiteley and Gigi Hadid have been making slouchy leather jackets the crux of their street-style looks, while models nipping between casting calls are throwing their own bikers over basics on the run.

Of course, the leather jacket is not a new wardrobe staple, but something about Saint Laurent's drop-shouldered, buckled, supple style feels particularly fresh for now. On the catwalk, the popped-collar pieces served as protective outerwear to louche suiting, for a toughened up take on office wear. "You're dressed. It's about control, and power, in a way," said Anthony Vaccarello of his razor-sharp approach to realising the "relaxed" look.

Away from the impossibly glamorous Left Bank headquarters of YSL, the Hadid sisters have been deploying their softly sloping jackets to bring both nonchalance and grit to downtime looks (and Rosalía's birthday party). No one wants to swan around Paris looking "done", or as though they've curated their fashion week wardrobe – even if, like Rosie Huntington-Whiteley, they have. A textured leather jacket offers the swagger of that biker lifestyle, but with all the luxury of a satin lining.

Autumn always ushers in leather jackets in their various iterations (fitted All Saints-adjacent zip-ups, aviator Acne Studios styles, Saks Potts-meets- *The Matrix* trench coats), and indeed, new versions proliferated on London's AW24 runways, with burnished moto jackets at JW Anderson, corseted numbers at Dilara Findikoglu, and balloon-sleeved, funnel-collared takes at Knwls and Supriya Lele. Laura Hawkins reported that the most memorable iteration came from Daniel Lee at Burberry, where Maya Wigram walked the runway in a belted design that balanced heritage-chic with moto-babe glamour. That Maya is the daughter of Phoebe Philo, who has been keeping Chloë Sevigny in covetable high-neck leathers, only made the moment that much more perfect.

While indie sleazers will be chuffed, they got their leathers (and their second-skin jeans) out of hiding, this season's jacket diktat demands super-sized zip-ups. Now is not the time to channel your inner Marianne Faithfull in *Girl on a Motorcycle*, it's about rifling through second-hand stores and finding someone's late grandpa's rough, tough flight jacket. This year's autumn essentials should look well-loved and lived in. Just don't forget the attitude of Faithfull, Marlon Brando, Patti Smith and the other leather icons who contributed some small part to that Saint Laurent swagger we're seeing today. Failing that, scoring one from YSL is never, ever a bad idea.

Details : <https://www.vogue.co.uk/article/leather-jacket-trend-autumn-2024>

([vogue.co.uk](https://www.vogue.co.uk) – 26/09/2027)

KANPUR'S NEW CETP BOOSTS EFFORTS FOR A CLEANER GANGA

A state-of-the-art 20 MLD Common Effluent Treatment Plant (CETP) has been inaugurated to treat tannery effluents in Kanpur. While the old 36 MLD CETP at Jajmau struggled with efficiency, the newly constructed 20 MLD CETP by the National Mission for Clean Ganga utilizes cutting-edge technology for optimal operation and maintenance.

Vikas Tiwari, Manager of Operations and Maintenance at the 20 MLD CETP, stated, "This 20 MLD plant is in ready condition. We have two streams of 10 MLD each; one stream is ready, while we are currently developing biomass in the other. The biomass development is progressing well, and the other stream is prepared to take the effluent. From our side, we are ready to accept the effluent. We are confident that, with the proper effluent, this plant will operate successfully if everything goes smoothly."

Recognizing the complexity of Ganga cleaning in Kanpur, the National Mission for Clean Ganga has taken a multifaceted approach. In November 2018, the historic Sisamau drain, which discharged over 140 MLD of sewage into the Ganga, was effectively diverted, marking a significant step in river conservation at a cost of over Rs. 60 crore. This initiative underscores the commitment to addressing various pollution issues in the city, ensuring the preservation of the sacred river and its tributaries.

The National Mission for Clean Ganga (NMCG) serves as the implementing agency for the Namami Gange program, focusing on a comprehensive strategy to rejuvenate the Ganges River. It undertakes various initiatives aimed at reducing pollution and restoring the river's ecological balance. Key initiatives include the establishment of sewage treatment plants (STPs) to manage waste effectively and improve water quality, and the construction of river surface cleaning systems to remove debris and pollutants.

Public awareness campaigns are crucial, educating communities about the importance of the Ganges and encouraging active participation in conservation efforts. Additionally, NMCG supports sustainable tourism and livelihood programs to empower local communities, ensuring they benefit from a healthier river while fostering a sense of stewardship. Through these multifaceted efforts, the NMCG aims to create a cleaner, healthier Ganges for both people and the environment.

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Valorisation of Invasive Species - For Leather, Fur, Bristle, Meat and By-Products (*Part - 21*)

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European Rabbit



The European rabbit or coney is a species of pseudo-ruminants, native to mainland Portugal, Spain, west and south-west France, and north-west Africa, around the Atlas Mountains. Distributed in more than 800 islands worldwide, except in Antarctica, by early voyagers and traders, for meat and fur, it is today the most common, wide ranging species of rabbit, across the globe.

Although formerly confined to the Iberian Peninsula, the occasionally diurnal, but primarily crepuscular and nocturnal, mammals are also extant in Canary Islands and Azores, Madeira, Crete and the Black Sea coast, Poland and Hungary, southern Sweden and some small Norwegian islands.

Characterized by an active lifestyle, invigorated with a strong drive for migration and proliferation, the bunnies soon assumed dimensions of an exogenous invasive species in their introduced ranges, fomenting disastrous consequences, particularly on the bioregions and ecosystems of Australia, New Zealand, the British Isles, Chile and Canada.

Multiplying unabatedly, both due to salubrious conditions for breeding and the absence of natural predators, the lagomorphs devastated their way, without let or hindrance, through vast expanses of new habitats, ravaging both endangered plants and agricultural crop, as well as devouring clover, bulbs, roots, leaves and grass, with their voracious appetite, across a home range of 3000-30000 square metres.

Today, the cuddly *Oryctolagus cuniculus* constitute the single largest bio-economic threat to agriculture and farmlands, in countries where they have gained total traction. The adorable animals with short fluffy tails and long ears, have destroyed plants, stopped their regeneration by feasting on seedlings, competed with native grazing herbivores for food, and in some instances, indirectly brought on an increase in number of predators such as foxes and cats, through “hyper-predation”-increased rapaciousness by bunny - catalysed predators on native fauna.

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Rabbit warrens have destabilized houses, posing serious structural concerns. The fuzzy furbearers have left behind pockmarks in the ground, contributing to erosion, by pillaging vegetation back to the bare ground. Their droppings have accelerated the spread of weeds by changing soil composition. Invasive leporine action continues to affect soil retrospectively and negatively, long after the animals have departed their former dwelling and grazing grounds. Soil fungi, which are intrinsic to any flourishing and generative soil system, fail to recover sufficiently in richness and composition parameters. In areas of low biotic resiliency, rabbit assault adversely modifies resources and micro-habitat, required by soil fungi, significantly lowering fertility, arability and consequential loss of functionality of the land.

An individual rabbit can consume as much as five hundred grams of greenery, daily, by navigating well established pathways. The lapin feed by refection – re-ingestion of excrement to obtain nutrients. The first bowel discharge, in latrines, called “buck heaps”, in the form of small, spongy, clammy pellets, are consumed by the animals again, to absorb and assimilate remaining nutrients. The final excreta are expelled in black, dry compressed form.

In the animal kingdom, European rabbits are known for living in both small and large groups, while maintaining strict social hierarchy, enjoying stereotypical reputation for their brisk reproductive quotient, all year round, with a single sexually mature pair adept at producing in excess of three dozen kits annually. Possessing an average lifespan of up to a decade, does are able to procreate, in a period as short as 120-150 days, within a brief, month-long, gestation period. Under favourable conditions, a buck can annually sire, as many as fifty kits, with two does. The most blatantly conspicuous example of their staggering propagation can be seen in Australia, where in less than a hundred years, two dozen European rabbits, liberated in 1859, mushroomed to 600 million and more.

Rabbits possess remarkable ocular keenness and an almost 360-degree field of vision, including the ability to see directly above and behind, without having to turn their heads. Elongated ears heighten auditory perception of predators. These outstanding vision and olfaction are further accentuated by their sensitive nostrils. To escape perceived dangers and predators, the lagomorph is able to weave, zigzag, hop, jump and dart at appreciable speed for considerable periods of time,

without tiring. Vasodilation releases surplus body heat through the exposed skin of their floppy ears, crisscrossed with blood vessels - relaxation of the muscular walls of these arteries and veins, resulting in greater circulation of blood to the ears, from the core of the body, to shed excess heat to the ambient atmosphere.

The coat colour of European rabbits' ranges from a light sandy hue to deep black, though it predominantly features a buff or brown shade with black speckles. The nape has a reddish tint, and their ears lack prominent black tips. The underparts are whitish, the front legs are short, and the tail is black on top and white underneath.

The winsome, fuzzy and furry rompers, which live 7 years in the wild and 10-12 years in captivity, have caused immeasurable environmental damage, particularly in Australia, New Zealand and the British Isles, since their introduction.

Mediterranean Islands and Africa

Rabbits currently inhabit several Mediterranean and African islands, including Chafarinas, Habibas, Conigliera, Jeziret Jalita, Kerkenna, and Alboran. Feral populations are established in Lower Egypt and Morocco.

Mainland South Africa prohibited their release, but they were introduced to 13 offshore islands. Surviving populations exist on Possession, Schaapen, Jutten, Vondeling, Dassen, Robben, and Bird Island, Algoa Bay. Notably, Robben Island saw successful introductions in the 1650s and 1660s, with further reports in the 1680s and 1881. Dassen Island received stock from Robben Island between 1662 and 1667. Bird Island's population was introduced post-1755. Rabbits are also extant on Jutten and Vondeling.

Presently feral fluffles exist in Uganda (1881), South Africa (1654), Seychelles, Senegal, Tristan da Cunha (1829), Ascension (1830-34), Azores (1912), Saint Helena, Reunion, Nigeria, Namibia (1850) and Madagascar (1860).

Australia

The British colonial flotilla – the First Fleet – is said to have carried the first consignment of European rabbits to the newly colonized territory in 1788. Embarked on the eleven ships

comprising the First Fleet, were the earliest convicts and colonists, along with food supplies, which included live animals, among them rabbits, for the arduous, 250 –day, 24,000 km voyage from Portsmouth, England to Botany Bay, NSW, Australia, to establish and reside in the penal colony – the first British settlement in the Land Down Under.

In Tasmania, four decades later, in 1827, emanating newspaper reports, publicized a sudden localized surge in leporine numbers. By 1840, rabbit farming and husbandry had become a popular vocation in Australia, with manmade enclosures, burrows and warrens, secured by robust surrounding stone walls, to prevent the prodigious quadrupeds, being raised for fur, flesh and sport, from making good their escape.

Alexander Buchanan, who served as manager of Anlaby Station (1842-65), site of the oldest Merino stud farm in Australia, released an unspecified number of European rabbits for recreational hunting, in the area. From Tasmania, the small herbivores were brought and released in Portland Bay, in 1834.

At least 90 subsequent importations would be made before 1859 but none of these populations became invasive.

However, conclusive and incontrovertible responsibility for Australia's current prevailing predicament of 200 million strong leporine infestation has been conclusively placed on the English settler, Thomas Austin, who, desiring to introduce rabbits on his sprawling, 29000 acre, Barwon Park Estate, outside Melbourne, as garden ornamentation, for visitor entertainment and as game for shooting pastime, requested his nephew William for some conies, hares, sparrows and partridges to be shipped from the British Isles to Australia.

As a member of the Acclimatisation Society of Victoria, Thomas Austin was instrumental in inserting species, such as partridges, hares, blackbirds and thrushes from England into "The Great Southern Land". He involved himself untiringly, in a series of focused and determined efforts to make newly colonized Australia, as proximate to and inseparable from the "mother country".

On October 6, 1859, the younger Austin promptly consigned a fluffle of wild rabbits, trapped from the family grounds in Baltonsborough, Somerset, together with some domestic ones, to his uncle. The animals numbered thirteen in all.

On Christmas Day that year, upon successful completion of the 80 day ocean voyage from Portsmouth to Melbourne, 24 rabbits arrived in Melbourne and were dispatched to the expansive Barwon Park estate of Thomas Austin. That the 13 animals freighted from England almost doubled in number in 80 days, to arrive as 24 in Australia, suggested that they had multiplied before or during the two and a half months of the voyage. It also implied that the wild and domestic rabbits had mated to beget crossbreeds.

Austin went to extraordinary lengths to acclimatize his leporine guests, for sporting purposes. He exterminated every possible predator from his property, and employed skilled gamekeepers to disperse the bunnies as they bred. Prince Alfred, Duke of Saxe-Coburg and Gotha, the first member of the British royal family to visit Australia, in 1867, enjoyed rabbiting at Barwon Park, at the invitation of Thomas Austin.

Within three years (1862), it was reported by the Chronicle, that the Barwon Park rabbits had proliferated into thousands, and three years later (1865), Thomas Austin, in an interview to the Geelong Advertiser, claimed to have killed in excess of 20,000 bunnies in his property alone. In half a century, by 1915, the cute and cuddly vermin, spread down under at the annual rate of hundred kilometres, to cover two-thirds of the continent.

By 1880, by crossing the Murray River, the alien invasive species had diffused throughout Victoria, overrun the length and breadth of New South Wales, in a further six years' time pressed forward into Queensland (1886) and South Australia (1891-92). Western Australia was swamped by the "grey blanket" by 1890- 94, as was Northern Territory in 1900.

Under the leadership of Richard John Anketel of the Public works Department of Western Australia, the State Barrier Fence of Western Australia - three rabbit -cum- sundry agricultural pest -exclusion fences, totalling 3256 km in length, were constructed, between 1901 -07, to secure pastoral lands.

The move was both too little and too late, as the rabbits had, by the time, already invaded the area being fenced. Shooting, trapping, poisoning, fumigating, deep ploughing, incinerating, digging up, sterilization and sundry methods of destruction of burrows and warrens with heavy machinery and explosives were among various methods tried, with limited success.

Finally, to alleviate the looming threat bio-control measures were introduced, which drastically reduced lapin numbers in Australia from 10 billion in 1920 to the present 200 million, which inhabit 4 million kilometres of the country's lands. The eco –catastrophe, was interrupted by the Myxoma virus (1950), imported from Brazil and the rabbit calcivirus (1995). The twin pestilences triggered frequent disease occurrences in rabbit colonies, leading to their death. Today from the estimated 10 billion (1820), the feral rabbit numbers in Australia, are approximated at 400 million.

With the flow of time, virus-host co-evity brought about a decline in the power and potency of the viruses as they weakened in virulence and rabbits developed resistance to them - similar to antibiotic resistant bacteria.

Among the latest measures implemented for cuniculi control is the path breaking “Gene drive” technology, by which a customized gene is introduced into the genetic constitution of rabbits to only produce sterile males.

Apart from adverse impact on the environment and agricultural enterprises, annually docking the National Exchequer by AUS 1 billion, the interlopers were also seen to be responsible for the plummeting numbers of threatened, endangered and are native fauna such as the burrowing bettong, yellow rock footed wallaby, greater bilby, pygmy possum and orange bellied parrot. As many as twenty-four threatened and critically endangered species are in potential and imminent danger of extirpation because of the invasive rabbits.

It's estimated that the benefit of rabbit bio-control to agriculture is worth more than A\$70 billion. This is the only example of a successful large-scale bio-control program against a vertebrate pest anywhere in the world.

Currently, rabbits inhabit around 4 million square kilometres of Australia, stretching from southeast NSW to the WA wheat belt. They have adapted to Australia's diverse environments, establishing themselves in farmland, deserts, grasslands and wet coastal plains, and causing havoc to native flora and fauna.

After years of battling this pest, Australia is now facing a fresh increase in rabbit numbers. Rabbits have been spotted in rising numbers in the Atherton tablelands in far north Queensland, and the Northern Rivers region in New South Wales.

Phoenix and Philipp Islands

Rabbits now inhabit Australia south of the Tropic of Capricorn, extending further north in coastal Queensland. They were introduced to various small offshore islands between the 1870s and 1890s. Whalers often left rabbits on these islands as a future food source. Whaling began in Australia in 1791 and expanded to bay whaling in Tasmania by 1806, with American whalers patrolling the southern coast by the 1830s. Rabbits were documented on Carnac Island off the west coast as early as 1827 – they are considered pestiferous in Phoenix and Philipp Islands.

Phoenix Island is a small coral island about 1.2 km long in the Phoenix group. An American guano company worked here in the late 1860s, around which time domestic rabbits were introduced. These rabbits remain fairly numerous.

Phillip Island is a small, 0.80 km long island of decomposed basalt rising to 900 ft., located off Norfolk Island. Initially covered with thick vegetation, early-introduced pigs destroyed much of the undergrowth, causing soil erosion. Subsequent rabbit introductions further devastated the island, primarily consuming tree bark. The island now resembles a desert, with exposed tree roots, minimal soil, isolated trees, and sparse grass in rock clefts near the beach. Steep, V-shaped erosion gullies and rapid runoff have stripped most soil, leaving only small flat areas and screes. Despite attempts to control rabbits with myxomatosis in 1953, further eradication efforts were abandoned due to landing difficulties.

European rabbits are equally invasive in New Caledonia and Norfolk Islands.

New Zealand

Wild rabbits are widespread in New Zealand, with the highest densities in Central Otago, McKenzie Basin, North Canterbury, and Marlborough. Captain Cook first released rabbits in Queen Charlotte Sound in 1777. Successive liberations from 1838 to 1865, in Blenheim (1858 and 65), Kaikoura (1862) and Wairapa (1863), for flesh and fur, resulted in the species becoming widely established by the mid-1860s. The population spread rapidly between 1864 and 1867, leading to the export of millions of rabbit skins by the late 19th and mid-20th centuries. Introductions were primarily for sport by government agencies, Acclimatization Societies, farmers, and prospectors.

By the 1970s, rabbits were prevalent in Otago and Southland and had spread across both islands, causing significant damage. They occupied all suitable habitats in New Zealand by 1940. While present on at least 57 offshore islands, they survive on 27 today, having died out or been exterminated on others.

Rabbits remain common on both the North and South islands, thriving particularly in climates resembling the western Mediterranean.

On Auckland Island, rabbits introduced in 1840 and 1865 survived in coastal grasslands, though eradication efforts were considered in the 1990s. Similarly, rabbits were abundant on Rose and Enderby islands, causing vegetation damage, but their numbers declined by the late 1960s.

Now, they are major agricultural pests, competing with livestock for pasture — 7-10 rabbits consume as much as one ewe. They are also vectors of bovine TB. Rabbits can rapidly increase their populations, as females adjust litter sizes based on food availability. Their burrowing and grazing damage soil, especially erosion-prone areas, and harm vulnerable native plants. The economic impact includes millions spent on control and farm production losses. In the South Island, the ecological damage has been severe, with formerly vegetated areas now eroded and only hardy plants surviving.

The Ministry for Primary Industries (MPI), NZ, has disclosed that rabbits cost New Zealand approximately NZ\$50 million (US\$30.6 million; £ 23.6 million) in lost production and over NZ\$25 million annually in pest control efforts.

Kerguelen and Crozet Islands

The Kerguelen Islands (District of the French Southern and Antarctic Lands), in the southern Indian Ocean, halfway between Madagascar and Antarctica, have a problematic abundance of rabbits. Introduced by British scientists in 1874 for food during a “Transit of Venus” expedition, five rabbits were brought to the main island, Grande Terre. Before their arrival, the island’s ecosystem, dominated by the plant *Azorella selago*, was stable. When the scientists left, the rabbits multiplied unchecked, lacking natural predators. This led to a rapid ecological decline, with native plant diversity plummeting and soil erosion increasing due to rabbit burrowing. A 1950s French effort to control the population with disease had only partial success.

Similar invasive rabbit numbers inhabit the neighbouring Crozet archipelago, on many islands and islets.

South America

The earliest liberation of European rabbits in Chile took place in 1884, when an unspecified number of individuals were released on an island in the Laguna de Cauquenes - a lake, situated at an elevation of 1,874 meters, in Araucanía, central Chile. During a prolonged draught, which appreciably lowered the water level of the lake, the animals escaped their island confine and radiated in all directions, expanding their distribution both south-and northward of the elongated bean shaped country.

By 1972, the invasive quasi-ruminants had spread out , further 3000 km² to the east, north and south of their former range. Displaying commendable rusticity, high birth rate and biotic potential, the mammals inflicted enormous damage on their new bio-region, triggering widespread loss of biodiversity.

The alimentary and gustatory habits of rabbits, leads them to nibble and consume lateral, apical, axillary and terminal leaf buds of juvenile southern evergreens, which stunts their vertical development. A branch which would normally have evolved longer due to unhindered growth of the terminal bud at the tip of the branch, are forced to sprout sideward because of the dietary aggression of the furbearers, resulting in, stocky, misshapen growth.

On the other hand, rabbit droppings poison and kill the pasturelands, and transform the devastated lands in dry soil that, lacking trees to evaporate humidity, can give way to disastrous droughts. The lack of vegetation caused by these mammals and the inevitable drought that comes with it lead to the erosion of the territory, so that in a short time the lands full of rabbits become patches of loose sand.

An international, cross – frontier, invasion unfolded between 1945-50, when feral Chilean rabbits traversed low, easily navigable passes of the Andean Mountain Range from Chillan City (Diguillín Province of Chile located about 400 km to the south of Santiago) to progress into Neuquen province of the Argentinean Patagonia. Within the next two decades, benefitting from abundant forage availability and protective shrubs, the prolific breeders accessed the neighbouring Mendoza province, establishing domination over 31,000 square kilometres,

averaging an annual advancement of 8 -16 kilometres. By 1987, rabbit hegemony extended over 50,000 square kilometres of Argentine territory.

Another independent liberation of rabbits occurred in 1880 on the Tierra del Fuego archipelago. UK missionary Thomas Bridges, a resident of the Falklands Islands (Islas Malvinas) set rabbits free on multiple islands – Rabbit Islands, Isla Grande, Lennnox, Hermite and Tierra del Fuego, on the Beagle Channel.

These animals had purportedly been released, in 1764, in East Falklands, by French sailors, during the establishment of Port Louis. In the very next year, vice admiral John Byron set free further numbers on Saunders Island, West Falklands. Thereafter, the adaptable animals displaying rusticity and resiliency, established substantial dominance over the southernmost tip of the Argentinean mainland.

In 1935, rabbits were liberated on Florules de Morros Vinillo sin Nombre, consists of three principal islands : Robinson Crusoe(Mas a Tierra) Island (48 km2); Santa Clara Island (2.2 km2); and Alejandro Selkirk (Mas Afuera) Island (50 km2). There were subsequent releases in the 1970s.

Two pairs of rabbits released in 1936, are considered to be the progenitors of the largest colonies on Tierra del Fuego. Serial insertions of the cuddly creatures continued thereafter (a) By the Argentinean Navy to islands neighboring Ushuaia in the 1950s, (b) to Staten Island in 1973 (c) by a Santa Ana sheep farmer near Porvenir.

As late as in 1985 immigrant rabbits from Puerto Natales (Chile) - interlopers from Tierra del Fuego liberations of 1970 - were reported from the south-western edge of Santa Cruz province (Argentina).

Today, rabbits are considered common in both continental Chilean and Argentinean Patagonia, with continuing cross frontier infiltration in both direction, though decisive action by both governments as well as by stakeholders such as sheep ranchers have been successful to rein in the numbers.

The fur yielders were also introduced to Colombia (1547) by the conquistadores, Uruguay (1907), and in Brazil (1957).

British Isles

Though first thought to be brought by Romans in 43 AD, Normans are presumed to have been responsible for carrying rabbits to the Britain, from the Iberian peninsula during their invasion of the archipelago in the 11th C. The aggressors preferred islands for their rabbit warrens to secure, both from predator and poacher, the valuable herbivores, which provided flesh and fur.

The foremost attribution to a rabbit warren in Britain is to one in 1176 on the Isles of Scilly. There are similar subsequent references, in the 12th and 13th C to “leporaria” on the Isle of Wight, Lundy island (in the Bristol Channel) as well as on islands off the Essex coast.

“Warrens” and “leporaria” came to be subsequently known variously as “cunicularia”, “cuningera” or “coneygarths” in Britain. Henry III (1207 -72), not only “beautified” his royal park at Guildford with bunnies, but also regularly served guests with delectable rabbit dishes at feasts and banquets, as a prized delicacy. In the Christmas festivities of 1251, as many as 450 rabbits were served to invitees and guests.

In just under eight centuries, by the early 1950s, coney numbers had burgeoned to 100 million animals of which 40% were slaughtered annually for meat and pelt. In the years following WWII, with food rationing in Britain, rabbits were a priceless source of protein for food strapped families and also contributed to the family exchequer for pelts sold.

During the transportation and transfer of rabbits between various warrens and the parks and estates and parks of the nobility, some animals made good their escape and succeeded in establishing themselves in the sylvan British countryside as self-regulating feral populations.

The myxoma virus, introduced into Britain in the 1950s to control rabbits, resulted in 99% mortality but a few survivors were resistant and their survival, along with a reduction in the virulence of the virus, enabled rabbit populations to recover widely, although generally not to their overall pre-1950 levels.

More recently rabbit haemorrhagic disease (RHD) arrived accidentally in Britain in 1994 Rabbits are instrumental for economic losses to forestry interests. Cost to the British

agricultural industry, adds up to approximately £115M annually. This represents the single biggest negative economic impact caused by wildlife in the UK.

Although numbers are thought to have declined umbers have recovered and there are estimated to be about 50 million in Britain today. Approximately £5M is spent annually on rabbit control.

Canada

Early settlers carried the fast-breeding European rabbit with them, as an assured source for food and fur when they arrived in British Colombia. Today the lagomorpha flourish on Vancouver Island, the Sooke, Okanagan Valley, Triangle Island, the Southern coast and in isolated patches around the Lower Midland. In the early 2000s, non-native rabbits began to be sighted running rampant at Vancouver's Jericho Beach. The numbers swelled due to animals purchased by parents for enthusiastic children during Easter, only to be abandoned a few months thereafter at the beach, when interest waned.

From 75-80 rabbits in 2017, today the number is thought to have quadrupled in the last six years.

In 2019 two rabbits were spotted at Vancouver International Airport. By 2021 the population had burgeoned to 50. Airport authorities were forced to call in a contractor to shoot the animals. However due to public outcry the cull is in abeyance and other options are under consideration. However, spaying and neutering are unviable due to fund paucity.

Vancouver Airport authorities have repeatedly stressed that the non-naturally introduced animals, attracted predators such as foxes, cats, hawks, owls and crows which would pose significant risk to flight operations and airport safety.

Most rabbits exhibit relative tameness, suggesting some are likely to be unburdened, abandoned pets. Bunnies also like to curl up under cars for shelter, and may have been driven to the airport from other parts of Richmond and Metro Vancouver.

USA

European rabbits were first documented in Washington State in 1929 but it is believed, with the establishment of a trading post on the San Juan Islands off the coast of the State of

Washington, by Hudson Bay Company, in 1853, the earliest European rabbits began to be seen in the USA. There were additional liberations in the 1990s. The feral rabbit population was found to be significantly augmented in the next 25 years to 30 animals per half square kilometre.

As denudation of the succulent forage, eaten close to the ground, by the voracious herbivores began to trigger cave-ins of overhanging bluffs due to soil erosion, exacerbated by the complex network of burrows and warrens, the authorities set about reducing rabbit numbers by fumigation and poisoning.

Washington feral rabbits are now being offered as quarry to sporting clubs, as "San Juan" rabbits. As the increasingly urbanized bunnies, disperse weeks after birth to newer locations in search of food, they are beginning to be seen with alarming regularity around Seattle and its environs as colonies become more and more established.

Valdez, a small town that lies on the shore of the Prince William Sound, tucked into the base of Chugach Mountains in Alaska, has a sizeable invasive population of rabbits - feral descendants of domesticated animals, which the residents have petitioned authorities to be declared as a "deleterious exotic species".

West Indies-Caribbean

Rabbits have been introduced to Barbados, the Grenadines (1880), Guadeloupe (1654), Dominican Republic (1950), Cuba(1880), Jamaica(1851) and St. Croix.

Japan

Domestic rabbits were introduced to Japan in the sixteenth century, with some released near Nagasaki by the 1840s. They have since spread to various islands including Izu, Jinaito, Kyushu, Mae-jima, Matsushima, Motokojima, Nanatsujima-Oshima, Ohkunojima, Okinosima, Oshima-Oshima, Osima-kojima, and Ushibuku-Oshima. Notable introductions include :

- ❖ Mae-jima : 230 rabbits introduced in December (year unspecified), supplemented with 50 in 1959, reduced by a cyclone, and further bolstered in 1960 and 1961. The population stabilized at 368 by 1990.
- ❖ Izu Islands : Four rabbits introduced to Jinaito in 1934 and the 1950s, stabilizing at 20 by 1970.

- ❖ Matsushima : Population stable at about 100 since their introduction in the 1940s.
- ❖ Motokojima : Fifteen rabbits introduced in 1940, stabilizing at 50.
- ❖ Nanatsujima-Oshima : Two pairs introduced in 1984, reaching 200-300 by 1990.
- ❖ Ohkunojima : Five pairs introduced in 1967, growing to around 400 by 1990.
- ❖ Okinosima : Eight rabbits introduced in 1971, with about 1000 present by 2023.
- ❖ Oshima-Oshima : Twenty rabbits introduced, stabilizing at about 300 by 1980.
- ❖ Osima-kojima : Ten rabbits introduced in 1980, reaching about 50 by 1990 despite predators.
- ❖ Usshibuku-Oshima : A pair introduced in 1982, resulting in 200-400 by 1990, with a recent decline.

Valorisation

Since early 1960s, rabbit farming, known as cuniculture, has been established in many countries of the world, both as alternative as well as co-agricultural ventures, incentivized by the high reproductive quotient of the animals, further complemented by low capital investment, sustained appetite for rabbit meat, reduced operating expenses and improved use of space.

Three profitable by-products obtained from rabbits are pelt, fur and shorn hair. Though rabbit pelts have been used since many centuries for a variety of purposes, their easily compromised physical and performance properties, low density and proneness to damage precludes their extensive use, as with integuments from other animals, but for linings for various leather accessories and apparel – usually in collars, cuffs, lapels and in some instances belts and pockets.

Rabbit skins have negligible use in the traditional tanning industry because of their inordinate insubstantiality, heads, tails and paws are not included in making rabbit pelt., which measure on an average 11-13^o belly to belly and 13-18^o head to butt. Although colour hues vary black, brown, grey and white are preferred.

Dyed or tinted rabbit fur mimics the expensive pelage of chinchilla and seal. It is affordable and beautiful. Known for its plush optic, silkiness, warmth, low density, and delicate lustre, it can be worked into colourful and dramatic effect for customized use.

Common rabbit hair and fur encompasses tuft of domesticated white rabbits and the comparatively lower priced pelage of Gray rabbits. Primarily used for felt making, the asperous and bristly grades of fur, from latter breeds, are acquired from rabbit breeders in Europe, especially

France. Finer rabbit pelage is utilized in making knitted goods – socks, sweaters, cardigans, mittens, mufflers, decorative pom-poms, ornamental masks, gloves, booties, purses, blankets, toys, and scarves, providing exceptional wear comfort and insulation to outdoor professionals working for prolonged periods in cold weather – hunters and trappers, ranchers, farmers, construction and transportation and sanitation workers, emergency medical and police personnel.

Pelotage from both common and Angora rabbits, called “Lapin”, is commonly blended with other fibres to impart warmth and softness. Secondary blends with dacron and viscose and tertiary blends with polyester and cotton, nylon and silk, are affected to augmented attributes of lustre, thermoregulation, resiliency and spinnability. Fur yield per rabbit varies between 200–400 gm depending on the breed, with fur length ranging between 8-9 cm.

Rabbits have been consumed by humankind since time immemorial, both as an urge as well as in urgency. Popular rabbit dishes from around the world include Andrajos (Spain), Brunswick stew (USA), Cabidela (Portugal), Cacciatore (Italy), Conejo en salmorejo (Canary Islands), Coniglio alla Sanremese (Italy), Hasenpfeffer (Germany), Karminadle (Poland), Laurices (Spain and Italy), Leng chi tu (China), Ostropel (Romania), Paella (Spain), Rabbit pie (UK), Rabbit stew (UK and USA) and Stuffat tal-Fenek (Malta).

Rabbit excreta and urine, which are loaded with nitrates and ammonia, are used as fertilizer and fish food in East Africa. The organic liquid manure is said to greatly improve the soil structure, texture, water-holding capacity, and humus content.

After slaughter, rabbit heads, spleens, kidneys, and hearts are used to manufacture nutritious pet protein. They are also



partaken as staple by hunting, nomadic and marginalised communities.

Promising attempts have been made by the pharmaceutical industry to exploit rabbit skins for making palliative and adjuvant preparations comprising an extract of nucleic - and amino acids. Research has also been directed towards using rabbit skin to evaluate the protective efficacy of subunit vaccines.

Clinical and pharmacological research have established that the drugs prepared from the rabbit skin of the present invention have analgesic effect against all kinds of symptomatic neuralgia, lambago, cholecystagia, angina, arterial embolism pains, acute pains from wound, burn and scald, pains in surgery or post-surgery, peptic ulcer pain, dysmenorrhea, labour pains posterior to childbirth, headache, pains induced by various tumours. Moreover, the drugs prepared from the rabbit skin in contemporary inventions, have anti-allergic, anti-ulcer and sedative effects

Health food can be prepared by combining the biologically active preparations of the present invention with edible additives and nutritious substances, said edible additives and nutritious substances include all kinds of vitamins and flavouring agents. These kinds of health food have effects on improving immunity, alleviating pains, anti-allergy and anti-stress.

Today, one of the most exciting fields in medicine is tissue engineering, which replaces damaged tissues. In recent years, this field has created many hopes in various subjects and researchers, by relying on the use and combination if different tools from different sciences, such as materials science, cellular, and molecular science, nanotechnology, etc. have made good progress.

The values of Young's modulus obtained for rabbit skin are 0.047 ± 0.023 , which is in the range of elasticity in human skin, wherefore rabbit skins, despite the difference in elasticity from human skin, still dwell in the range of human skin elasticity, thus establishing that rabbit skin scaffold can be exploited as an optional matrix in tissue engineering studies.

Though rabbit skins and pelts have limited use in the leather industry today, it is possible to harness the fur of invasive rabbits in the textile industry for the manufacture of winter apparel, their skins in the food industry as health supplements,

in the pharmacological sector, as bio-active collagen peptides, in medical research for tissue engineering, rabbit meat in the canned food industry or in hotels for human consumption and their offal as pet protein.

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ELEMENTARY KNOWLEDGE ON FOOTWEAR MANUFACTURE

METHOD OF FOOTWEAR MANUFACTURE—PART-VII

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SKIVING OPERATION

What is Skiving

Skiving is an unavoidable operation in shoe making. It is the reduction in thickness of certain edges of upper components to facilitate various treatment of edges. The skiving operation improves the general appearance of the concerned upper. It reduces the bulkiness of the leather components. It provides substantial comfort in wear and also helps the basic construction of the upper. The reduction is made on both sides of upper i.e., on grain side as well as on flesh side. It depends upon the type of skiving required for the particular components. Flesh side skiving is done for folding and in under lay allowances. Grain side skiving is necessary to allow an adhesive to penetrate where two parts are to be stucked.

Types of Skiving

Various types of skiving is being done while making leather product. It depends upon the demand of the end product. We can divide the skiving in the following types.

1) Raw Edge Skive (2) Lapped Skive (3) Folded Skive (4) Lasting Skive (5) Corner Skive (fig.-151)

Raw Edge :

This skive may be used to

- i) achieve a neater and slimmer edge

- ii) reduce bulk

- iii) equalise the top line substance

- iv) reduce substance of closed seams.

Lapped Skive

This is used on the component to be lapped underneath. It is skived to reduce the bulk which lies against the foot.

Folded Skive

The edges of the material to be folded is skived half of the thickness of the particular leather so that when it is folded it lies flat.

Lasting Skive

The lasting allowance is skived just to wipe out the finished layer of the leather to ease the penetration of adhesive.

Corner Skive

It is used to reduce the substance on the corner of a component on the lasting edge, where a lap may be too bulky for good lasting.

Basically we can divide skiving in two main group. (a) Manual skiving (b) Machine skiving.

Manual

In India most of the footwear units (small and cottage sector) are not having skiving machine for their production. This operation is

(Continued from Page 384-400 of the previous issue)

VARIOUS TYPES OF SKIVING

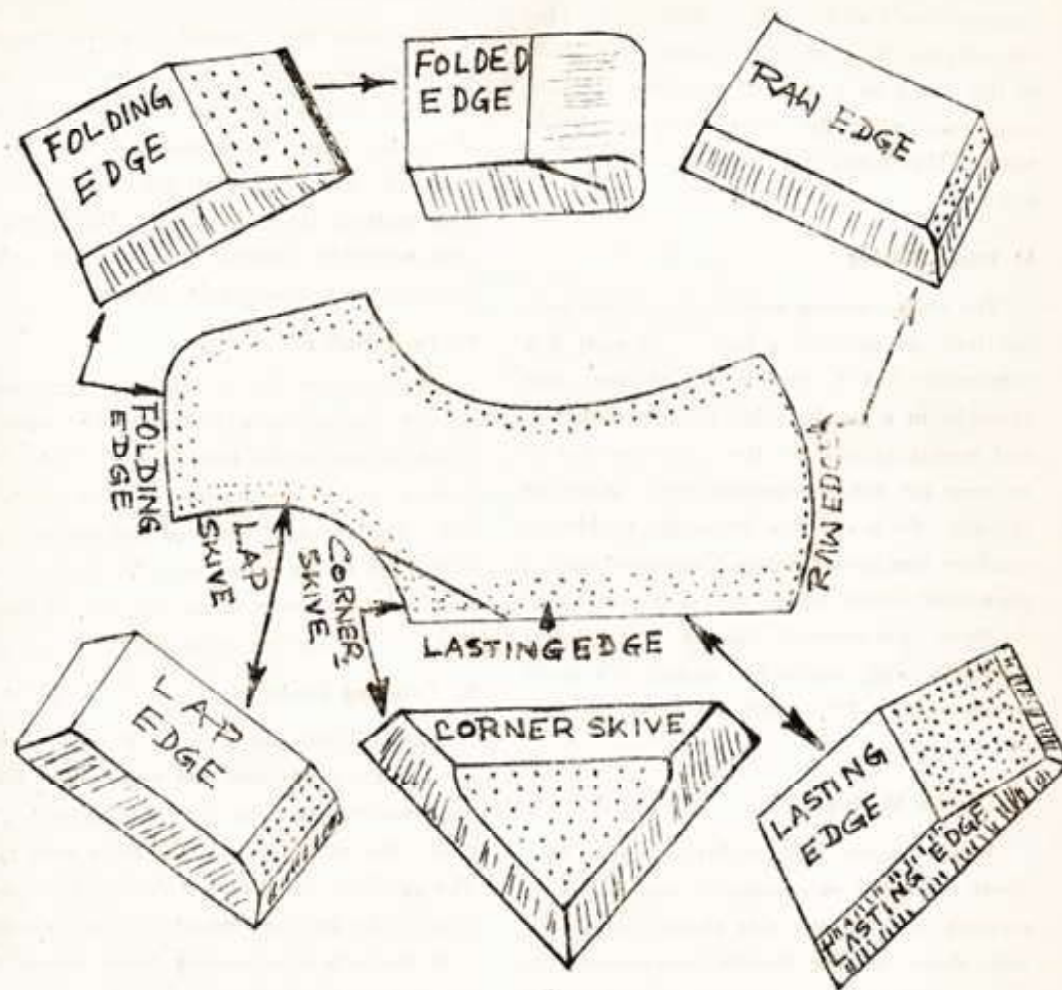


FIG-151

done by hand traditionally with a khurpi. Hand skiving is done on a flat marble or on a plain thick glass surface. The edges are reduced (skived) slantingly only by hand made method for folding purpose. It is time consuming and the end product is dependant upon the skillness of the individual workman.

Machine skiving : There are three types of skiving machine.

(a) Single skiving (b) Triple skiving (c) Matrix skiving

(a) Single Skiving

The main features of a single skiving machine and the triple skiving machine are basically the same. The triple skiving machine has some additional features over the single skiving machine which will be discussed latter.

This machine is composed of a rotating disc type of knife, an adjustable guide for varying length and depth of skive, and a feed for carrying the work to the knife. The knife is sharpened by a pair of revolving grinding stone even while the operator continues his work. This machine is set for one skive at a time.

b) Triple Skiving

The single skiving machine can skive only one type of skive at a time. As such if a component has 3 variety of skiving (for example, in a quarter edge, folding, underlay, and lasting allowance) the machine has to be reset for different purpose and length of skiving. To avoid this practical problem a machine has been developed, equipped with a pneumatic device which makes it possible to do three pre-selected skiving of different thickness and angles by means of a single treadle drive. This machines saves the time of skiving.

c) Matrix Skiving

Matrix skiving requires fixtures made from sheds of rubber or composite material with recesses cut into one side shaped to the size and shape of the finished component. The components are located in these recesses, with only the material to be removed protuding and fed through a band knife splitting machine. The machine removes the surplus thickness from the components in the areas where it is not recessed into the matrix. This method is economical when more than 100 edges of a component have to be skived and also when there is a sufficient volume of work to justify the cost of making the work holding matrix fixtures.

Main Features of a Skiving Machine

1. Knife Shaft :

The knife shaft consist of a bell shaped knife at the end of a shaft. The knife and the shaft rotates together. The rotary action of the knife cuts the materials that is to be removed. The knife shaft rotates in anti friction bearings (ball bearing). Therefore, it runs smoothly without play and no readjustment or lubrication is required.

2. Feed Roll :

The operator has to feed the component through the guides which support it while it is fed to and cut by the rotating blade. The feeding is done by a rotating non metallic roll. The speed of the feed roll can be controlled by the operator with the help of the treadle to set the machine for the different types of the skiving to be done.

3. Grinding Device :

The machine has its own grinding device so that the knife does not have to be taken out from the machine for sharpening. This makes the re-grinding of the knife very well. The grinding wheel is belt driven. The position of the grinding wheel can be adjusted with the help of a rotating knob when the grinding of the knife is required.

4. Self locking angle setting screw and extended leaf spring on presser foot :

Skiving angle can be adjusted by one motion of the hand without pressing against the presser foot.

5. Graduated one-piece work plate :

With the help of this, the feed guide can be conveniently adjusted for the required skiving width.

6. Work table :

The work table stands on rigid tabular steel stand and one leg is adjustable. This ensures perfect rigidity of tabular stand, even on uneven ground.

7. Scrap suction device :

The suction device consists of a suction fan, a filter and a container where the scrap collects. This keeps the machine always clean.

8. Treadle :

The treadle accommodates both the feet and operates the feed clutch.

EDGE TREATMENT

The sides of the components are known as edges. In a shoe certain portion of edges of the components are lasted to the insole of the shoe which are not visible from outside. But some portion of the edges of the shoe are visible even after making the complete shoes. These edges are only concerned for various treatments because the final appearance of a shoe is totally dependent on it. The edge treatments are made according to the style and price of the shoe.

Raw Edge :

The edges which are not provided with any treatment kept as it is as per the component is known as Raw Edge. The edges are generally inked to match the colour of the surface of the upper material. Sometime as design demands it also matched with contrasting colour. Certain portion of shoe components always remains as a raw edge.

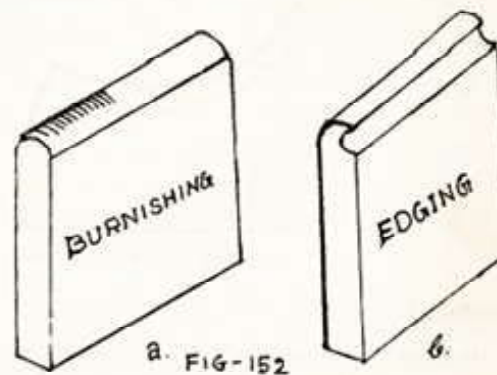
Burnishing :

To get a better appearance in a shoe the raw edges are made round edge by means of

a heated iron. As the heat is involved in this operation the method of tanning and finishing of the leather is also very important. Too much heat may effect the grain surface of leather and less heat may not round the edge properly. (fig. 152a)

Edging :

Edging is the operation which makes a raw edge resemble to a folded edge. The edge is stun skived (40°) and passed over a heated iron which causes the leather contract and the grain surface to fold over. (fig. 152b)



Folding :

This is a common and unavoidable treatment for a leather product. The edge to be folded are skived double the width of the folding edge plus the thickness of the leather first. Then the skived portions are cemented with temporary adhesives. Some time a reinforcing tape is incorporated to prevent stretch. Finally folding is done by hand or by machine. Straight line folding is comparatively easier work. But more skill and accuracy is required while folding a convex or a concave curve. Because to fold a convex curve you will have to pleat the excess material in the shorter circumference. The pleat

should be equal so that no excess material can hamper the edge. Again when you fold a concave curve the action will be reverse. The folded edge must assume a greater circumference and short cuts are made at right angles to the edges. The cut must not be more than half of the width of the folded edge. This cut edges when turned open and provide the necessary extension required. The cut and pleat should be neat, regular and be invisible in the finished upper. (fig. 153)

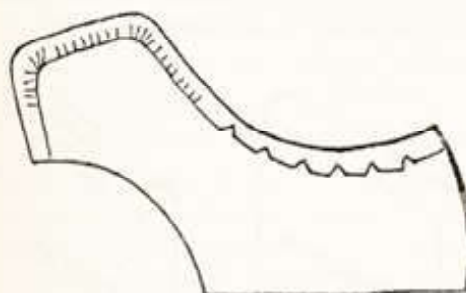


FIG-153

Binding :

It is an operation where raw edges of components are binded with leather strip or fabric tape. In footwear normally leather stripes are used as a binding material while in industrial leather hand gloves cotton tapes are used for binding purposes. There are several methods of binding.

FRENCH BINDING

1) Run-on-Binding (R.O.B)

The edge of the particular components and the binding material is kept face to face (grain side). A reinforcement tape may be stitched on at the same time on the flesh side of the components. (fig. 154a)

ii) Hammer-over-Binding (H.O.B)

The temporary adhesive is being applied

on the edges to be binded. The binding material is then lifted and pulled tightly over the top edge, stuck and hammer down on the flesh side. A final stitch is made very close to the edge of the leather and also binding. (fig. 154b, c)

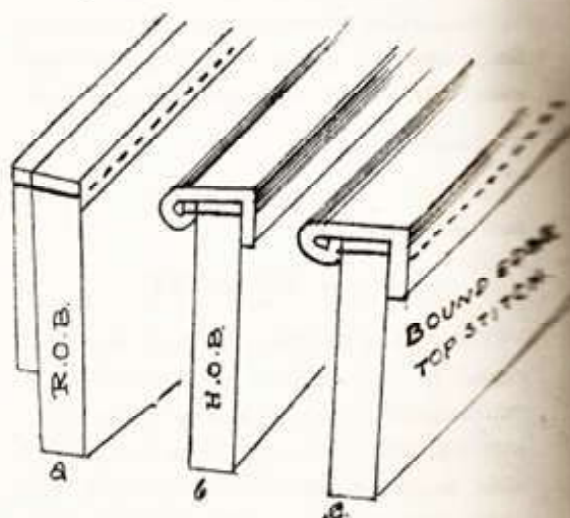


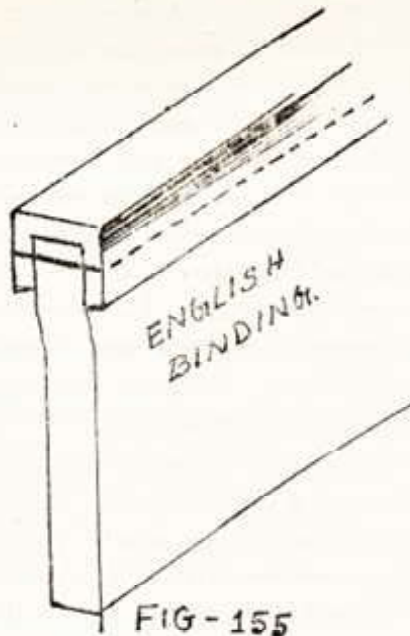
FIG-154

Channel binding/English binding/Flat binding

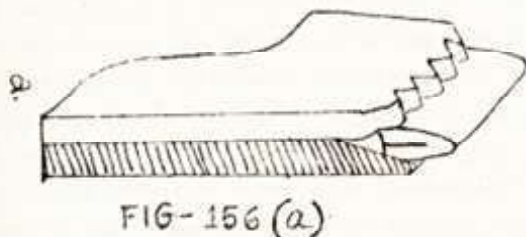
Normally this binding is used in shoes and leather hand gloves making. The binding material (leather, fabric, plastic or elastic) is stitched on to the edge of the concerned components in one operation. A cylinder arm or post bed machine is fitted with a binding device which feeds the binding material over the edge of the component accurately. While attaching the binding material a re-inforcement tape or lining material may also be stitched at the same time. (fig. 155)

Slip-binding :

This edge treatment is meant for high classed shoes. A leather strip is folded



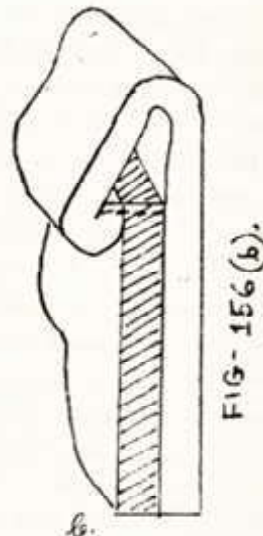
(width 5-6 m/m) and inserted in between two respective upper and lining components to be joined. The strip is placed 2 m/m up from the edge of the two components so that the beaded edge protudes slightly. Temporary adhesive is used to hold these till it is stitched. A neat workmanship and a contrasting colour matching gives a new dimension of the concern shoe. (fig. 156a)



Bagged edge :

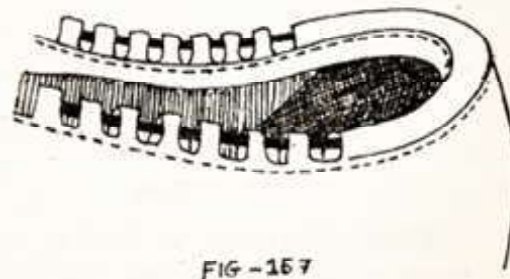
This is a decorative edge treatment to have a bagged edge. The lining and the upper is stitched first face to face to the outside of the upper as a closed seam. To make a neat appearance normally 4-5 m/m bagging or turn is made because this can be achieved without any undue difficulties. However the amount of bagging may vary accordingly as per the

demand of the design. After stitching the upper is pulled inward over the top line so that seam is below the edge of the upper and stick. Now it looks like a closed seam just inside the upper. No further stitching around the top line is necessary. (fig. 156b)



Ghillie Top lines Edge :

To achieve tightness on the quarter face provision is made on the top line so that a lace can be threaded through it. It helps to get required tightness of the shoe on the top line. The cut strips are folded first and then stitched to the inside of the top line and lace threaded through the resulting tubular section. (fig. 157)



PERFORATING AND GIMPING

Brough shoe is the practical example of perforating and gimping. These are the operation normally done on the edge of a shoe

upper to ornament, the finished shoe. Perforating is an operation by which a series of holes of varying shapes are punched along the edge of the components to be decorated. Some time this holes are designed in such a fashion that the lining material is also punched along with upper. This is done by hand or by machine depending upon the type of the factory. For machine work a die is made accordingly which is placed on the concern upper components and punched. This is involved a skill operation especially when acute curves have to be negotiated and when it is borne in mind that a machinist has probably to stitch each side. Correct spacing is important to give a good appearance. Generally a big hole and two small holes which are contained in one die should be spaced to give an appearance of a continuous flow.

Serrating the edge of a component is known as gimping. It also may be done by a special type of scissor popularly known as Indenting scissors (fig. no. 111 Page. 397 of previous issue) by hand. For machine work perforating machines are available where a die containing the knife is inserted in the machine and work is fed through for perforating. Proper spacing is again an important factor to get clear cut saw tooth effect. Over cut or ragged cut must be avoided. A margin of 2 m.m from the edge is kept. It is also possible to combine both the gimping and perforating in one operation.

SPLITTING

Splitting of leather is done in various stages in shoe manufacturing. The leather is being splitted during tanning operation. It is normally done while leathers are limed or at the stage after chrome tanning. After tanning splitting operation is widely used in the trade.

Splitting is also done even on a the finished leather. To reduce the whole area of a component (shoe parts or leather goods parts) the material is fed to a machine to get the requisite thickness of the component. This machine is known as splitting machine and the operation is termed as splitting operation. The extra piece of leather left in the process, after getting the requisite splitted component, is known as split leather. Now it is clear to you about the conception of spit leather and splitted leather.

The splitting is done on a band knife machine with a continuous strip blade running between two rotating wheels. The concerned leather component is to obtain a certain predetermined thickness throughout the entire area of the leather components. The object of splitting (reduction of thickness) may also be done in skiving machine, but to a limited width of 50 m.m as that is the maximum width normally available in a skiving machine.

The main feature of a band knife splitting machine

A steel knife generally of a thickness 0.6 m/m and 50 m.m width and a total length of 790 m/m rotates around the pulleys. The axes of the pulleys are horizontal and the face of the pulleys are vertical. The length of the band knife moves in a horizontal path.

One of the pulleys is fast on the shaft and the other loose on the shaft. The fast pulley is known as driving pulley and the loose pulley is known as driven pulley.

The rotation of direction of the knife is fixed in a machine as determined by the manufacturer. If the direction of rotation of the knife is fixed to be clock wise then the pulleys must also rotate clock-wise and if by

any chance the pulleys rotate in a anti clock-wise direction then the knife might come out, causing a great damage to the knife and the machine in general. As such before starting the operation of the machine the connected voltage and the direction of rotation of the band knife must be checked to ensure the right voltage connection and the right direction of rotation of the band knife.

As the operation continues the band knife is to be grinded regularly as it loses its sharpness with use. The width come down gradually from its original width 50 m/m to 13-14 m/m. At this stage the knife should be replaced.

MATRIX SKIVING OR SPLITTING

Here entire component is not splitted but certain edges are skived at one operation. In this system of skiving requires fixtures or matrixes made from hard rubber or composite material which have recesses sculptured one into side. The design of the recesses are done according to the demand of the ultimate component. This machine is not normally purchased for ordinary skiving because it involves more finance. When there is a huge volume of work and more that one edges to be skived this particular machine is feasible for undertaking the work. In matrix skiving components are laid flat in the recesses with only the material to be removed protruding. The loaded fixtures are then guided through a band knife splitting machine. The knife re-

moves the surplus thickness from the areas of the components protruding above, the top surface of the fixtures. Machine for matrix skiving is more larger than normal skiving machine and much more expensive.

Re-inforcement

Upper components such as vamp, quarter or in leather products certain components are often reinforced with various material to

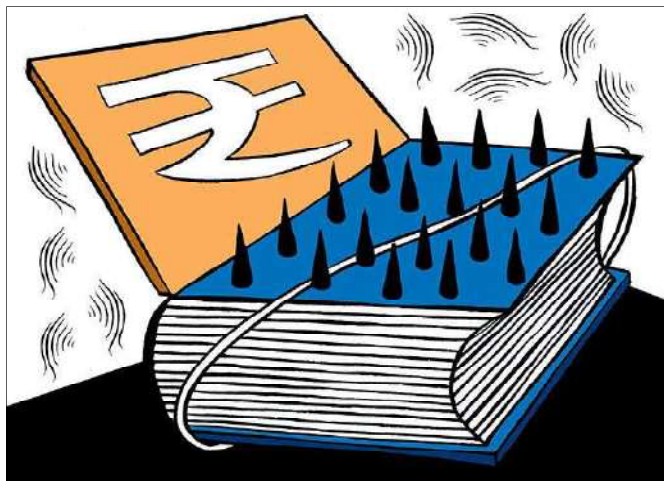
1. provide strength
2. prevent distortion by stretching
3. give the material substance
4. aid water proofing

Some time it is necessary to strengthen some parts of an upper to give better wearing properties. Cloths are often used as a backing material for vamp and quarter. Toe portion and counter parts are also reinforced to maintain the shape retentions of the shoe. Eyelets, buttons etc are also reinforced to ensure that they are held securely. There are also numerous types of tapes (nylon and cotton) and backers are used as an reinforcement material to prevent stretch and distortion of a shoe both during construction and in wear. Some light weight soft material will require to be combined to backer to increase their substance which in turn will improve its appearance and wearing qualities. These are known as plumpers. Some materials are also used in shoe making which act as a reinforce against water. (to be contd.)

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FISCAL DEFICIT IN APR-AUG AT 27% OF FULL-YEAR TARGET



The Centre's fiscal deficit at the end of the first five months of the current fiscal touched 27 per cent of the full-year target, government data showed on Monday. In absolute terms, the fiscal deficit — the gap between expenditure and revenue — was at Rs 4,35,176 crore as of August-end, according to data released by the Controller General of Accounts (CGA).

In the Union Budget, the government projected to bring down the fiscal deficit to 4.9 per cent of the gross domestic product (GDP) in the current 2024-25 financial year. The deficit was 5.6 per cent of the GDP in 2023-24.

In absolute terms, the government aims to contain the fiscal deficit at Rs 16,13,312 crore during the current fiscal. Unveiling the revenue-expenditure data of the Union government for the first five months of 2024-25, CGA said the net tax revenue was Rs 8.7 lakh crore or 33.8 per cent of the BE for the current fiscal.

The net tax revenue collection was 34.5 per cent at July-end 2023. The central government's total expenditure in the four months through August stood at Rs 16.5 lakh crore or 34.3 per cent of BE. The expenditure was 37.1 per cent of the BE in the year-ago period.

Of the total expenditure, Rs 13,51,367 crore was in the revenue account and Rs 3,00,987 crore was in the capital account. Out of the total revenue expenditure, Rs 4,00,160 crore was towards interest payments. Fiscal deficit is the difference between the total expenditure and revenue of the government. It is an indication of the total borrowing that is needed by the government.

(Rediff.com – 30/09/2024)

10 INDIAN STATES WITH LOWEST YOUTH UNEMPLOYMENT RATES 2024; KERALA AND LAKSHADWEEP TOP THE LIST



Projections from the International Monetary Fund (IMF) indicate that India is set to surpass Japan by 2025, making it the fourth-largest economy. Despite impressive economic growth, a significant gap persists between this expansion and the labour market, particularly among the youth, as highlighted by the latest data from the Periodic Labour Force Survey (PLFS).

Released by the Labour Bureau on September 23, 2024, the PLFS for July 2023 to June 2024 reveals ongoing challenges in the Indian labour market. Despite five years of decline, the overall unemployment rate has stagnated at 3.2% for 2023-24.

Alarmingly, the youth unemployment rate is at 10.2%, with males at 9.8% and females facing a higher rate of 11%. This trend is particularly concerning for women, whose unemployment rate has increased from 2.9% to 3.2% over the past year.

Indian states and union territories facing youth unemployment crisis

Lakshadweep

Topping the list, Lakshadweep has the highest unemployment rate for those aged 15 to 29, with an overall rate of 36.2%. Female unemployment in the union territory stands at a staggering 79.7%, compared to 26.2% for males.

Andaman & Nicobar Islands

With an unemployment rate of 33.6%, this UT also has a significant gap between male (24%) and female (49.5%) unemployment.

Kerala

Despite having the highest literacy rate in India, Kerala faces an unemployment rate of 29.9%, with a particularly high female unemployment rate of 47.1%, compared to 19.3% for males.

Nagaland

This northeastern state has an unemployment rate of 27.4%, with a more balanced distribution between males (27.9%) and females (26.6%).

Manipur

Manipur's unemployment rate stands at 22.9%, with females facing higher unemployment (27.5%) compared to males (19.9%).

Ladakh

The union territory of Ladakh has a total unemployment rate of 22.2%, with female unemployment reaching 38.3%, which is significantly higher than male unemployment at 11.4%.

Arunachal Pradesh

Arunachal Pradesh has an overall unemployment rate of 20.9%, with male unemployment at 21.9% and female unemployment at 19.6%. The relatively lower gap between male and female unemployment in this state shows a more

balanced employment landscape. However, with a fifth of the youth population unemployed, the state still faces serious labour market challenges.

Goa

Goa's unemployment rate stands at 19.1%, with females experiencing much higher unemployment (31%) compared to males (13.2%). This sharp contrast in gender unemployment rates raises concerns about gender-specific barriers to employment in the state, despite its tourism-driven economy.

Punjab

Punjab faces an unemployment rate of 18.8%, with female unemployment at 24.5% and male unemployment at 16.7%. The state's agricultural base and industrial growth have not translated into sufficient job opportunities for women, indicating the need for policies that foster more inclusive economic participation across genders.

Andhra Pradesh

Andhra Pradesh rounds out the top 10 with an unemployment rate of 17.5%, featuring a female unemployment rate of 19.7% and a male unemployment rate of 16.4%. While the gap between genders is narrower here, the overall high rate of youth unemployment suggests a skills mismatch in the state's labour market.

Indian states and union territories with lowest youth unemployment in 2024

Rank	Indian State/Union Territory	Male Unemployed (%)	Female Unemployed (%)	Total Unemployed (%)
1	Lakshadweep	26.2	79.7	36.2
2	Andaman & Nicobar Islands	24.0	50.0	34.0
3	Kerala	19.3	47.0	30.0
4	Nagaland	27.9	27.0	27.0
5	Manipur	19.9	28.0	23.0
6	Ladakh	11.4	38.0	22.0
7	Arunachal Pradesh	21.9	20.0	21.0
8	Goa	13.2	31.0	19.0
9	Punjab	16.7	24.5	19.0
10	Andhra Pradesh	16.4	19.7	18.0

Source: Periodic Labour Force Survey (This data captures youth unemployment (age 15-29 years) percentages in both rural and urban areas).

:- JILTA :-

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History and Activities of Indian Leather Technologists' Association #1

The Indian Leather Technologists' Association (ILTA) was founded by Late Prof. B. M. Das, the originator of Das-Stiasny theory and father of Indian Leather Science on 14th August 1950. ILTA is the Member Society of IULTCS (International Union of Leather Technologists & Chemists Societies) representing India.

The primary objectives of the oldest Leather Technologists' Association which celebrated its Diamond Jubilee year in 2010, are :

- To bring all concerned with the broad spectrum of the leather industry under one umbrella.
- To organize seminar, symposium, workshop in order to create information, knowledge and latest development for the benefit of all concerned. To offer a common platform for all to interact with each other in order to understand each other's problems and prospects.
- To publish monthly journal as a supplement to those above objectives. The monthly journal of ILTA is known as journal of Indian Leather Technologists' Association and is the most widely circulated technical journal concerning leather technology.
- To publish text books for the benefit of students at various levels of study, for the researchers and industry.
- To have interface between urban and rural sector.
- To assist various Government Institutions, Ministry and autonomous bodies to formulate appropriate policies acceptable and adoptable to the industry.
- To organize practical training and to provide skilled manpower and to motivate good students for study.
- To conduct activities related to the growth of the export of leather and leather goods from India.

ILTA also organizes Prof. B. M. Das Memorial Lecture every year during the Foundation Day Celebrations on 14th August, Sanjoy Sen Memorial Lecture on 14th January, the birthday of our late President for several decades, Prof. Moni Banerjee Memorial Lecture on 15th March, the birthday of our late Founder-General Secretary of our Association and Prof. S. S. Dutta Memorial Lecture on 2nd February every year during IILF at Chennai. Many reputed scientists, industrialists and educationists have delivered these prestigious lectures. Foreign dignitaries during their visits to India have addressed the members of ILTA at various times.

ILTA have published the following books :

1. An Introduction to the Principles of Physical Testing of Leather by Prof. S.S. Dutta
2. Practical Aspects of Manufacture of Upper Leathers by J. M. Dey
3. An Introduction to the Principles of Leather Manufacture by Prof. S. S. Dutta
4. Analytical Chemistry of Leather Manufacture by P. K. Sarkar
5. Comprehensive Footwear Technology by Mr. Somnath Ganguly
6. Treatise on Fatliquors and Fatliquoring of Leather by Dr. Samir Dasgupta
7. Synthetic Tanning Agents by Dr. Samir Dasgupta
8. Hand Book of Tanning by Prof. B. M. Das

ILTA presents awards in the name of Prof. B. M. Das Memorial, Sanjoy Sen Memorial, Prof. J. M. Dey Memorial, Prof. Moni Banerjee Memorial and Prof. S. S. Dutta Memorial Medals to the top rankers at the University Graduate and post graduate levels. Prof. J. Sinha Roy Memorial Award for the author of the best contribution for the entire year published in the monthly Journal of the Indian Leather Technologists' Association (JILTA). From the year 2023, ILTA has started to present a Scholarship namely Prof. Moni Banerjee Memorial Scholarship to a student of B.Tech / M.Tech in Leather Technology who is meritorious but financially crippled.

contd.

History and Activities of Indian Leather Technologists' Association #2

Registration No. KOL RMS/074/2022-24

The International Congress of IULTCS used to held in different locations of the world once in two years. In its 125 years long history, for the first time the Congress was held in January 1999 outside the developed countries and that too in India at CLRI, Chennai. Indian Leather Technologists' Association organized the Congress under the able leadership and guidance of Late Sanjoy Sen, the then President of ILTA and IULTCS and Dr. T. Ramasami, the then Vice-President of ILTA and Director, CLRI, Chennai. In 2017 IULTCS Congress was successfully held again at Chennai, India for the second time.

In order to promote and provide marketing facilities, to keep pace with the latest design and technology, to have better interaction with the domestic buyers, ILTA has been organizing LEXPO fairs at Kolkata from 1977, Siliguri from 1992 and Durgapur from 2010. To help the tiny, cottage and small-scale sectors industries in marketing, LEXPO fairs give the exposure for their products. Apart from Kolkata, Siliguri and Durgapur, ILTA have organized LEXPO at Bhubaneswar, Gangtok, Guwahati, Jamshedpur and Ranchi. It commensurate with the time, demand and new perspective of the modern-day leather users. ILTA has started to organize LEXPO at Kolkata from 2022 in a new shape with the Manufacturers and Exporters of Leather Goods from all over India.

ILTA celebrated its Golden Jubilee with a year long programme from 14th August' 2000 to 13th August' 2011 along with the first conference of South East Asian Countries at Netaji Indoor Stadium, Kolkata.

The Association's present (as on 31.03.2024) strength of members is around 550 from all over India and abroad. Primarily the members are leather technologists passed out from Govt. College of Engineering & Leather Technology, Kolkata, Anna University, Chennai, Scientists from Central Leather Research Institute (CLRI), Harcourt Butler Technical University, Kanpur, Govt. Institute of Leather Technology, Jalandhar, Central Footwear Training Institute, Agra, Central Footwear Training Centre, Budge Budge, Footwear Design & Development Institute, Kolkata, National Institute of Fashion Technology, Kolkata etc.

In order to strengthen its activities, ILTA have constructed its own six storied building at 44, Shanti Pally, Kasba, Kolkata – 700107 and have named it "Sanjoy Bhavan".

This Association is managed by an Executive Committee duly elected by the members of the Association. It is absolutely a voluntary organization working for the betterment of the Leather Industry. None of the Executive Committee members gets any remuneration for the services rendered but they get the satisfaction of being a part of this esteemed organization.



ILTA
Since 1950

Indian Leather Technologists' Association

[A Member Society of International Union of Leather Technologists and Chemists Societies] (IULTCS)]

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