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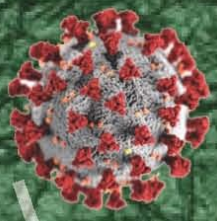

Our Activities

- An Association with over 600 members from India and abroad working since last 68 years for the growth and development of Leather and its allied industries.
- Organize seminars, symposiums, workshops in order to share information, knowledge & latest development and interactions for the benefit of all concerned.
- Organize Human Resource Development programmes on regular basis.
- Publish for over 60 years, a technical monthly journal namely "Journal of Indian Leather Technologists' Association" (JILTA), widely circulated through out the World.
- Publish books for the benefit of the students at various levels of study, for the Research Scholar and the Industry.
- Work as interface between Industry and the Government.
- Assist Planning Commission, various Government Institutions, Ministry and autonomous bodies to formulate appropriate policies for the growth of the Industry.
- Assist small and tiny leather goods manufacturers in marketing their products by organizing LEXPOs in Kolkata and different parts of India.

Indian Leather Technologists' Association

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

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

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Co-Ordinator : Mr. Subir Datta

3) Regional Activities Sub-Committee :-

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JOURNAL OF INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION (JILTA)

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Leather Fraternity 71 years of service to the International

As an active proponent of responsible chemistry, Stahl has established the Stahl Campus® training institute in its Center of Excellence for sustainable leather technologies in Kanpur. With our Stahl Campus® Leather Modules, we can offer training and information, such as responsible chemistry and sustainability in leather production. We believe that in this way, we facilitate transparency that inevitably will lead to a better supply chain with responsible chemistry.

Our approach is modular, making it easy to tailor learning programs to specific needs. Stahl Campus® has at its core the drive to unlock human potential and make that new competitive advantage. By providing the possibility of sharing knowledge, we embrace our role in the dynamic leather and chemical industry. Stahl Campus® is a great opportunity to strengthen skills and capabilities in order to make working methods more efficient by sharing experiences and studying products and procedures.

If you're interested to receive more information on Stahl Campus®, please contact Prasanna Maduri (**Prasanna.maduri@stahl.com**).

If it can be imagined, it can be created.

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Tanners are facing growing environmental challenges as the market increasingly demands that high-quality leathers are produced more responsibly. Contributing to a more ecological leather production process, our responsible beamhouse portfolio helps tanners meet these challenges without compromising on the quality of the leather.

The Stahl BeTan® portfolio consists of a complete range of responsible solutions for every step in the beam house and tanning process, from soaking to liming and bating. Using the best-in-class responsible technologies from the Stahl BeTan® portfolio, tanners can reduce their water consumption and the amount of sulfides, solids and salt used during leather production.

Moreover, it can result in a shorter production process. Building on years of experience in beam house operations and acquiring the best technical experts in the world, Stahl has become the go-to partner when it comes to sustainable beam house and tanning solutions. Our Stahl BeTan® solutions demonstrate Stahl's continuous commitment to Responsible Chemistry, aimed at reducing the environmental impact of leather-making.

If you would like to know more about Stahl BeTan®, and what we can do for your business, visit **stahl.com** or contact **david.sabate@stahl.com**

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stahl

NEWS & UPDATES FROM STAHL

STAHL LAUNCHES NUVERA®BREAKTHROUGH RENEWABLE CARBON POLYURETHANES RANGE

Stahl, has launched a new range of renewable carbon-based polyurethanes. Called NuVera®, they replace petroleum-based chemicals with renewable alternatives, enabling manufacturers of fashion, footwear and upholstery and many other consumer products to significantly reduce their environmental footprint.

For the development of Stahl's NuVera®flrange, the company-initiated collaborations with key development partners with the goal to create renewable carbon-based building blocks, which until now have not been available commercially. These novel building blocks allow the development of biomass-based and/or captured carbon-based polyurethane polymers.

"As a founding member of the Renewable Carbon Initiative, Stahl has committed to reducing the environmental impact of our industry by developing renewable carbon-based solutions", says Uwe Siebgens, Group Director Performance Coatings & Polymers. "With the launch of our breakthrough NuVera®flrange, we are accelerating the transition to more sustainable material solutions, enabling manufacturers to meet their customers' demands for high-quality, sustainably produced products."

The NuVera®range :

Stahl NuVera®flproducts are derived from plant-based biomass such as vegetable oils or sugars. Alternatively, they can also be made from a third renewable raw material category – captured carbon – in which CO2 released from industrial processes is captured and used as a feedstock for producing polymeric building blocks.

NuVera®flproducts can be used in a variety of coating applications, including pre-skin and top-coat formulations, PUD resins, adhesives and basecoats. The range currently comprises four polyurethane resin binders that are available as co-solvent-free water-based dispersions. Stahl is currently developing new products, including a high-solid (solventless) and crosslinkers, to strengthen the NuVera®portfolio. All NuVera® products comply with the latest standards and regulations, including the ZDHC Version 2.0 Manufacturing Restricted Substances List (MRSL).

Commercial availability of Stahl's NuVera® range is expected in the second half of the second quarter 2021. For more information on Stahl's NuVera® range, please visit the website : https://www.stahl.com/performance-coatings-brands/nuvera

(STAHL News Room – 19/04/2021)

STAHL DRIVES SUSTAINABLE DEVELOPMENT STRATEGY WITH ZDHC CERTIFICATION

Stahl, has taken an important step in its sustainable development strategy after achieving certification for the highest level of ZDHC compliance for multiple Performance Coating products. The new Level 3 certification demonstrates Stahl's commitment to rigorous product stewardship, including chemical compliance to above-industry requirements, and to driving value chain transparency across the chemical industry.

Founded in 2011, the Zero Discharge of Hazardous Chemicals foundation (ZDHC) is a group of apparel and footwear brands and retailers working together to protect the planet by reducing the industry's chemical footprint. In support of this goal, in 2019, ZDHC published version 2.0 of its Manufacturing Restricted Substances Listfl(MRSL), which is a list of chemical substances banned from intentional use in facilities processing textile materials, leather, rubber, foam, and trim parts in textiles, apparel, and footwear. The initiative is widely recognized and respected across the industry.

Following a stringent third-party review process, Stahl has now achieved Level 3 compliance with ZDHC MRSL 2.0 for 133 Performance Coatings products from its Synthetics

and Coated Fabrics portfolio. As such, the certification has been published on the ZDHC Gateway, a digital database that provides textile mills and coaters with visibility on products and certifications, driving safer chemical management. A further 55 Performance Coating products are expected to achieve Level 3 certification, and to be added to the ZDHC Gateway, later in Q2 2021. Mel Micham, Global Market Director Performance Coatings at Stahl: "Achieving Level 3 compliance for many of our key Performance Coating products is a significant milestone toward delivering on our transparency and product stewardship ambitions.

Together with the ZDHC foundation, we can help customers and downstream partners to make informed decisions and shape a better industry.

Indeed, by embracing sustainable development – and going beyond minimum information disclosure and regulatory compliance – Stahl aims to deliver value for all stakeholders, including suppliers, customers, partners, and society at large."

(STAHL News Room – 28/04/2021)

STAHL OUTLINES SUSTAINABLE DEVELOPMENT AMBITIONS IN 2020 ESG REPORT

Stahl, an active proponent of responsible chemistry, publishes its 2020 Environment, Social, and Governance (ESG) Report. The report outlines the company's sustainable development ambitions and its achievements over the year. It also features Stahl's ambitious ESG targets for 2030, such as the transition to renewable feedstocks. Stahl's 2020 ESG Report is available as a full digital version as well as a special online 'highlights' edition.

A focal point of the 2020 ESG Report is Stahl's ESG Roadmap. Introduced last year, the 10-year plan outlines the company's ESG commitments and targets for 2023 and 2030, which are supported by Key Performance Indicators (KPIs). These commitments underpin Stahl's efforts to help shape a better chemicals industry – one that enables high living standards within planetary boundaries.

Further highlights from the 2020 ESG report include:

Environment – Transition to renewable feedstocks gathers pace

In 2020, Stahl took concrete steps toward eliminating non-renewable carbon resources such as coal, oil, and natural gas as feedstocks for its raw materials. Stahl exceeded its five-year CO2 emissions target and has set new goals for 2030. The company also launched two new portfolios of products based on renewable feedstocks.

Social – A stronger SHE framework

In 2020, Stahl implemented new criteria for governing and reporting safety, health, and environment (SHE) standards and process safety, to more accurately report on safety incidents. This includes the global roll-out of the Stahl Hazard Identification and Risk Assessment Methodology (SHIRAM) for safety risk assessments. Stahl also made further progress with its R20 (Road to Zero) program to eliminate workplace accidents.

Governance – Achieving ZDHC Level 3 status

In 2020, Stahl achieved Level 3 status in the ZDHC Gateway chemical conformance module for 1,200 products from its global portfolio. This achievement is part of Stahl's wider efforts to go beyond minimum information disclosure and regulatory compliance to deliver value for all stakeholders, including suppliers, customers, partners, and society at large.

Huub van Beijeren, CEO: "If 2020 taught us anything, it's that society and industry will continue to face new challenges. At Stahl, we were nevertheless able to take an important step forward in our ESG ambitions. In particular, we established a clear roadmap for what we want to achieve in the medium term, supported by strict targets for 2023 and 2030. Stahl is committed to being a catalyst for positive change and we continue to view environmental and social challenges as an opportunity to create a better future."

(STAHL News Room – 15/04/2021)

Recent Economic Trend in India

Industrial output did rise 22.4% year-on-year in March (February: -3.4% yoy). The result had marked the best result on record—predominantly due to a low base effect. The trend has reflected a broad-based upturn, with activity in the manufacturing, mining and electricity sub-sectors all improving in March despite pandemic.

Meanwhile, the trend improved significantly, with the annual average variation of industrial production coming in at minus 8.4% in March, up from February's minus 11.8% reading.Focus Economics panelists expect industrial production to rise 11.9% in FY 2021, which is unchanged from last month's projection. In FY 2022, the panel expects industrial output to expand 5.0%.

Consumer prices rose 0.70% from the previous month in April, accelerating from the 0.13% increase logged in March. The result of April marked the sharpest increase in prices since October 2020. The reading was largely due to rising prices for food and beverages. In addition, price pressures for clothing and footwear also increased robustly over the previous month.

Inflation did fall to 4.3% in April from 5.5% noted in the month of March. Data of April represented the lowest inflation rate since January. Accordingly, the trend pointed down, with annual average inflation coming in at 5.9% in April (March: 6.2%).Economic Forecast panelists project consumer price inflation to average 4.6% in FY 2021, which ends in March 2022. The estimate is unchanged from last month's forecast. In FY 2022, the panel projects consumer price inflation to average 4.3%.

Merchandise exports increased by 58.8% in annual terms in March, on the heels of 1.0% expansion in February. Meanwhile, merchandise imports rose to 54.4% in annual terms in March (February: +8.1% yoy). Result of March was predominently flattered by a low base effect as the pandemic that began around this time last year dented global economic trade. The next several months will likely experience similar exaggerated growth figures.

Meanwhile, the merchandise trade balance deteriorated from the previous month, recording a USD 14.1 billion shortfall in March (February 2021: USD 12.6 billion deficit; March 2020: USD 9.8 billion deficit). Lastly, the trend deteriorated slightly, with the 12-month trailing merchandise trade balance recording a USD 98.7 billion deficit in March, compared to the USD 94.4 billion deficit in February.

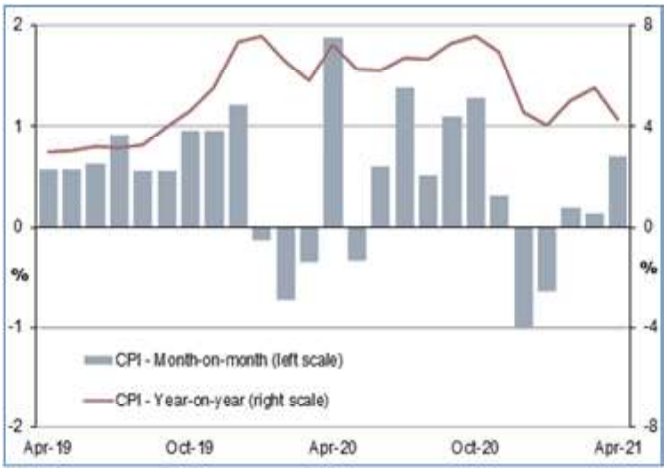
In FY 2021, economic panelists forecast that exports and imports will increase 3.1% and 9.8%, respectively, bringing the merchandise trade deficit to USD 134 billion. In FY 2022, economic panelists forecast that exports and imports would increase 9.8% and 10.6%, respectively, resulting in a merchandise trade deficit of USD 150 billion.

India Industrial production Chart

Note: Year-on-year and annual average variation of industrial production index in %.

Source: Ministry of Statistics and Programme Implementation (MOSPI) and Focus Economics calculations

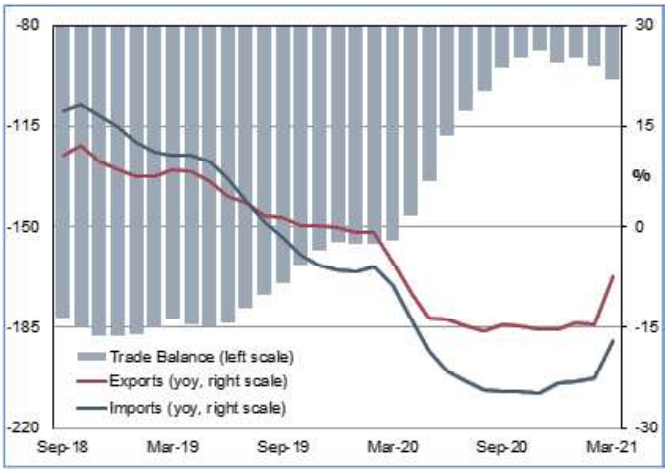
India Inflation Chart



Note: Annual and monthly variation of consumer price index (CPI) in %.

Source: Ministry of Commerce and Industry and Focus Economics calculations.

India Trade Balance Chart



Note: 12-month sum of trade balance in USD billion and annual variation of the 12-sum of exports and imports in %.

Source: Ministry of Commerce and Industry and Focus Economics calculations.

Goutam Mukherjee

Dr. Goutam Mukherjee
Hony. Editor, JILTA

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2020 -2023

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Contact: 033-40602211, +91-9830279886

From the desk of General Secretary

POSTPONEMENT OF ELECTION FOR CONSTITUTING THE OFFICE BEARERS & EXECUTIVE COMMIITTEE OF ILTA FOR THE TERM 2021 – 2023

A long discussion had taken place in the 540th meeting of the Executive Committee on the possibility of conducting the Election for reconstitution of the New Office Bearers & Executive Committee of ILTA for the term 2021–2023.

After thorough discussion, it is concluded that holding Election with our existing constitutional system of casting of votes by physical presence of the Members under Kolkata, Howrah & both 24 Parganas jurisdiction, is not suitable.

It was therefore unanimously resolved that, due to new wave of acute Pandemic COVID, the present situation to conduct Election for constitution of the Executive Committee of ILTA for the term 2021-2023 is not at all suitable for casting votes physically as per our constitution.

Hence, it was decided by the Committee to postpone the Election process till the situation become normal and suitable to conduct the Election. Till then the present Committee both Central & Regional will continue to function as it is.The committee would review the situation at a regular interval and try to start the Election process as early as possible depending on the situation.

It was also decided that a letter of intimation regarding postponement of Election would be forwarded to all the Members, the Presidents of the Regional Committees of ILTA and RoC, as early as possible.

LEXPO IN KOLKATA AND SILIGURI

- The Kolkata LEXPO – XXXXI has been proposed to be organized at Kolkata Ice Skating Rink from 18th to 26th September' 2021, 11.00 am to 8.00 pm every day. We have already deposited the booking money for the fair to the KISR authority.

- The Siliguri LEXPO – XXVI has been proposed to be organized at Kanchanjunga Krirangan adjacent Ground, Siliguri from 26th December'2021 to 10th January' 2022. Provisional allotment of the ground has been obtained and the final ground allotment confirmation is expected to receive by middle of May'2021.

Latest progress and status report regarding organizing both the proposed fairs will be informed in due course.

(***Susanta Mallick***)

BEREAVEMENT

With profound grief and a heavy heart, we announce the sad demise of **Asit Saha** & **Tushar Kanti Bose** both on 12th May' 2021 and **Shiladitya Debchoudhury** on 21st May'2021.

All of them were Life Members of our Association & Debchoudhury was Joint Secretary of the association till his departure to heavenly abode.

May their souls rest in peace and may God give strength to the members of the bereaved families to bear these irreparable losses.

YOUTUBE CHANNEL OF ILTA

An official **YouTube** Channel of our Association **(ILTA Online)** has been launched from 1st November' 2020. You may follow and view all the video recordings of different Seminar & Symposiums on this channel by opening it time to time.

You are requested to kindly do 'Like' the channel and 'Subscribe' it by pressing the Bell Icon beside it to get regular updates on priority basis.

RECEIVING HARD COPY OF JILTA EVERY MONTH

Members want to have the hard copy of JILTA every month or any particular issue, kindly inform us by email or post, whichever is convenient.

In case we do not receive any communication from you for a hard copy, we will continue sending e-copy of the same to your email id available with us. You may please verify your email id with our office at the earliest.

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 :-

a) 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.

b) Kindly mention your **Membership No.** (If any) against your each and every communication, so that we can locate you easily in our record.

x

General Secretary and the Members of the Executive Committee are available to interact with members at 19.30 hrs, over Phone / Conference call on every Thursday

Leather & Sustainability Italy's Experience for India's Growth

Mr. Claudio Maffioletti

CEO & Secretary General, The Indo-Italian Chamber of Commerce & Industry (IICCI)

WHY ITALY's LEATHER and TANNING INDUSTRY IS SO GREAT

Italy as undisputed leader in leather and tannery technologies and know-how - The Italian Tanning Industry enjoys an undisputed global leadership with a share of 23% in world production value and 29% in world export value as per 2019 data.

Italy's tanning industry is an ecosystem for sustainable excellence. Leather is considered as a biological, renewable material from a recovered origin. The UN aims for sustainable development goals in order to achieve a better and more sustainable future for all. The European Green Deal set of policies aims to make Europe carbon neutral by 2050. It requires a rethinking of the production systems of the Union members to comply with a sustainable development and a more efficient use of resources. The Italian tanning industry is firmly at the forefront regarding its impact on the environment and the use of resources, in a situation that is not comparable to many other sectors. In Italy, a new law has been passed on 9 June 2020, which regulates the use of the words "leather" and "hide" in the products labeling.

MARKET DATA

Italian leather industry is a cluster-based industry, consisting of the regions of Lombardia, Veneto, Toscana, Marche, Campania, Piemonte and Emilia Romagna. Italy is the leader in exports of Tannery Machinery with 55% market share. It is also first in exports of Leather Goods Machinery with 35% market share and in the second position in exports of Footwear Machinery after China. The total value of Italian production of Footwear, Leather Goods & Tanning Technologies is approximately € 620 million (70% exports).

The top buyers of Italian tannery machines are China with 17.29% market share followed closely by Vietnam (6.29%) and USA (6.19%). Russia imports 5.05% of the total Italian tannery machines while India imports 4.96% of Italian tannery machines. In terms of Italian footwear machineries, China imports 6.59% of the total market close to Vietnam with 6.53% market share. The top buyers of Italian leather goods machines are Vietnam (18.34%), France (9.27%), Indonesia (7.99%), Hong Kong (6.14%) and Portugal (6.03%). *(Source – ASSOMAC)*

The total trade between India and Italy, in the leather industry accounts for 2.6 billion US$. Total Indian exports to Italy stands at 1.9 billion US$ and total Italian exports to India stands at 730 million US$. India's trade balance amounted to about +1.15 billion US$. *(Source – Indian Ministry of Commerce)*

India imports around 35.4% of leather products from China, followed by Italy (10.2%) which includes footwear, tannery and leather goods machineries, raw hides, leather & saddlery, chemicals and other leather goods *(Source – Indian Ministry of Commerce)*

As per 2015-20 trade statistics, Indian exports of leather & allied products was highest to USA (17.7%), followed by Germany (11.8%), UK (11.6%) and Italy standing at the fourth position (7.0%). The main items exported from India to Italy are leather goods, footwear and semi-finished skins. *(Source – Indian Ministry of Commerce)*

The Italian tanning industry, as per 2019 statistics from Italian Tanneries Association, employed approximately 18 thousand workers in over 1,100 companies, for an annual turnover of 4.6 billion euros. In 2019, total production values fell by 8.9% in

Corresponding author E-mail : c.maffioletti@indiaitaly.com

square meters of finished leather and by 2.4% in thousand tons of sole leather, while the total decline in value was 6.1%. Exports also declined (-8.2%).

The Italian tanning industry has always been a typical example of success of the district model that traditionally characterizes a relevant part of the national manufacturing economy. Almost all production (over 90%) is concentrated in territorial production areas and often changed, due to the need to adapt to the market and their peculiar characteristics in terms of product and process.

2019 was a year of widespread and generalized declines for Italian tanning industry. Although with different intensities, the bearish trend has affected, all the main production segments (by animal typology, destination of use, price range) as also the most important regional districts.

There were few positive exceptions, mainly in export data towards some countries (e.g. Vietnam). The causes of the contraction should be primarily found in the strong general uncertainties of the international economic situation and in the cost saving strategies implemented by some important client categories.

As per 2019 report, 38.1% of the total Italian tanning produce was used for footwear production with 9.6% decline as compared to 2018, followed by leather goods 27.3% (-6.5% in 2018), car interiors 15.3% (-6.8% in 2018), upholstered furniture 13.2% (-13.4% in 2018), garments & gloves 4.1% (-7.6% in 2018) and others 2% (-14.2% in 2018) (Source-Italian Tanneries Association).

In 2019, as per statistics from Italian Tanneries Association, Veneto region employed approximately 8 thousand 5 hundred workers (-0.6% in 2018) in 451 companies (-0.9% in 2018), for an annual turnover of 2,697 million euros (-5.2% in 2018). Tuscany region employed 5,684 workers (-0.6% in 2018) in 516 companies (-1.0% in 2018), for an annual turnover of 1,302 million euros (-5.8% in 2018). Campania region employed 1,809 workers (-2.7% in 2018) in 145 companies (-6.5% in 2018), for an annual turnover of 299 million euros (-7.9% in 2018). Lombardy region employed 901 workers (-2.2% in 2018) in 37 companies (-5.1% in 2018), for an annual turnover of 200 million euros (-7.0% in 2018).

The Italian Tanning Industry enjoys an undisputed global leadership with a share of 23% in world production value and 29% in world export value as per 2019 data. The total Italian export of finished leather in terms of value to 119 countries, was approximately 3.3 billion Euros. Destination of Italian Finished leather exports was mainly to the EU (49%), followed by Asia (24%), Other (10%), Russia (9%) and Nafta (8%). The total Italian import of raw hides & skin and semi-finished leather was 785,835 tons in 119 countries. The market share on total volumes in the main area of origin as per 2019 data was EU (57%), South America (21%), Nafta(7%), Oceania (6%), Africa (5%), Other (4%). (Source-Italian Tanneries Association)

BRANDING INDIAN LEATHER INDUSTRY - THE ROLE OF ITALY

The branding of leather in India can be a step by step process starting from:

1) Make in India with Italy - Italy possesses cutting-edge technology and know-how in the entire leather industry's value chain. The potential for Indian domestic and neighboring markets is still largely untapped. Increased collaborations and cross-border investments are needed to improve quality, productivity and market penetration.

2) Make it circular - UN's Sustainable Development Goals and the EU's New Green Deal, are there to stay and to define accepted manufacturing practices. Products' Life Cycle Assessments and methods to track and certify Supply Chains will become more and more pervasive.

3) Brand it Sustainable - Consumers, especially Millennials and Z Generation, are well aware and vocal on brand practices and effects on the environment and local communities: products labeling on brand's transparency and consistency in applying sustainability principle will direct consumers' choices.

IICC&I and RELEVANT INITIATIVES

The IICC&I is officially recognized by the Italian Ministry of Economic Development. The Chamber has 5 offices in India with it's Head Office in Mumbai. It has 10 sector projects and

flagship events. There are 25+ professionals working in its various offices with 1000+ members Pan India basis. It is ISO 9001:2015 Certified.

With more than 50 years existence, the Chamber has a rooted presence in India which guarantees coordination and planning of activities; Proximity to institutions and to the Indian market, deep knowledge of local regulations and praxis and deep understanding of the local territories and business culture.

By associating with the Chamber, one can be connected to a strong Indo-Italian Business Community which comprises of a total bilateral trade of approximately 9 billion Euros and 3.5 billion Euros of Indo-Italian cross border investments. There are approximately, 700 Indo-Italian companies (650 Italian investments in India and 50 Indian investments in Italy).

More than 500 buyers of Italian technologies, machinery and know-how, over 800 service providers comprising of HR & PR agencies, law and consulting firms, transportation companies, etc; more than 1500 traders (agents, importers, distributors and retailers of Indian and Italian brands and more than 6000 individuals passionate about all things Indian and Italian.

The IICC&I is a part of the Italian Chambers Abroad's network, comprising 81 Chambers present in 58 countries and represented in Italy by Assocamerestero. The IICC&I is part of the 12 Italian Chambers in Asia and South Africa.

IICC&I is looking to leverage the excellence of Italian Machinery, advanced technologies, expertise and know-how and have newly set up a Sub Project on the Leather Industry under the TIPS – The Italian Platform for Sustainability Cluster project which is essentially working on Fashion, Textiles, Leather and Chemical industries.

It is a common platform to support IICC&I members (companies, professionals and NGOs) in implementing CSR policies and activities with a specific focus on the Environment, Human Rights and Social Responsibility.

As part of the TIPS project, IICC&I had organized Impresa Awards: a recognition of best practices by IICC&I corporate members in the field of sustainability, human rights, environment, and supply chain management.

"Impresa" means "Enterprise" in Italian, and the Impresa Awards aim at recognizing the efforts, the approaches and the results achieved by Italic and Indo-Italian companies in the field of sustainability and CSR in the following categories: People Empowerment, Environmental Care, Community Development and Fair Business.

To sum up, in order to help the Indian leather industry to focus on Make in India by Italian brand it is important for them to utilize Italian technologies, technical knowhow and collaborate with Italian companies to build a brand step-by-step locally, nationally and then globally.

INTERNATIONAL UNION OF LEATHER TECHNOLOGISTS AND CHEMISTS SOCIETIES

News Release from the IULTCS

IULTCS information - Results of Voting and Addis Ababa Congress Information

Results of voting

The voting for the IULTCS Merit Award 2021 and the location of the 2025 IULTCS Congress closed on 26th March. Many thanks to the large number of members who voted.

The **IULTCS Merit Award 2021** is awarded to **Dr T. Ramasami** of India. Our sincere congratulations to Dr Ramasami. The presentation of the Merit Award is scheduled for the 2021 IULTCS Congress in November.

The **2025 IULTCS Congress** is awarded to **AFICTIC France** and in 2025 will be held in Lyon. Congratulations to our colleagues in France and we are sure they will organize an excellent Congress.

News releases announcing these decisions will be prepared in the near future.

2021 IULTCS Congress in Addis Ababa, 3rd - 5th November 2021

The officers of the IULTCS Executive Committee recently held a virtual meeting with the organizers of the 2021 IULTCS Congress in Addis Ababa. They confirmed the Congress will proceed in November as a **hybrid virtual/presence Congress**.

With the Covid-19 pandemic continuing to cause problems for travel in many countries, the decision to have virtual participation in the Congress and to make presentations virtually is most welcome. Now abstracts for the Congress can be submitted without concern about what the travel situation will be in November. We encourage you to inform your scientists and members to submit abstracts for Congress presentations as soon as possible.

Please use the Congress website : **www.iultcs2021africa.org**

You can also link through to the Addis Ababa Congress website from the banner on the homepage of the IULTCS website , www.iultcs.org

Information about the dates of future IULTCS Congresses and Regional Conferences

2021 - 36th IULTCS Congress, Addis Ababa, Ethiopia, 3rd - 5th November 2021
2022 - 3rd IULTCS Euro Congress, Vicenza, Italy, 18th - 20th September 2022
2022 - 12th AICLST Asian Conference, Queenstown, New Zealand, 18th - 22nd October 2022
2023 - 37th IULTCS Congress, Chengdu, China, end of October 2023
2025 - 38th IULTCS Congress, Lyon, France.

Updated list of Executive Committee members

Attached is an updated list of the IULTCS Executive Committee members.

Su Chaoying, the CLIA China representative for many years, will shortly retire and Chen Zhanguang is now the CLIA Member Representative.

We wish Su Chaoying good health and a long and happy retirement.

(Source : Email from Campbell Page – 29/03/2021)

XXXVI IULTCS Congress and 5th World Leather Congress becoming HYBRID events

Africa Leather and Leather Products Institute (ALLPI), in conjunction with the Government of Ethiopia, is excited to announce that the 36thInternational Union of Leather Technologists and Chemists Societies (IULTCS) Congress, and the 5thWorld Leather Congress (WLC) are becoming HYBRID events, to offer participants the choice of how they prefer to attend these important international congresses.

Both events will be held in Addis Ababa, Ethiopia from 01- 05 November 2021.

With the backdrop of mounting COVID-19 pandemic-related restrictions, the hybrid mode will allow all those who are not able to attend in person, to be able to participate from the comfort of their own workplace or home, from anywhere in the world.

The video recordings from the congresses will also be made available on an online platform for 30 days, to ensure that all the conference registrants can access the presentation materials of speakers, researchers and sponsors without being constrained by time zones and/or internet connectivity problems at the time of the events.

The two Congresses (XXXVI IULTCS and 5th WLC) are expected to leave delegates with great insights and informative actions that delegates could use in their respective institutions and/or enterprises.

Registration for the congresses has commenced and a new registration fee structure for remote registrations is in place – with the ability to 'upgrade' to in person attendance if travel restrictions allow. Abstract submission is open until 31August 2021 – with the option to submit to present a remote paper, allowing current global research to be shared, even if the presenter cannot be in attendance.

The link **https://www.iultcs2021africa.org/home** will provide more information on registration and guidelines for submission of Abstracts.

There are also opportunities to support these high-profile, globally attended events by becoming sponsors, as it is critical to our industry that we continue to share our knowledge, research and best practice – various packages are available to suit all budgets.

Summary Information :

5th World Leather Congress: 01 November 2021
XXXVI IULTCS Congress: 03 - 05 November 2021
Venue: Ethiopian Skylight Hotel, Addis Ababa, Ethiopia
Working Language : English
ALLPI Website: https://www.allpi.int

(Source : Email from Christine Anscombe – 09/04/2021)

AICC - Italian Leather Chemists Association free webinar

The Italian Leather Chemists Association (AICC) is pleased to invite all members of the IULTCS Societies of Leather Technologists and Chemists to participate in a free webinar to be held on 29 April 2021, at 17.30 - Rome time.

Organoleptic Leather Properties - Odor: evaluation and possible odour sources

Presented by Dr Michael Holzwarth, Head of Competence Center VIAQ, VOC, Odor IMAT-UVE

During the Webinar the following topics will be covered :

1. Introduction: the olfactory sense (25min)
   a) physiology & psychophysics of the human olfactory sense
   b) cultural differences in odor perception

2. Odor evaluations for product qualification (20min)
   a) methodology
   b) odor panel quality management

3. Identifying odor sources (10min)
   a) odorants elucidation
   b) prospect

4. Conclusion(s) (5min)

For the registration use this suitable link :

https://us06web.zoom.us/webinar/register/WN_Pyeno5q3S42jQDTLIdrdWA

Registration is mandatory by **April 27th**.

The presentation will be held in **English**, with instantaneously translation in Italian. To use the translation service, it is necessary to have Zoom updated to the latest version, here the link to download it. Zoom Download Center

For other information send an e-mail to: comunicazione@aicc.it

(Source : Email from Adriano Peruzzi – 13/04/2021)

INVITATION FROM IULTCE TO ITS MEMBER SOCIETY ILTA

Dear INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION,

The XXXVI IULTCS Congress will be held during the 3rd – 5th November 2021 in Addis Ababa, Ethiopia. The Organizers, therefore, invite Member Societies, Associate Members and Individual Members to send abstracts of their original scientific research findings to be presented in form of an oral lecture or visual display during the Congress.

Kindly also share this call to your networks so that they can submit abstracts and participate in this global leather event.

The submission of the abstracts has started and ends on 30th July 2021.

Theme of the XXXVI IULTCS Congress is "Greening the Leather Value Chain".

Thematic Areas: The following are the thematic areas of paper submissions:

1. Scientific Researches of leather
2. Leather chemicals
3. Cleaner technologies for leather processing;
4. Composite materials and utilization of leather waste resources;
5. Environmental Management Technologies in the ,leather industry;
6. Novel detection techniques in the processing of leather;
7. Leather industry entrepreneurship and progress towards sustainability;
8. Intelligent manufacturing of leather products;
9. Fashion, life style leather products and design innovations;

You may copy & paste the following link on your browser to get the details:-

https://www.iultcs2021africa.org/event/ff8cfe3d-41d4-4b7a-95f2-1b917fa314b4/websitePage:8bb9b5dc-e171-493e-beeb-fc63d51dbf77?RefId=thematic

In case you would like to have additional information regarding thematic areas for your scientific paper preparation please contact:

Prof. Mekonnen Hailmariam
E-mail: mekonnenh@allpi.int
Tel: +251-911-662669

We appreciate you in advance for your anticipated positive response and look forward to hearing from you soon

Prof. (Dr5) Mwinyikione Mwinyihija
President of ICT / IULTCS Congress President
Africa Leather and Leather Products Institute
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Addis Ababa, Ethiopia

Can Electron be found at the Atomic Nucleus ? What Heisenburg's Uncertainty Principles say ?

Dr. Buddhadeb Chattopadhyay

Former Principal of Govt. College of Engineering & Leather Technology, Kolkata
& MCKV Institute of Engineering, Howrah

Let us examine the hypothetical possibility of finding electron in the Atomic Nucleus. The question that had been puzzling the scientific minds, consequent upon the Bohr's first postulate that, the electron in the stationery state is prohibited to radiate energy. Now electron is a charged particle, if, it rotates in an orbit, as per Bohr's model, then the curl of the charge must radiate electromagnetic radiation as per Maxwell's famous set of four equations. As a result, this should contribute to gradual decrease of the energy of the electron and electron should, therefore, spiral back and fall into the nucleus. The estimated time for annihilation of H atom should be more or less within 10^-9 s. (1 nanosecond). That predicts quite a disaster! To this proposal Heisenberg initially criticized Bohr saying, "Perhaps it is a madness".

But from the Heisenberg's famous Uncertainty Principle, he himself supported the Bohr's postulate very soundly and uniquely. Here we go: -

Now let us consider in a different way. Suppose we find an electron in the nucleus, what would be its kinetic energy at the nucleus (keeping for the time being inhalation at bay). Now the uncertainty principle says that one can never predict two dynamic variables like momentum-position or say energy-time accurately. The product of uncertainty of determination will be less than or equal to Dirac's constant, lovingly called as h-bar (1.04810^-34 J.s). This is not the limitation of science and technology but the Law of Nature. That means, if, one determines momentum or energy precisely; then the corresponding position or time variable respectively will be hugely uncertain.

So, we may assume that the uncertainty with regard to the momentum (del P) would remain of the same order as that of the measured momentum (P) similarly del r would remain in the same order as measured r.

Now, we take the following universal values like rest mass of the electron is 9.11810^-31 kg, radius of the nucleus as 10^-14 m, the max energy of electron in an atom as 4.0 MeV and 1 eV = 1.602810^-19 J.

Now supposing hypothetically, electron is found in the nucleus, its uncertainty in finding (del P) will be gained by the order of 10^-14 m.

Uncertainty Principle says that del P * del r = h-bar/2Pi

So, P = h-bar/r, {where h-bar = 1.048*10^-34 J.s}

Kinetic Energy of the electron = 1/2 m v^2 = [1/(2m)]*m^2*v^2 = P^2/2m

or, Kinetic Energy = [h-bar/r]^2/2m

or, K.E. = [1.048*10^-34]^2/[(2*9.118*10^-31)*(10^-14)^2]

Or, K.E. = [1.08*10^-68]/[1.82*10^-59] J

or, K. E. of electron at the nucleus = 0.593*10^-9 J.

or, K. E. of electron at the nucleus = [0.593*10^-9]/[1.602*10^-19] eV

So, Kinetic Energy of the Electron at the nucleus, if, it happened to be there, would be 0.370*10^10 eV = 370.0 MeV.

Recalling the maximum kinetic energy of an electron in an atom is only 4.0 MeV, which is far far less than the 370.0 MeV. The Electron will break & escape the nucleus. Even for alpha particle, which is a He without any proton, the escape energy from the nucleus is 13.0 MeV maximum in Radioactivity. This is also pitifully small as compared to 370 MeV.

Thus, it can be conferred, by the Heisenberg's Uncertainty Principle quite certainly, that electron can never be found in the nucleus. This also indirectly supports the Bohr's first postulate, which he once criticized.

LEATHER INDUSTRY - THE STATE OF PLAY

Between the pandemic and a tumultuous election, it has certainly been a memorable year for the US, which has had a knock-on effect on the leather market. Matthew Rogerson talks to Stephen Sothmann, president of the Leather and Hide Council of America, about the impact of coronavirus on leather prices and consumer behaviour, and what the future might look like for the industry.

It is not difficult to understand the stress the pandemic has placed on an already challenged sector, as Stephen Sothmann, president of the Leather and Hide Council of America (LHCA), explains. “Even before the outbreak of Covid-19, the industry has been in free fall for about five years,” he says. “In 2014 slaughter levels dropped in the US and several other major beef producing countries, just as demand for leather was skyrocketing. A lot of this demand came from China, which has an emerging middle class with large amounts of disposable income.

“Prices went very high; hide that usually traded in the $40–60 range was going for $120 per piece,” he continues. “As a result, in 2015 many footwear producers started to phase out leather designs as they could not compete with these prices. They started incorporating plastic synthetics – and got really good at that. So, leather prices crashed and consumers didn’t really notice the difference.” The growth in demand for athletic and leisurewear has also meant that leather was used less in the manufacturing of sportswear and shoes.

The main issue with this dramatic reduction in demand is that leather is a by-product of animal slaughter: the process makes something that would be thrown away a valuable material. As a result, it is a very sustainable industry. However, if there is no demand for leather, it must be disposed of, as Sothmann explains. “In 2019 around 17% of hides went to landfill. The issue is that there is little that can be done with hide if it is not used for leather,” he says. “It can be turned into gelatin or collagen by boiling, but hide is not the best product for that. The material can clog the machine, and hair is very difficult to remove. Rendering companies can do something with the hide but leather is the best and most efficient option.”

LEATHER FIRST

Despite it being a difficult year for the industry, it has not been all bad news for the LHCA. “We have been able to get money from the US government,” Sothmann says. “This was actually related to the trade war with China, which has helped fund our new consumer-facing marketing campaign. And, as an association, we are getting more involved in conversations about supply chains.”

Sothmann stresses that, while each industry body has their own agenda, these organisations will work together if the need arises. While the LHCA’s campaign is US-based, first and foremost it is designed to promote leather products in general. For example, it has launched competitions at a number of universities around the world to encourage fashion design students to work with leather. Other campaigns such as Leather Naturally, a global group that acts as a communication platform across the industry, and One for Leather, which was launched primarily by automotive leather producers, have their own objectives but are also working in the best interests of the industry as a whole.

All major leather-producing countries have an association or platform of some kind to promote their activities, including the

US, France, Italy, Spain, Germany, Brazil, China and India. In the past four or five years these organisations have worked more closely than ever.

To Sothmann, the key is to work together to put leather first and ensure that the correct information is available to the consumer. This year has been a major win for the leather industry with the prevention of the term leather to describe any material that is not animal hide. "For years there had been a number of public attacks on the industry by animal rights groups and other campaigners that claimed leather producers were not following sustainable practices and that alternative 'leathers' made from plastic should be used instead," Sothmann says. "Ensuring that manufacturers of these alternative materials cannot use the term leather to describe their product makes it easier for consumers to understand the quality of what they are buying and prevents other interest groups from profiting from the leather industry while attacking it."

This common welfare approach has been highly beneficial for the industry, as tanneries can be incredibly disparate, marginal players that may not be involved on the global stage, but still impact public opinion of the industry as a whole. It is, therefore, vital that tanneries do not use unsustainable practices or contribute to environmental damage. As Sothmann says, "This has been a period of consolidation by the industry and governments. For example, waste water treatment plants have been built which, in turn, force companies to consolidate to be able to afford these developments without eliminating marginal players.

"This has meant that the supply chain is both very stretched out and in fewer hands, so if something goes wrong it has a more dramatic impact than if there were thousands of companies able to pick up the slack," he continues. "It does feel as if one response to the current situation will be to have shorter, more local supply chains. If the goods have a shorter journey, it will be much easier to get them from A to B."

WHAT DOES THE FUTURE HOLD?

The future of the leather industry will undoubtedly be shaped by the post-Covid work environment – in particular, the loss of trade shows and the move to digital content and networking. However, Sothmann points out that conducting face-to-face business is still important. "While it is much easier to log on to a call with colleagues around the world, saving valuable time and resources, it is not the same experience," he says. "The leather industry holds a series of major events every year that are regular, consistent and give us the chance to gather, educate and network. We lose that with digital meetings: even though we can still see one another, it does not provide the same feeling or energy of face-to-face contact.

"I am not sure if we will go back to the previous ways, but I hope to be able to return to live events in the not-too-distant future," Sothmann continues. "Campaigns and advocacy are much better when speaking with a room full of people or a show full of attendees – you can gather an entire industry in a room that would be more difficult to arrange by conference call."

Another change that would be useful to the industry, in Sothmann's view, is for the industry to get better at advocating for itself. Currently, there are a few senior figures that regularly speak for the industry and defend it from detractors or misinformation. "If more people were engaged on a local level and on social media, the industry could share the response and present a more uniform message around the world," he says. "For example, when dealing with NGOs or opponents of the industry, they can simply pick a single inaccurate bit of information and present it as truth. We have to defend the position or address it, even if it's woefully incorrect or spurious, and we have to pull focus from our other campaigns to do so."

One of the industry's biggest challenges is being able to get its message out to the consumer before they are confronted with misinformation. "For example, in the luxury goods market there have been a number of occasions that animal rights organisations have managed to push for major changes to purchasing and supply chains by convincing the sector of facts that had no credible source," Sothmann says.

"And it's nearly impossible to stop this," he continues. "A case in point would be feedlot systems. We have them in the US, Canada, Brazil and Australia, although less so in the EU. Some NGOs expressed opposition to feedlots without any educational argument or evidence, and fashion houses suddenly decided that hides should not come from them anymore. Right away, that takes away about 90% of US hides, all Canadian and many

Australian hides – pretty much all the main suppliers are no longer available, and for no reason."

(Leather International – 29/04/2021)

INDIA'S LEATHER EXPORTS DECLINE 28.3% TO $3.3 BILLION IN 2020-21

COVID-19 HAS HIT KEY OVERSEAS MARKETS, SAYS ASSOCIATION

India's export of leather and leather products declined about 28.3% to $3.3 billion in 2020-21 from $4.6 billion in 2019-2020 owing to the COVID-19 impact on key markets of the European Union, the U.K. and the U.S., according to the Council for Leather Exports. "Most of the sales in the overseas markets are happening through e-commerce mode and hence there is a vast change in the customer requirements as malls and shops are closed in our overseas markets and hence customers do not want to pile up inventories," Shai Aqeel Ahmed Panaruna, chairman, Council for Leather Exports, said.

On account of the changed market scenario, customers were now demanding quicker delivery of products as well. However, there was a shortage of containers which was affecting the shipments, he pointed out. Mr. Panaruna said major markets were opening up, but the industry was concerned about the impact of surging COVID-19 cases in India on exports.

The government had announced submission of application for incentives under the Merchandise Exports for India Scheme (MEIS) for 2019-2020 till September 30, 2021, as the industry was facing working capital problems, he said.

ONLINE FACILITY SOUGHT

The Council for Leather Exports had sought a facility for online applications under MEIS for the period April-December 2020. It had asked for early notification of rates under the Remission of Duties and Taxes on Exported Products (RODTEP), which came into effect from January 1, replacing the MEIS and also extension of the Emergency Credit Line Guarantee Scheme (ECLGS 2.0) to the leather and leather products industry. "These two support measures are crucial for our export revival and for the sustainability of our exports. We are also expecting a favourable Foreign Trade Policy for complete revival of exports as the existing policy has been extended further till September 2021," Mr. Panaruna said.

He said India was the world's second largest producer of footwear (both leather and non-leather). There was a positive demand for local supplies and hence more and more brands were now looking to manufacture in India for domestic sales, instead of importing footwear from other countries, he added.

(Source : The Hindu – 23/04/2021)

LEATHER USAGE - USE IT OR LOSE IT: THE UK LEATHER SPECIALISTS TURNING WASTE INTO WORTH

Real Leather. Stay Different : a campaign to promote the sustainable qualities of leather and champion slow style over fast fashion - By Stephen Sothmann,

How many industries can claim to divert [1]4.5 million tonnes of potential waste from landfill every year? How many can boast of converting unwanted materials into stylish, long-lasting products that grace catwalks and adorn some of the world's most prestigious buildings and luxury homes? The leather industry can – an industry that is far more sustainable than it's often given credit for. It doesn't kill for its art, but rather upcycles animal hides that would otherwise be thrown away. For an insight into this inherently sustainable process, we spoke to three leather specialists who are turning waste from the meat and dairy industry into worth.

ZERO WASTE

"We don't really believe in waste", says Nicholas Muirhead, joint managing director of The Scottish Leather Group, reputedly the UK's largest manufacturer of leather. If you've flown with Emirates, cruised on a Princess Yacht or taken a spin in an Aston Martin, you may well have experienced (or sat on) the company's craftsmanship. The Group's mission is to ensure that the beef industry's unwanted animal hides are rescued, re-used, re-processed and upcycled into high quality luxury leather, avoiding the otherwise huge environmental impact of those hides being left to rot in landfill."

"Scottish Leather Group alone saves up to 100 tonnes of cow hide from going to landfill every day. That's equivalent to the weight of well over 2,300 double-decker buses per year," says Muirhead. The company, which claims to produce the world's lowest carbon leather, sources its leather locally as part of its commitment to sustainability and reducing its carbon footprint.

This commitment dates back to 2003, when the Group first launched its zero waste strategy, with the goal of reaching zero embedded carbon and sending zero waste from the manufacturing process to landfill by 2025. Is it on track to meet its target? According to 2020 data, it has already cut its waste to landfill by 81% thanks to measures such as innovative tanning methods and recycling its waste water back into production. And it expects to reach its 2025 goal ahead of time via capacity investment in its unique Thermal plant and the complete utilisation of renewable heat.

SAVE OUR SEAS

Sustainable luxury handbag and accessories designer Tatum Diamond shares Scottish Leather Group's drive to eliminate waste, but of a different sort. Her business is rooted in her passion for the ocean and her commitment to protecting marine life by reducing plastic waste.

That's one of the reasons why she uses leather, a durable, long-lasting material, to create versatile products that people can use for every occasion, whether they're walking the dog or dining out, and will want to keep forever. The fact that this leather is a by-product of the meat and dairy industries is also significant. "More leather than we actually use – the hides themselves – end up in landfill rather than being used to create bags, shoes and jackets," she says, "Instead we create new products that are damaging to the environment."

For Tatum, using a vegan or PU (polyurethane) leather simply doesn't fit with her philosophy. That's because it's made from crude oil and ultimately ends up as waste at the bottom of the sea, harming the animals that try to eat it. "I don't want to waste what we already have," she says. These aren't just empty words. Tatum ensures that every piece of leather gets used – even the smallest offcuts are made into earrings.

USE OR LOSE

Renowned leather designer Bill Amberg, founder of the eponymous Bill Amberg Studio and the man behind the original Paul Smith bags, believes that we have a simple choice: "to use the hides from animals that are raised and killed for their meat, or allow these materials to be burned or sent to landfill."

Amberg chooses to use rather than lose this precious resource, for bags and accessories, furniture and interiors. His iconic 'Rocket Bag' is part of the permanent collection in London's V&A and New York's Metropolitan Museum of Art, while his craftsmanship can also be seen in The Royal Academy of Arts, Harrods and even Westminster Abbey. Visit the Abbey's upper galleries and you can't fail but miss the dramatic custom leather curtains designed to provide a backdrop and UV protection to the precious artefacts on display. The curtains were so large and heavy that Amberg and his team had to use techniques and hardware typically used in yacht sail making!

Asked why he chooses to use leather over alternatives such as vegan or faux leather, leatherette or faux suede, he says that they're "less hardwearing, far harder to repair, and in our opinion, considerably less beautiful. These materials are often characterised by a short working life and hundreds of years in landfill; to say nothing of the environmental impact of their production." While some plastics are vital to modern human existence, Bill Amberg feels strongly that they should be treated as a precious and limited resource, rather than being used to mimic leather, "a material that is vastly superior, and a by-product of the food industry."

NEW LEASE OF LIFE

In many ways, leather making is the ultimate in up cycling, turning one industry's trash into treasure. And leather craftsmen take pride in breathing new life into materials that would otherwise be thrown away. As handbag designer Tatum Diamond puts it, "There is a rare, powerful beauty in taking what has been discarded or dismissed, and letting it live again."

ADIDAS LAUNCHES REEBOK AUCTION

The German sportswear brand has begun the sale of its Reebok brand in an auction, news agency Reuters has reported. Three sources told the agency that the auction risks being affected by a political disagreement over possible forced labour in China's western Xinjiang region.

Adidas bought the U.S. fitness label for US$3.8 billion in 2006, but its performance has led to repeated calls from investors to divest of the brand, which is now expected to bring in only around €1 billion (US$1.2 billion). Adidas has asked for first round bids to be submitted in the week of May 10-14 and is expecting China's Anta Sports and Li Ning to make offers, with Korea's Fila and U.S.-based Wolverine also seen as possible bidders, sources told Reuters. Financial investors, including TPG, Sycamore, Cerberus and Apollo are also likely to join the fray, privy to the turnaround potential of Reebok, which is expected to make a loss in 2021 and post only "slightly positive" core earnings next year, they added.

Adidas declined to comment. The prospective bidders also declined to comment or were not immediately available for comment. The appeal could be disrupted for Chinese buyers by consumer boycotts of Western fashion brands over cotton sourcing from Xinjiang - some researchers and foreign lawmakers say the Xinjiang authorities use coercive labour programmes to meet seasonal cotton-picking needs, which China strongly denies.

Adidas is marketing Reebok off 2025 earnings before interest, tax, depreciation and amortisation (EBITDA) of more than €200 million with expected annual revenue growth of 10%, the sources shared with Reuters.

(Internationalleathermaker.com – 11/05/2021)

Alkaline Salt Based Deliming : A New Holistic Paradigm Towards A New Arena in Leather Processing

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Abstract

Conventional leather processing engages various biological, inorganic, and organic materials. It is a chemically and energetically intensive multistage process. Several environmental and economic constraints related to leather technology might be overcome by adopting viable white methodology. Growing environmental legislations dictate the prerequisite for substituent in the conventional leather manufacturing. Deliming, one of the unit pre-tanning operations, is accredited for generation and release of ammoniacal nitrogen gas, resulting negative influence on the environment. In this approach, cleaner leather processing is aimed by using an alkaline based salt for deliming. Lime liquor has been neutralized using sodium bicarbonate. The amount of $NaHCO_3$ required for neutralization process is standardized to optimize deliming process. It has been found that the extent of neutralization of lime liquor is comparable to that of conventionally processed leathers. This directs the way for using alkaline based salt as an alternative in conventional leather making. Further, this newly developed recipe seems to be economically viable.

Key words : Deliming, Ammoniacal Nitrogen, Ammonia gas.

1. Introduction

Leather processing is one of the chemically and energetically intensive processes which convert the putrefiable collagen matrices into nonputrescible one [1]. Wide variation in pH during conventional leather processing results unfavorable consequences to the environment due to the generation of extensive amount of liquid, solid and gaseous waste. During pretanning operations, a number of unit operations such as liming-deliming are initiated which alone contribute to maximum pollution load and [2], leading to deleterious health hazards for human life and aquatic biota.

Deliming process using ammonium salts is aimed to reduce pH from 12.5 to 8 by the removal of lime. This reduces swelling and prepares the matrices for enzymatic treatment. Usage of ammonium salt becomes a biggest environmental trepidation due to ammoniacal nitrogen generation in the effluent [3] and release of ammonia gas. This compels the alternative white approaches by revamping this individual processing step. Although a great deal of research has been initiated into overhauling the whole or part of leather processing steps, but very few attempts have been made to replace ammonium salt in a techno commercial-economic viable manner.

Substituent chemicals for ammonium salts free deliming process have received lesser attention, nevertheless important. In the current study, an ammonium salts free deliming process has been attempted in order to develop a white leather processing. Sodium bicarbonate has been selected for neutralization of alkaline lime liquor. It is an alkaline salt. The extent of neutralization of lime liquor has been evaluated from both the control and experimental processes by pH meter and chromatographically. Techno-economic feasibility of the developed recipe has also been discussed.

Deliming is one of the important unit operations after liming or unhairing process, from the term DELIMING it is clear that it is a lime elimination process. Proper removal of lime lowers down the pH automatically and create anexcellent platform for enzymatic treatment. Industrial deliming process is carried out with the help of ammonium salt which release significant amount of ammonia gas which add huge amount of TKN in the waste water system. It has a great impact in animal life and our ecological system. Ammonia free deliming process can solve this problem. Ammonia free or eco friendly processes have been studied earlier but they are not gave any commercial viability.

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High ammonia content in the tannery effluent increases biological oxygen demand (BOD) due to nitrification reaction causing death of fish and aquatic organisms (Streicher, 1988).

$$NH_4^+ + 2O_2 \rightarrow NO_3^- + H_2O + 2H^+$$

Removal of ammonium ions in tannery effluent is also very expensive and time-taking process. With the view of decrease ofammoniacal nitrogen from tannery waste many ammonia free deliming agents have been developed. But due to some complications none of those could be presented in the leather processing system. Mineral acid based deliming agents liberate no ammonia but it is difficult to control the pH of deliming process. Deliming with carbon dioxide requires special types of equipment and it is suitable only for limed split. Formic acid, lactic acid, acetic acid based deliming cause acid swelling of pelts if added in excess (Yunhang, et al., 2011).

Excessive calcium salts residual in the delimed pelt causes patchy reaction with dyes and fatliquors in tanned leather. The precipitated calcium salt in pelt or on its surface cause “cracked grain” and poor strength leather (Ping, 2001). It suggests that sodium bicarbonate action in calcium solubility and elimination of uneven dyeing and fatliquoring which results in improvement of leather quality.

2. Materials and methods

Calcium hydroxide ($Ca(OH)_2$), Ammonium chloride and Sodium bicarbonate ($NaHCO_3$) GR grade have been procured from Merck, India. All chemicals used for this experiment were of analytical grade. Millipore grade water (resistance 18.2 &!) was used for this study. Filtration process was done using Whattman filter paper.

Sodium bicarbonate was used for neutralization at 30^0 C. A number of lime liquor samples were prepared at 30^0 C, each containing 0.1 g of lime mixed with 50 mL of millipore water. Variable amount of sodium bicarbonate salt (Table 1) was added in each beaker for neutralization. After completion of the neutralization process, pH of the solution was measured through WTW pH meter. Subsequently, eachsolution was filtered for measurement of total suspended solid. Chromatographic analysis was performed to measure sodium and calcium ion concentration after neutralization.

Determination of cations and anions using Ion-exchange Chromatograph

For determination of the cations like Sodium (Na), Ammonium (NH_4), Potassium (K), Calcium (Ca), Magnesium (Mg) in water, waste water, soil, sediment and plant parts the acid digested samples, which is prepared for AAS are also used in Metrohm 761-Ion-Exchange Chromatograph. For the determination of anions like Fluoride (F), Chloride (Cl), Nitrate (NO_3), Phosphate (PO_4), Sulfate (SO_4) the water, waste water, soil and sediment samples are prepared by following the method of Jackson (2000). The lime water, are filtered through 40 µ filter paper and used for cation analysis and then it is analysed for anions determination in Metrohm 761-Ion-Exchange Chromatograph. For cationsMetrosep C4- 125/4.0 column and for anions Metrosep A supp 5 150/4.0 column are used. 4 milli molar (mM) Tartaric acid and 0.75 mM PDCA are diluted in 1 L Millipore water (18 MÙ-cm water from a Millipore water purification unit) and then used as a mobile phase for cations analysis. 1.7 mM Sodium bicarbonate and 1.8 mM Sodium carbonate are diluted in 1 L Millipore water and used as a mobile phase for anions analysis.

Ammonium chloride was used as a standard. Average value has been reported from triplicate measurement of each experiment.

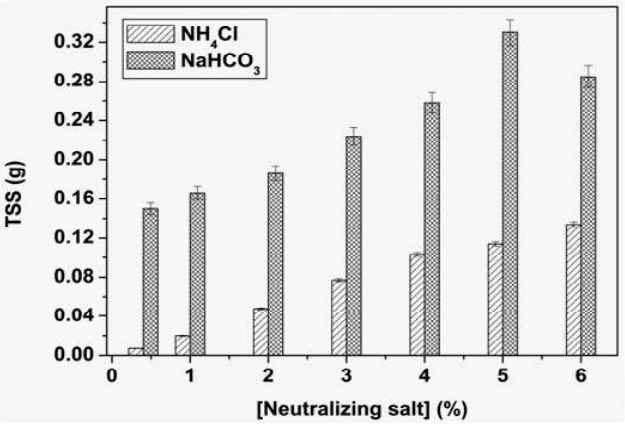
3. Result

Lime and sodium sulfide based conventional unhairing and fiber opening processes is designed to remove inter fibrillary unwanted cementing protein. This increases of pH upto 12-12.5, contributing towards depletion of water resources. Increase in pH results osmotic swelling and plumping of hide and skin, which in turn causes a hydrostatic pressure inside the matrix. The practice of liming claims to follow deliming process where ammonium salts are used for neutralizing lime. This is intended in order to avoid the deposition of insoluble calcium salt on the skin matrix and loss of tanning materials. Unhairing operation faces certain challenges such as liberation of toxic ammonia gas, generation of huge solid waste, resource depletion and threats to aquatic biodiversity, energy securities. These issues necessitate a paradigm shift in leather production. This study explores the possible usage of an alkaline based salt $NaHCO_3$ as a substituent of acidic ammonium chloride or

ammonium sulphate for preventing the generation of ammoniacal nitrogen and ammonia gas.

3.1 Amount of TSS

Amount of total suspended solid for control and experimental delimedliquorsare tabulated in Table 1 (Fig. 1). TSS values for experimental deliming solution recipe are higher than controlled deliming solution recipe. The lower TSS for controlled deliming recipe could be due to the higher astringency of NH_4Cl for neutralization of lime.



3.2 Alteration in pH

A comprehensive input-output analysis of the neutralization process using ammonium chloride and $NaHCO_3$ was carried out for the conventional and experimental deliming process. The input-output assessment in deliming process evaluates the environmental impact of the developed process as against the existing process. NH_4Cl and $NaHCO_3$ alter pH of the solution due to neutralization of lime. pH reduction profile of the conventional as well as experimental neutralization process is shown inFig. 2. It is clearly evident that sodium bicarbonate mediated neutralization process follows similar trend of pH reduction profile of conventional process i.e. ammonium chloride mediated neutralization process.

The COD andTS loads for experimental liquor was much less comparedto the control process. Conventional Lime removal processes aremajor contributors for the COD and TS in the spent liquor. Thishas been ameliorated using Sodium bicarbonate, which resulted in significant reduction in COD. The reduction in TS is mainly due toabsence of Ammonium salt based processing

4. Discussion

4.1 Evaluation of TSS load

Higher TSS loads for experimental liquor comparedto the control process seems to be difference in neutralization process of lime. It is clearly understood that lime reacts completely with ammonium chloride whether it is in soluble or insoluble condition. In the case of sodium bicarbonate, it has the ability to react with soluble lime only.

4.2 Neutralization of lime by NH_4Cl

$$Ca(OH)_2 + 2NH_4Cl = CaCl_2 + 2NH_4OH \quad (S1)$$

$$NH_4^+ = H^+ + NH_3 \quad (S2)$$

$$K_a = \frac{[H^+]\,[NH_3]}{[NH_4^+]}$$

$$-\log(H^+) = -\log K_a - \log\frac{[NH_4^+]}{[NH_3]}$$

$$pH = PK_a + \log\frac{[NH_4^+]}{[NH_3]}$$

$$pOH = PK_b + \log\frac{[NH_4Cl]_{unreacted}}{[OH^-]}$$

Now, K_a = 5.55 X 10 $^{-10}$ K_b = 1.8 X 10 $^{-5}$

When Lime is 0.1gm and NH_4Cl is 1gm

Molecular weight of lime is 74 g. 0.1g Lime was dissolved in 50 ml water. Molar concentration of lime solution available to react with ammonium chloride is (0.1 X 1000) / (74 X 50)= 0.027(M)

So, concentration of OH^- ion = 0.027 X 2 = 0.054(M).

Molar concentration of ammonium chloride is given by equation S3.

$$M_{NH_4Cl} = Amount\ of\ NH_4Cl * 1000 \Big/ Molecular\ weight\ of\ NH_4Cl * volume\ of\ water \quad (S3)$$

Unreacted $amount\ NH_4Cl$ is given by equation S4.

$$M1_{unreacted\ \ NH_4Cl} = \left(M_{NH_4Cl} - 0.054\right) M \qquad (S4)$$

$$\boldsymbol{pOH = PKb + log\frac{[unreacted\ NH_4Cl]}{[OH^{-}ion\ concentration]}}$$

pOH = 4.74 + log (0.32)/(0.054)
pOH = 5.51
pH = 14 – pOH
pH = 8.5

Neutralization of lime by sodium bicarbonate

A paramount requirement of sodium bicarbonate mediated deliming process is the elimination of ammoniacal nitrogen generation, which would reduce the cost and environmental burden.Lime while reacting with ammonium chloride produces a buffer (weak base with one of its salts) which drastic resists pH change.

The proposed neutralization scheme by NH_4Cl and $NaHCO_3$ is given by equation (1) to equation (7)

$$Ca(OH)_2 + 2NH_4Cl = CaCl_2 + 2NH_3 + H_2O \qquad (1)$$
$$\text{i.e. } Ca(OH)_2 + 2NH_4Cl = CaCl_2 + 2NH_4OH \qquad (2)$$
$$Ca(OH)_2 + NaHCO_3 = Ca(HCO_{3\,)2} + H_2O \qquad (3)$$
$$Ca(OH)_2 = Ca^{2+} + 2(OH^-) \qquad (4)$$
$$NaHCO_3 = Na^+ + (HCO_{\ 3}^{\ -}) \qquad (5)$$
$$(HCO_3^-) + (OH)^- = (CO_3^{2-}) + H_2O \qquad (6)$$
$$(HCO_3^-) + H_2O = H_2CO_3 + (OH)^- \qquad (7)$$

Ammonium chloride has the ability to react with calcium hydroxide in solution as well as dissolution stage whereas ammonium bicarbonate neutralizes lime only in solution stage.

Total molar concentration of calcium hydroxide when reacted with ammonium chloride is described by equation (8)

$$Total\ amount\ of\ lime\ added * 1000 \Big/ Molecular\ weight\ of\ lime * volume\ of\ water \qquad (8)$$

From equation (4), it is evident that $[Ca(OH)_2)] \equiv 2[OH^-]$

Molar concentration of lime in solution is calculated by equation (9)

$$[M_{Lime}] - \frac{Solubilty\ of\ lime}{MW\ of\ Lime} \qquad (9)$$

Now, solubility and molecular weight of lime is 0.9 g / L and 74, respectively [4].

So, $[M_{Lime}] = 0.9/74 = 0.012\ M$

Molar concentration of hydroxyl ion in the solution is calculated as

$$[M_{OH^-}] = 2 * [M_{Lime}] = 2 * \ 0.012\frac{moles}{L} = 0.024\ moles/L$$

From equation (8) and (9) the amount of lime available for reacting with ammonium chloride and ammonium bicarbonate are 0.27 M and 0.12 M, respectively.

The comprehensive calculated values of input-output analysisfor neutralization of lime are tabulated in Table 1 (Detail calculation given as supplementary data).

Equation (4) reflects that 1M of OH^- reacts with 1M of HCO_3^- to give 1M of CO_3^{2-}. So, concentration of $[CO_3^{2-}]$ is 0.024 M.

Molar concentration of HCO_3^- is calculated using equation (10)

$$[HCO_3^-] = \left({}^{W}/_{MW}\Big/_{V}\right) * 1000 \qquad (10)$$

Where, W is amount of $NaHCO_3$, MW is the molecular weight of $NaHCO_3$, V is the volume of the sample solution, respectively.

Concentration of HCO_3^- in the solution is denoted as

$$[HCO_3^-] = y\ M \qquad (11)$$

Amount of unreacted HCO_3^- is calculated as follows

$$[HCO_3^-] = (y - [CO_3^{2-}])M \qquad (12)$$

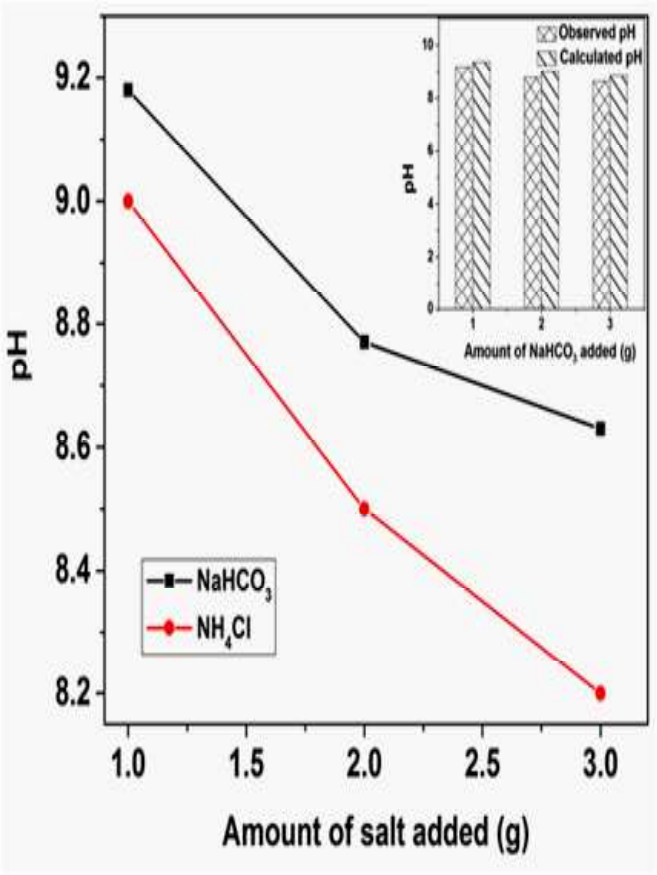
The alteration in pH of the solution is calculated using Henderson–Hasselbalch equation (equation (13))

$$pH = pK_{a2} + log\left[\frac{[CO_3^{=}]}{[unreacted\ \ HCO_3^-]}\right] \qquad (13)$$

The observed pH of the neutralized solution mediated by $NaHCO_3$ is in good accordance with the theoretical pH. Generation of TSS in the experimental process and the

conventional process as tabulated in Table 1. It has been manifested that there is a significant increase in the experimental process compared to the conventional process. The postulated mechanism of this process is similar to that of an alkali-mild alkali neutralization process.

Fig. 1. pH reduction profile of neutralization process at temperature 30◦C.



Environmental impact Ammoniacal nitrogen generation during conventional deliming process is one of the major environmental concerns. Fabrication of deliming recipe with sodium bicarbonate will pave a way towards an ecofriendly leather processing.

Economic Perspectives Utilization of a cheap, easily available chemical in the industry satisfies technical feasibility and cost-effectiveness. Employment of sodium bicarbonatein the newly developed recipe fulfills the economical feasibility. The total cost consumption for conventional and experimental deliming process is very much similar.

Table No. 1

Sl. No.	Lime Liquor composition (%)	Concentration of neutralizing salt (%)	pH				Ca^{2+} (ppm)		TSS (g)		Na^+ (ppm)	$[HCO_3^-]$ (M)	Umreacted $[HCO_3^-]$ (M)
			NH_4Cl		$NaHCO_3$		NH_4Cl	$NaHCO_3$	NH_4Cl	$NaHCO_3$	$NaHCO_3$		
			Observed	Calculated	Observed	Calculated							
1		0.4	9.76	9.67	10.71	10.3	1288.43	1.862	0.007	0.15	2213.44	0.048	0.024
2		1	9.36	8.86	9.67	9.7	1317.06	7.09	0.02	0.166	4575.79	0.119	0.095
3		2	9.3	8.5	9.18	9.36	1107.37	8.803	0.048	0.186	10550.83	0.23	0.206
4	0.2	3	9.08	8.3	8.95	9.1	1014.03	7.339	0.077	0.224	15149.82	0.357	0.333
5		4	9.02	8.1	8.77	9	905.963	6.64	0.103	0.258	20280.54	0.4761	0.4521
6		5	9	8.04	8.67	8.9	779.466	5.649	0.114	0.33	27269.21	0.595	0.571
7		6	8.99	7.9	8.63	8.84	750.911	4.219	0.134	0.285	29283.26	0.7142	0.6902

Analysis of Effluent:

In this research work predictable ammonium salt based deliming is replaced with sodium Bicarbonate to eliminate the ammoniacal nitrogen and also to decrease COD, BOD and harmful sulphide content in effluent water. The ammonia and nitrogen generation in experimental sodium Bicarbonate deliming process is nil. On the contrary, ammonium sulphatedeliming this value is about 986 mg/L. The BOD_5 and COD value for experimental trials are about 750 and 1560 mg/L respectively, which is very much lesser than that of conventional ammonium sulphate and chloride deliming(approximately 1150 and 3550 mg/L respectively). The control trial results high amount of sulphidecontent 5280 mg/L whereas the experimental trial shows the value nil.

Pollution load of sodium Bicarbonate and conventional deliming agent

Table No. 2

Deliming Agent	COD mg/L	BOD_5 mg/L	Sulphide content mg/L	Ammonia Nitrogen Content mg/L
Ammonium chloride + Ammonium sulphate	3550	1150	5280	986
Sodium Bicarbonate	1560	750	Nil	Nil

Organoleptic Properties

Tensile strength is 132.1 N/cm^2, which is above the minimum acceptable limit (100 N/cm^2) reported by UNIDO (New York, 1976). The elongation at break value of experimental leather was 55.8%, which is very close to the limit (max. 60%). Tear strength obtained for experimental trials is (27.5 N/cm) also above the sub-limit (min. 15 N/cm).

Evaluation of physical properties of goat crust leather

Table No. 3

Deliming Agent	Tensile Strength (N/cm^2)	Elongation at break (%)	Tear Strength (N/cm)
UNIDO	min. 100	max. 60	min. 15
Ammonium chloride + Ammonium sulphate	140	58.2	29.1
Sodium Bicarbonate	132.1	55.8	27.5

5. Conclusion

This study explores the utilization of $NaHCO_3$ for deliming, an important pretanning operation in leather manufacturing process.Sodium bicarbonatemediatedmild-alkali neutralization process could offer advantages in terms of waste minimization. Use of $NaHCO_3$seems an innovative addendumin the ecofriendly process. Generation of huge amount of TSS in the experimental process might be a stumbling block of the developed recipe for tanners due to the stringent environmental concerns.

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A STUDY OF THE SOLUBLE AND INSOLUBLE SALTS IN SOME VEGETABLE TANNING MATERIALS

PART V

N. N. GUHA

(Continued from March issue)

DEVELOPMENT OF METHODS FOR THE DETERMINATION OF AMMONIUM SALTS AND PHOSPHATES IN VEGETABLE TANNING MATERIALS

Ammonium salts in tanning materials :

The reason for the difference of results between barium sulphate and resin column methods is attributed to the influence of ammonium salts. During ashing of tanning materials, the ammonium salts volatilise but in the resin column procedure the same are included in the result. As both the methods were used in the present investigation (also the two developed methods for salt determinations), it was desirable to determine the ammonium salts quantitatively. The information regarding this is very scanty in the literature.

No standard method exists for the determination of ammonium salts in vegetable tanning materials.

It was thought possible that the presence of organically combined nitrogen which has been reported in the literature, might result in high results for ammonium salts due to decomposition during distillation. Therefore, in the first experiment, in which the material was suspended in 40% caustic soda during the distillation, the following procedure was used :

20 gms of material was suspended in 250 ml. distilled water and 10 ml. 40% caustic soda added in kjeldahl flask. The ammonia was collected in $\frac{N}{5}$ H_2SO_4 and after 15-20 minutes the receiver was changed and the distillation continued for a further 10-15 minutes into a fresh quantity of acid. The procedure was repeated for a further 10 minutes distillation.

The results are given below for chestnut and sumac :

Material	Distlllation time	ml. of $\frac{N}{5}$ H_2SO_4 consumed	
		(i)	(ii)
Chestnut	15 minutes	5.2	4.6
	25 ,,	5.4	5.1
	35 ,,	5.4	5.2
Sumac	20 ,,	4.7	5.1
	35 ,,	6.0	6.6
	45 ,,	6.1	6.1

The fact that the ammonia was liberated comparatively slowly indicated that decomposition was occurring.

Therefore it was decided to maintain the pH at a lower vaiue during the distillation in an attempt to overcome this difficulty. This could be achieved by the use of a buffer solution. It was shown by a separate experiment that ammonia from ammonium sulphate could be quantitatively recovered by distillation at pH 9. 0. So the following procedure was adopted :

Method

5 gms. of tanning material or 1 gm. of extract was taken in a small kjeldahl flask, 50 ml. of pH 9. 0 buffer solution was added. Because of the acidity of the materials the pH dropped considerably and the suspension was therefore adjusted again to pH 9. 0 with NaOH before the distillation started. The distillation was continued for 15-20 minutes and the ammonia liberated was absorbed in 25 ml. of $\frac{N}{50}$ H_2SO_4 in a small beaker. The amount of ammonium salts absorbed can then be determined by titrating the excess acidity left in the solution with 'bromophenol blue' as indicator. Ammonium salts were then calculated as mgm. equiv. per 100 gm. tanning material. A blank distillation was also performed.

PREPARATION OF pH 9. 0 BUFFER SOLUTION :

Solution "A"

12.4 gm. Boric acid and 14.9 gm KCl made upto 1 litre. 500 ml. of 'solution A' is mixed with 214 ml. of $\frac{N}{5}$ NaOH and then made upto 2 litres.

TABLE I

Ammonia salts in tanning materials and extracts

Material	In tanning material mgm. eq./100 gm. material	In extract		In spent material (By difference) mgm. eq/100 gm. original material (air dry)
		mgm. eq./100 gm. Original material (air dry)	mgm. eqv/100 gm. extractable solids	
Mimosa	1.8	1.9	4.3	Nil
Sumac	2.8	3.0	8.0	,,
Chestnut	2.0	1.7	8.7	0.3
Myrabolan	1.9	1.7	2.6	0.2
Valonia	1.7	1.8	4.7	Nil

The results for the extracts of mimosa, sumac and valonia came very close to the figures for the original materials when expressed on the same basis. Only in myrobalams and chestnut were differences apparent. It seems possible that small amounts of ammonium salts were still retained.

One would expect that all the ammonium salts would be soluble and therefore the small figures obtained for the spent chestnut and myrabolams may be experimental error especially as they were found by difference.

Phosphorus in tanning materials

To determine phosphorus (and also other inorganic constituents) in tanning materials, it is generally necessary to destroy the organic matter. It can be done in two ways :

(i) Dry ashing and (ii) Wet ashing respectively.

Dry ashing refers to processes in which the sample is ignited while wet ashing includes those methods in which the destruction of the organic matter is brought about by oxidation in a liquor medium.

Wet digestion can be carried out by sulphuric and nitric acids, and also by sulphuric, nitric and perchloric acids. Digestion by the second method is quite useful when micro quantities of phosphorus are present in the samples and so this method was used.

MICRO METHOD

Digestion of tanning materials

A suitable quantity of tanning material in duplicate or triplicate (1. 0 gm. for either tanning material or residual material) was dried in the oven and then it was digested in a small kjeldahl flask with 2 ml. of a mixture of H_2SO_4 and $HClO_4$ (1 : 1) and sufficient HNO_3 (about 10 ml). 1 or 2 drops of paraffin oil were introduced in each flask to prevent frothing of the liquid. A blank determination was done by taking 1 gm. of sucrose and adding the same reagents as before. At first, a low temperature was employed and a vigorous reaction, accompanied by the evolution of copious red fumes, set in immediately but the liquid paraffin prevented persisting frothing. This initial reaction became quiter after a few minutes and digestion then proceeded smoothly until the nitric acid was completely boiled off. When fumes of perchloric acid began to appear, a second vigorous action set in. The onset of this vigorous action was fairly sudden and it only lasted for a minute or two. The digestion was continued, still at low heat for a further 5-10 minutes. Then the temperature was raised to the full extent so that the refluxing of the sulphuric acid took place at the base of the neck of the flask. This was continued for about 5 minutes to dehydrate the silica thoroughly. When completed, the digest consisted chiefly of the 1 ml. of sulphuric acid originally added. The hot liquid was yellow-green in colour but became colourless in cooling.

Some charring occasionally occurred after most of the nitric acid was expelled and perchloric acid fumes began to appear, but carbon which separated was usually oxidised within a minute or two. If it persisted, however, 2—3 ml. of nitric acid was added and the digestion was continued as usual. Charring occurred

particularly if the digestion was carried out too rapidly and the nitric acid was boiled off in the early stages. The temperature of digestion should be such that it takes 35—45 minutes to reach the stage of the second vigorous reaction.

When the digestion was complete, 30 ml. of hot water were added and the flask shaken until solution was as complete as possible. The solution was filtered through whatman No. 42 filter paper. The final volume was made upto 500 ml. The insoluble residue consisted almost entirely of silica.

Colorimetric determination by spectrophotometer [3]

An aliquot of the solution (100 ml.) was taken and placed in a conical flask (250 ml.) adding sodium sulphite solution (1 ml.) and acid molybdate reagent (2 ml.). It was then allowed to stand for at least 3 minutes and dilute stannous chloride solution was added (1 ml.). The blue colour was determined after 5 – 7 minutes using a spectrophotometer at 695 m wavelength and with 1 cm. cells.

Reagents

(1) Sodium Sulphite-An aqueous solution containing 33 gm. of $Na_2SO_3, 7H_2O$ per 100 ml.

(2) Acid molybdate Solution-Dissolve 10 gm. of ammonium molybdate in 100 ml. of water and add to 130 ml. of conc. H_2SO_4 diluted with 170 ml, of water.

(3) Stannous chloride (Stock solution)—Dissolve 40 gm. of $SnCl_2\ 2H_2O$ (clean unoxidised crystals) in 50 ml. of conc. HCl and 50 ml. of water. (This solution is reasonably stable). Stannous Chloride (dilute solution)—Add about 0. 7 ml. of stock solution to 20 ml. of 5% HCl. The stock solution must be diluted before conducting the experiment.

Standard Curve for Phosphorus determination

A standard solution of sodium phosphate was made up by dissolving 0. 580 gm. $Na_2HPO_4, 12H_2O$ (A. R.) in 250 ml. distilled water. Four solutions were prepared by diluting the stock solution 10, 20, 40 and 50 times respectively.

5 ml. portion of each solution plus 100 ml. distilled water was treated as described before and a blank was also determined by treating 105 ml. of distilled water. The results are given below :

TABLE II

Dilution O. D.	mgm, of P_2O_5 Total volume 109 ml.	mgm. P_2O_5 corresponding to 1. O optical density	Average conversion factor (f)
(1) 10 x stock 0. 731	460	$\frac{460}{0.731} = 629.3$	
(2) 20 x stock 0. 369	230	$\frac{230}{0.369} = 623.3$	626.3
(3) 40 x stock 0. 181	115	$\frac{115}{0.181} = 635.3$	
(4) 50 x stock 0. 149	92	$\frac{92}{0.149} = 617.4$	

A standard curve may be prepared by plotting the concentration of the solution against the optical density and a straight line would be obtained passing through the origin.

AN EXAMPLE OF CALCULATION

Tanning material	Average O. D. (after subtracting Sucrose blank)	Micrograms P_2O_5 in the aliquot	% P_2O_5 in original material
Myrabolan	0.630	0.630 x f *	$0.630 \times 626.3 \times \frac{100}{1} \times \frac{500}{1} \times \frac{1}{10^3} = 0.166\%$

* f = Conversion factor

The phosphorus content of the tanning materials and products were determined by the method already described. A sucrose blank (duplicators) was used to correct for any small amounts of phosphorus which might be present in the digesting acids and other reagents. By using the conversion factor (626.3 which is gm. P_2O_5 per 1.0 optical density), the corrected optical density was converted to mgm. P_2O_5 in the aliquot and then to % P_2O_5.

Mimosa contained more phosphorus than chestnut but only in Sumac, Valonia and Myrobalams were the quantities relatively large. The large amounts of phosphorus in valoniaand myrobalams may be related to thepresence of enzymes and bloom formation, particularly as almost all of the phosphorus in these two materials is soluble as can be seen in table IV. Only about halt the phosphorus in the other materials is soluble and the phosphorus content of all the spent materials except chestnut cannot be said to be negligible

Comments

Holmes and Wollenberg[4] have presented evidence which suggests that nitrogenous compounds are taken up by leather during vegetable tannage. Organically combined nitrogen is probably more important in this respect, bnt possibly ammonium salts also contribute to this effect. All the extracts contained phosphorus and in sumac, myrobalams and valonia, the amounts ranged from 0.2 to 0.35% P_2O_5 or 9-15 mgm. equiv. per 100 gm. dry extract. This is quite an appreciable amount of phosphorus but as Phillips[1] found that phosphorus was not taken up during vegetable tannage, it is probably part of certain non-tannin constituents.

It was found that the colorimetric procedure for phosphorus was very satisfactory. This method can be well recommended whenever a knowledge of the phosphorus content in tanning materials or related products is required. It is probable that the method would be satisfactory possibly after modifying the wet oxidation stage, for determining phosphorus in leather for which there is no well established procedure.

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TABLE III

PHOSPHORUS DETERMINATION

Spectro photometric readings for optical density of the tanning materials and spent products

Material	Sucrose blank (average)	Original material (air dry)		Sucrose blank (average)	Spent product (air dry)	
		Actual average O. D.	Average O. D. minus blank		Actual average O. D.	Average O.D. minus blank
Mimosa		0.274	0.261		0.234	0.228
Sumac		0.580	0.567		0.573	0 567
Chestnut	.013	0.094	0.081	.006	0.041	0.035
Myrabolan		0.638	0.625		0.362	0.356
Valonia		0.618	0.605		0.284	0 278

TBALE IV

Distribution of phosphorus in the soluble and insoluble portion of the tanning materials

Material	Original material air dry	Spent Material		Extract (by difference)	
	% P_2O_5	% P_2O_5 (On original material basis).	% P_2O_5 (on dry spent Material basis	% P_2O^5 (on originrl Material basis)	% P_2O_5 (on extractable solids basis)
Mimosa	0.077	0.035	0.079	0.042	0.097
Sumac	0.169	0.092	0.183	0.077	0.206
Chestnut	0.024	0.009	0.012	0.015	0.077
Myrabolam	0.186	0.037	0.147	0.149	0.220
Valonia	0.180	0.045	0.094	0.135	0.354

A STUDY OF THE SOLUBLE AND INSOLUBLE SALTS IN SOME VEGETABLE TANNING MATERIALS

Part VI

N. N. Guha

(*Continued from April issue*)

Cation effects in vegetable tanning :—

The influence of cations in vegetable tannage although will be less important than those of the anions (as already stated in part II of the series), neverthless they should not be ignored. Reference in this connection may be obtained from the investigations of Lee and Wollenberg (1) and cheshire (2). A few other workers also stressed the importance of cations in vegetable tannage (3, 4, 5, 6, 7).

Therefore an attempt was made to determine quantitatively the soluble and insoluble portions of the individual main cations in some typical materials together with the total cations in the original tanning material.

The analyses of spent materials in this regard may be helpful in designing other uses of these waste materials.

The differences in the distribution of cations in vegetable tanning extracts may have some practical significance. It is well known that divalent cations such as Calcium and Magnesium have a more pronounced lyotropic action than monovalent ions such as Sodium and Potassium. As far as earlier liquors are concerned in a conventional vegetable tannage, the effects of the cations in the vegetable tanning extracts are likely to be insignificant in relation to the rather larger quantities of salts brought in from the pretanning operations. However, when the hides reach the later liquors, it is probable that the bulk of these salts have been washed out. The later liquors are also much stronger and therefore the quantity of salts being added from the tanning materials is relatively large.

Taking the range of soluble salt contents of the extracts of mimosa, myrabolams and valonia as being 40-90 mgm. equiv. per 100 gms. of solids (as determined in the present work), it can be easily calculated that in a liquor of 140°BK, the total salt concentration arising from the tanning extracts will be 0·1-0·25 N.

This range of concentration is high enough to lead one to expect different effects due to the different amounts of strongly and weakly lyotropic cations present in the various extracts. It is quite probable that in hot pitting, the elevated temperature might

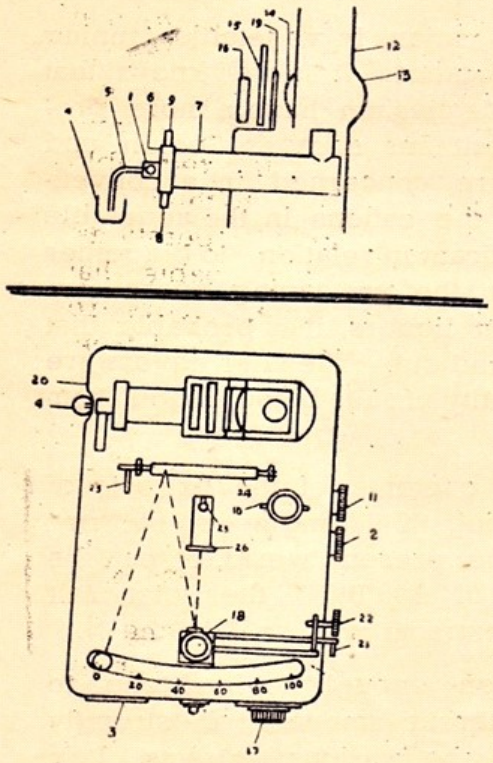
accentrate the lyotropic action and any other effects due to the salts present in the strong liquors.

A new attempt to use 'Flame Photometer' for the determination of main cations in vegetable tanning materials :—

In the present investigation, as far as possible newer and quicker methods are tried to evolve and utilise. The use of flame photometer for estimating micro quantities of Na, K or Ca is well known, but tanning materials were not analysed with this instrument before. An attempt was made to determine the main cations in Vegetable tanning materials with the help of this instrument by standardisation, modification and adjustment of the various steps.

A diagram of the "E E L" flame photometer is shown. The principle and operation of the instrument is based upon the quantitative measurement of the characteristic light emitted when a solution of the metal is atomised as a mist into a gas flame.

DIAGRAM OF 'EEL' FLAME PHOTOMETER



1. Atomiser
2. Control valve (Air pressure)
3. Gauge
4. Sample beaker
5. Inlet tube (for the entry of sample Solution)
6. Plug
7. Spray Chamber
8. Drain tube
9. Inlet tube (for gas)
10. Gas pressure stabiliser
11. Control Valve (gas)
12. Chimney
13. Reflector
14. Lens
15. Interchangeable optical filter
16. Photo-cell
17. Calibrated potentiometer unit
18. Suspension galvanometer unit
19. Glass window
20. Cover Plate
21. Unlocking lever
22. Zero control knob
23. Retaining screw
24. Plane mirror
25. Lever for tilting mirror

Air is introduced to the all metal atomiser through a control valve at the pressure indicated on a gauge mounted at the front of the instrument. Liquid from the sample beaker is drawn up the inlet tube by the stream of air which atomises the sample to a fine mist. The atomiser clips into a plug at one end of the spray chamber in which the larger droplets fall from the air stream and flow to waste through the drain tube.

Gas is introduced into the spray chamber through the inlet tube which is connected by plastic tubing to the automatic gas pressure stabiliser and control valve.

The light emitted by the flame is collected by a reflector and focussed by a lens through the interchangeable optical filters on to an "EEL" barrier layer photo cell. The current generated by this cell is taken through a calibrated potentiometer to an "EEL" taut suspension galvanometer unit. A glass window is interposed between the lens and filter for cooling purposes.

Operation :-

(1) It is checked first that the sensitivity control is turned right down (i.e. fully anticlockwise) and that the appropriate filter is in position in front of the photo cell.

(2) A lighted taper is inserted through the hole in the inner casing by the burner.

(3) The gas supply is turned on to the instrument, the gas control is unscrewed at the side of the instrument and the flame is lighted.

(4) The air supply is turned on to the instrument and the air control at the side of the instrument is adjusted to obtain pressure gauge reading of 10. lbs./sq. inch.

(5) The small beaker supplied with the instrument is filled with the solution being sprayed and moved along the bench to sampling position.

All tubing used to connect the gas and air supplies to the instrument should be "blown through" with compressed air to remove any dust or dirt. Such dirt might otherwise be blown through the air pipe to cause a blockage at the annular air jet in the atomiser. If any rubber tubing is used for this purpose, no french chalk should be applied. In the present work, polythene tubes were used.

The 'drain tube' has been fitted to the chamber deliberately at a point where the pressure is slightly below atmosphere. This means that gas, air and sample cannot be lost through the drain pipe, but it is possible that air can be sucked from outside into the chamber through this pipe. For this reason a rubber pipe should always be connected to the drain tube of the instrument and this pipe should run progressively downwards towards a sink or bottle, where the end of the tube should preferably be immersed beneath water, the head must not exceed $1\frac{1}{2}''$. This arrangement ensures a water seal and fluctuations cannot then occur due to the entry of air.

Standard Solutions:-

(Triple distilled water was used for all dilutions)

Calcium Standard Solutions

0·3125 gm. of dry analar $CaCO_3$ was accurately weighed, dissolved in 12·5 ml. of, $\frac{N}{2}$ H_2SO_4 and made upto 250 ml. with triple distilled water. This was the stock solution and the concentration was 500 p.p.m. It was diluted 10 and 20 times to give solutions of the strength of 50 p.p.m. and 25 p.p.m. respectively. 37·5 p.p.m, 100 p.p.m. and 200 p.p.m. solutions were also required sometimes for investigations and they were made with proper dilutions from the stock solution.

Sodium standard solutions

1.75 gm. of dry analar Na_2SO_4, 10 H_2O was accurately weighed, dissolved in triple distilled water and finally the volume was made upto 500 ml.

Thus, in 500 ml. of solution, Na present=250 mgm. or 50 mgm. of Na/100 ml. of solution. So, the strength of the stock solution was 500 p.p.m., 5 p.p.m., 2·5 p.p m., 1·5 p. p .m. and 1 p.p.m. solutions were used in the determinations and some investigations and they were made by proper dilution of the stock solution.

Potassium standard solutions

0·557 gm. of dry analar K_2SO_4 was accurately weighed, dissolved in triple distilled water and finally the volume was made upto 500 ml. Thus, in 500 ml. solution, K present=250 mgm. or 50 mgm. K/100 ml. solution. So, the strength of the stock solution was 500 p.p.m. It was diluted 50 and 100 times to get solutions of the strength of 10 p.p.m. and 5 p.p.m. respectively.

Calibration of the instrument :—

1) The strongest standard solution is sprayed and by means of

the calibrated potentiometer, the galvanometer spot is adjusted to read approximately full scale deflection.

2) Triple distilled water is sprayed and the galvanometer spot is adjusted to read zero by means of the zero control at the right hand side of the instrument.

3) Standard solution is sprayed again and the galvanometer reading is adjusted to exactly full scale deflection.

4) Triple distilled water is sprayed again to check zero reading.

These operations are repeated 3 or 4 times until the galvanometer spots are exactly on 'zero' and '100" when used against triple distilled water and the strongest standard solution respectively.

It is recommended that periodically the standard solution be sprayed to check the full scale deflection of the galvanometer.

The size of the flame was found to be critical. A relatively small flame, as recommended by the manufacturers, was found to be best for Na and K, but a rather larger flame was needed to cover a reasonable range of calcium concentrations. With this limitation the flame should be as small as possible for maximum sensitivity.

The galvanometer scale is evenly divided and readings on this scale are proportional to the current generated by the cell. Due to the saturation of the flame by the salt in question, this current is not directly proportional to the concentration of the solution being sprayed. By testing known solutions, a calibration curve may be drawn connecting scale reading and relative concentration. It should be remembered that such a curve holds only for the range of concentration for which it is prepared.

Calibration Curves :-

The correct absorption filter was placed in position. A deflection to 'zero' of the scale with triple distilled water was obtained. Then a full scale deflection of the galvanometer was established with the maximum standard solution and a calibration curve was obtained with 2 or 3 more dilute standards.

The readings were found reproducible to at least $\pm 1\%$ of the maximum deflection.

The calibration curve was plotted only once for each metal. However, before any unknown solution was read, following the initial calibration using the highest standard and triple distilled water a second standard (usually half the strength of the maximum) was

read and only if this reading showed satisfactory agreement with the calibration curve, was the determination of the unknown carried out.

The unknown concentration was then obtained from the calibration curve. An additional complication was found due to calcium interference in the sodium readings which will be discussed below.

The relevant data for the calibration curves for sodium, potassium and calcium are given below :-

Standards	Concentration in p.p.m.	% deflection in flame photometer
	5	100
Sodium	2·5	52
	1	21
	10	100
Potassium	5	52
	2·5	25
	50	100
Calcium	37·5	76
	25	51

Interference effects :-

Difficulties have been experienced in the use of the flame photometer due to interfering effects of ions other than the one under examination. These effects may be classified as :-

(a) Due to anions and (b) Due to cations. Phosphate is one of the more important interfering anions and was found for instance by Bond and Stace (8) to depress the emission of calcium. In the present work, phosphate was removed completely or reduced to a very low level (after sulphating the ash of vegetable tanning materials) and interference from this source was considered to be negligible.

Collins and Polkinhorne (9) also made investigation of anionic interference in the determination of small quantities of potassium and sodium.

As sulphated ashes were used in the present determinations, only one anion was present and the sulphates of calcium, sodium and potassium were used as standards. Thus no interfering effects due to anions could occur in the present study.

In general, anions cause interference by increasing or decreasing the emission of the cation under investigtion. Interfering cations seem to have a different effect as in some cases their emission can pass through the filter and give higher results for the specific cations.

This was found by the above workers to be true with the "EEL" instrument. They found that calcium produced high results in the determination of sodium. This interference could be reduced by using a more selective filter than the gelatin type supplied with the instrument. Alternatively, the calcium emission could be considerably reduced by the addition of H_2SO_4; or ensuring that SO_4" was the only anion present.

In the present work the calcium was present as $CaSO_4$ but severe interference was still experienced in the determination of sodium in some cases.

The first method which was tried to over come this difficulty was to precipitate the calcium with oxalate. The precipitation of solutions containing known amounts of Ca^{++} and Na^{+} was carried out at the boil in the conventional way, ammonium chloride being added, followed by saturated ammonium oxalate solution. After filtration and making up to volume, the solutions were read using the sodium filter. Surprisingly high results were obtained for sodium even after precipitation of the calcium. This error which was traced was due to ammonium salts. Further investigation showed that :—

a) NH_4Cl gave a bigger interference than ammonium oxalate.

b) The ash of the ammonium chloride and ammonium oxalate reagents gave reduced readings for sodium compared with the original salts, but appreciable deflections were still obtained.

c) The ammonium oxalate solution gave no reading for calcium when a calcium filter was used.

d) The filtrate gave no deflection for calcium when a calcium filter was used.

e) When potassium oxalate was substituted for ammonium oxalate as precipitating agent, interference in the sodium readings was still obtained.

It was concluded that some sodium was present in the reagents, particularly ammonium chloride and potassium oxalate and possibly ammonium oxalate although A. R. reagents were used. The stated sodium contents should not have produced appreciable errors. The

reagents did not contain appreciable amounts of calcium and the precipitation of the latter from the original solution seemed to be complete.

Some of the interference seemed to be due to the ammoniumion itself when present in large amounts.

This approach was therefore abandoned and an investigation was carried out to see if the interference could be eliminated by a suitable correction based on the calcium reading.

The Ca-radiation was determined by taking several standard solutions of varying strengths with the sodium filter and the results were as follows :—

$CaSO_4$ solutions examined with the sodium filter—

Na_2SO_4 5 p. p. m. gave 100% deflection

(1) 50 p. p. m. $CaSO_4$ Solution— 23% deflection

(2) 100 p. p. m. ,, ,, — 47% ,,

(3) 200 p. p. m. ,, ,, — 90% ,,

These results were used to correct the readings of the mixed solutions given below :—

Concentration p.p.m.		% deflection (5 p.p.m. Na=100%)	% deflection due to calcium	(3)–(4)	Na reading of Ca-free solution
Calcium	Sodium				
(1)	(2)	(3)	(4)		
100	2·5	95	47	48	51
100	1·0	67	47	20	19
125	1·25	77	57	20	25
125	0·5	63	57	6	9

The corrected results for solutions containing 100 p.p.m. of calcium and ratios of 40-100 Ca/Na were quite satisfactory but when the calcium content was increased further, and the ratio increased, larger errors were produced.

In general, the ratio of calcium and sodium for the tanning materials was not expected to exceed the lower values studied here and so it was decided to use the above correction procedure.

It was thought that the calcium deflection using a Ca-filter, for the same concentration of unknown solution as was used in reading the sodium should be the initial reference point for the correction.

Generally of course, the calcium readings for the calculation of calcium are taken on a solution of different strength from that employed for the sodium determination.

Thus a graph may be plotted relating the calcium deflection using the calcium filter with the sodium deflection using a sodium filter, determined on the same solutions. The relevant data are given below.

In reading an unknown solution, the apparent sodium deflection is first obtained. Then using the same solution, the calcium reading is found and by reference to the calcium correction curve the corresponding sodium deflection is obtained. This figure is then subtracted from the apparent sodium figure to give the corrected sodium deflection. Finally this corrected figure was used to obtain the sodium concentration by reference to the sodium calibration curve.

Data for the correction graph for calcium interference :

Strength of the calcium Standards used in p. p. m.	Deflection with sodium filter adjusted to 5 p.p.m. Sodium Solution giving 100% deflection	Deflection with ca-filter adjusted to 50 p.p.m. Calcium Solution giving 100% deflection
10	5	20
25	12	51
50	23	100

Preparation of solution of tanning materials under examination :-

A suitable quantity of tanning materials were ashed and sulphated as usual. The phosphate was precipitated as usual by adding a few drops of $FeCl_3$ solution and neutralising. The filtrate was made upto 250 ml. Portions from this were taken for Ca, Na, K (and calcium correction figure on different dilutions) determinations.

Usually 2 gms. of material were ashed but a larger quantity (5 gms.) was required for chestnut.

Examples of calculations :-

Sodium

Mimosa tanning material — 2 gms. ashed and sulphated and the solution was made upto 250 ml. Call this solution "A". The solution was diluted twice for sodium determination and call this solution "B".

Na_2SO_4 5 p.p.m. (Na-filter) - 100% deflection.

Mean Apparent reading of solution "B" — 63%
Correction — 10·5%

Correction

50 p.p.m. Ca^{++} solution - 100% deflection.

Mean reading of solution "B"—45% which corresponded to 10·5% (correction from the correction graph).

∴ The corrected reading = 52·5% which corresponded to 2·6 p.p.m. (from the calibration graph of sodium)
or 2·6×2=5·2 p.p.m.=5·2 mgm./litre.
or 5·2÷4=1·3 mgm. in 250 ml.

or $1{\cdot}3\times\frac{1}{23}\times\frac{100}{2}=\frac{65{\cdot}0}{23}=2{\cdot}82$ mgm. eq. per 100 gm. tanning material.

Calcium

In this determination, studies were not made for interference effects but figures were compared later with the results by the EDTA method.

The solution "A" was employed for this determination 50 p.p.m. Ca^{++} solution — 100% deflection.
(Ca - filter).

Mean reading of solution "A" — 85%
or $\frac{85}{100}\times\frac{50}{1}=\frac{85}{2}$ p.p.m. or $\frac{85}{2}$ mgm./litre.
or $\frac{85}{2}\div4=\frac{85}{8}$ mgm. in 250 ml.
or $\frac{85}{8}\times\frac{1}{10}\times\frac{100}{2}=26{\cdot}56$ mgm. eq./100 gm. tanning material.

N.B. As the calibration curve of calcium was almost linear, the calculations were based proportionately on the readings without reference to the calibration curve.

Potassium

Myrabolam tanning material—2 gms. ashed and sulphated and the solution was made upto 250 ml. The solution was diluted ten times for potassium determination and call this solution "C".

10 p.p.m. K^+ solution — 100% deflection
(K - filter).

Mean reading of solution "C" — 44% which corresponds to 4·3 p.p.m. (from the calibration graph of potassium).
or 4·3×10=43 p.p.m.=43 mgm./litre.
or 43÷4=10·75 mgm. in 250 ml.
or $10{\cdot}75\times\frac{1}{10}\times\frac{100}{2}=13{\cdot}01$ mgm. eq./100 gm. tanning material.

[To be continued.]

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ATTENTION PLEASE !

The Members are requested to notify all changes of address to the Association as soon as such occasions arise in order to enable it to serve them more efficiently.

MODI'S $5 TRN ECONOMY IS A USELESS TARGET : JEAN DREZE

'The function of this target is to pander to the super-power ambitions of the Indian elite.'

India might be heading towards a "serious livelihood crisis" as the situation seems to be worse this time for the working class amid the COVID crisis and local restrictions by states already add up to something close to a nationwide lockdown, according to noted economist Jean Dreze.

In an interview to PTI, he also said the government's target to make India a $5 trillion economy by 2024-25 was never a "feasible target" and was just to pander to the "super-power ambitions" of the Indian elite. About the impact of the second wave of COVID on the Indian economy, the eminent economist said the situation today is not very different from what it was around this time last year as far as working people are concerned.

"The economic consequences of local lockdowns may not be as destructive as those of a national lockdown."But in some respects, things are worse this time for the working class," he opined.

Further, the eminent economist said the fear of infection is more widespread and that will make it hard to revive economic activity. "Despite mass vaccination, there is a serious possibility that intermittent crises will continue for a long time, perhaps years. "Compared with last year, many people have depleted savings and larger debts.

"Those who borrowed their way through last year's crisis may not be able to do it again this time," he observed. Dreze also pointed out that last year there was a relief package and today relief measures are not even being discussed. "On top of all this, local lockdowns may give way to a national lockdown relatively soon.

"In fact, they already add up to something close to a country-wide lockdown. "In short, we are heading towards a serious livelihood crisis," he said. On how the government could have missed seeing the second COVID-19 wave coming, Dreze said the Indian government has been in denial all along.

"Remember, the government refused to admit about any 'community transmission' of COVID for a long time, even as recorded cases were counted in millions. "When an early analysis of official data exposed the collapse of health services, the government retracted the data," he said.

He pointed out that misleading statistics have been routinely invoked to reassure the public that all is well. "Denying a crisis is the surest way to make it worse. We are now paying the price of this complacency."India has been reporting more than three lakh new COVID cases daily in recent weeks and the death toll, due to the infection, is also rising.

Noting that India is also paying the price of a long history of neglect of the health sector, especially public health, Dreze said nothing is more important than health for the quality of life, yet public expenditure on health in India has hovered around a measly 1 per cent of GDP for decades.

When asked about the sort of relief measures that could be put in place to deal with possible livelihood crisis, he said as a starter, the central government could replay the 2020 relief package. "But it is important to go beyond that, and to consolidate the social security system on a durable basis," the eminent economist said, adding that ad-hoc, short-term relief measures tend to breed confusion, corruption and waste.

Dreze, who was also part of the National Advisory Council (NAC) that had advised the previous UPA government, said much can be done within the framework of existing social security schemes and laws such as the public distribution system, the National Rural Employment Guarantee Act (NREGA), the National Social Assistance Programme, and the Integrated Child Development Services.

He also noted it would be easy to provide supplementary food rations to all ration-card holders for much longer than the

proposed two months, and also to expand the coverage of the public distribution system. “Going beyond existing schemes, I think that a well-designed, inclusive cash-transfer programme would be useful,” Dreze opined.

According to him, if intermittent crises are going to continue for years, which are very possible, it would really help to have a well-functioning system of cash relief that can be activated whenever the need arises. “Turning India into a $5 trillion economy by 2024-25 was never a feasible target, and it is a useless target in any case.

“The function of this target is to pander to the super-power ambitions of the Indian elite,” the Belgian-born Indian economist said. In 2019, Prime Minister Narendra Modi envisioned to make India a $5 trillion economy and global power house by 2024-25. According to Dreze, even if we accept GDP as a valid development indicator, the standard approach is to look at GDP at its per capita terms.

“But then India looks like one of the poorer countries in the world, which it is. “Looking at aggregate GDP, which is naturally quite large because of India’s large population, creates an illusion of prosperity and power,” he argued.

Dreze pointed out that actually it is not entirely an illusion because if the government’s interest is in power on the world stage rather than in the living conditions of the people, then, yes, aggregate GDP would matter. “For instance, it would enable you maintain a large army. But this has nothing to do with development,” he observed.

(PTI/Rediff – 11/05/2021)

GOLDMAN SACHS LOWERS INDIA’S GROWTH FORECAST FOR FY21 TO 11.1%

Wall Street brokerage Goldman Sachs has lowered its estimate for India’s economic growth to 11.1 per cent in fiscal year to March 31, 2022, as a number of cities and states announced lockdowns of varying intensities to check spread of coronavirus infections.

India is suffering the world’s worst outbreak of COVID-19 cases, with deaths crossing 2.22 lakh and new cases above 3.5 lakh daily. This has led to demand for imposition of nationwide strict lockdowns to stem the spread of the virus - a move that the Modi government has so far avoided after the economic devastation last year from a similar strategy.

Instead, it has left it to the states to impose restrictions to manage the virus. Several states and cities have imposed lockdowns of varying degrees. “The intensity of the lockdown remains lower than last year,” Goldman Sachs said in a report. “Still, the impact of tighter containment policy is clearly visible in higher frequency mobility data across key India cities.”

As containment policy has tightened, high frequency data — particularly on the services side — has taken a hit. The manufacturing side — as indicated by high frequency data on electricity consumption, and the stable April manufacturing PMI — has been more resilient.

Labour market indicators suggest that the daily unemployment rate has ticked up moderately in recent weeks, but the employment impact so far is much more contained than in April-June last year. “Overall, most indicators still suggest that the impact has been less severe than it was in Q2 (April-June) last year,” Goldman Sachs said.

While the lockdown impact is much less severe than last year, the recent declines in services indicators including e-way bills, mobility, rail freight and cargo traffic has led to trimming GDP estimates. “While activity is likely to rebound back quite sharply from Q3 (July-September) onwards — assuming restrictions can ease somewhat over that timeframe — the net result is to lower our FY22 real GDP growth forecast to 11.1 per cent (from 11.7 per cent previously), and our 2021 calendar year growth forecast to 9.7 per cent (from 10.5 per cent),” it said.

Goldman Sachs is not the first brokerage which has downgraded the GDP growth projections. While Nomura last month

downgraded projections of economic growth for the current fiscal year (April 2021 to March 2022) to 12.6 per cent from 13.5 per cent earlier, JP Morgan projects GDP growth at 11 per cent from 13 per cent earlier. UBS sees 10 per cent GDP growth, down from 11.5 per cent earlier and Citi has downgraded growth to 12 per cent.

India's GDP growth had been on the decline even before the pandemic struck earlier last year. From a growth rate of 8.3 per cent in FY17, the GDP expansion had dipped to 6.8 per cent and 6.5 per cent in the following two years and to 4 per cent in 2019-20.

In the COVID-ravaged 2020-21 fiscal (April 2020 to March 2021), the economy is projected to have contracted by up to 8 per cent. RBI has projected FY22 GDP growth at 10.5 per cent, while IMF puts it at 12.5 per cent. The World Bank sees 2021-22 growth at 10.1 per cent. New confirmed cases are up sharply from 2 lakh a day two weeks ago.

Active cases have increased to 34 lakh from 15 lakh two weeks ago. "The outbreak is broadening to other states such as Uttar Pradesh and Karnataka, with Maharashtra's share in total active cases falling to 20 per cent, from 60 per cent a couple of weeks ago," the Goldman Sachs report said.

Testing has increased and so has the daily positive rate to 21.3 per cent, from 13.1 per cent two weeks ago. "Medical infrastructure remains under severe pressure in many large cities with acute shortages in medical oxygen, blood plasma, key drugs and hospital beds," it said. "Government medical panel estimates suggest cases could rise to over 5,00,000 per day by mid-May."

Goldman Sachs said there are some early signs of a peak in the rate of change of total active cases, although new cases and the positive testing rate remain very high. On the vaccine front, India has vaccinated 12.6 crore beneficiaries with the first dose and 2.73 lakh beneficiaries with the second dose (9.3 per cent of total population has received at least one dose) as of May 3. "The vaccination pace has fallen to 23 lakh per day compared to 33 lakh a day two weeks ago, as key vaccine manufacturers highlight production delays on raw-material shortages," it said.

"However, these production delays are likely to be short-lived as the US loosened restrictions for vaccine raw material exports to India." Goldman Sachs said recent developments suggest that the vaccination pace could pick-up meaningfully in coming months. The government also recently expanded vaccine eligibility to allow all adults over the age of 18 from May 1.

"Given these changes our healthcare analysts expect vaccine supply to improve significantly in the 2nd half of 2021," it said. "With increased vaccine supply and a larger eligible population pool, we now expect the country to be able to vaccinate two-thirds of its entire population by Q1-2022 from Q2-2022 previously."

(Source : PTI – 04/05/2021)

CORPORATE AFFAIRS MINISTRY FACILITATES TRACKING DOWN OF PAYMENTS TO MSMES

The Ministry of Corporate Affairs (MCA) has made it easier for authorities to find out whether the company concerned is holding payments of vendors, especially micro, small, and medium enterprises (MSMEs) and for how many years.

From the next month, companies are required to disclose trade payables according to their ageing — less than one year, 1-2 years, 2-3 years, and more than three years — in their financial statements. This would be divided between MSMEs and others. Within each category, there would be further sub-categories — disputed and undisputed.

On the same lines, the ageing for trade receivables will also be disclosed. Currently, companies are only required to disclose trade payables into two parts — payables to MSMEs and payables to non-MSMEs. There is no requirement to provide any ageing details.

On the matter of receivables, the only requirement is to divide it

between up to six months and more than six months. "This will allow the government to immediately track down serious corporate offenders and act strictly against defaulting companies in order to protect MSME vendors," said Nischal S Arora, partner regulatory at Nangia Andersen.

Amit Maheshwari, tax partner at AKM Global, said the MCA's move will help stakeholders get an understanding on how quickly the company is converting its debtors into cash and cash equivalents. "It would also help the stakeholders track whether the company is regular in making payment to its vendors," he said. Besides, the stakeholders will get to figure out the debtors, which will most likely become bad and doubtful, Maheshwari said.

In terms of MSME Development Act, 2006, any person who has purchased goods or procured services from the MSME supplier is bound to make payments within a maximum period of 45 days. Any delay beyond this makes the buyer liable to pay interest at three times the bank rate notified by the RBI.

(Source : Business Standard – 29/04/2021)

DESPITE GRIM OUTLOOK, FISCAL STIMULUS UNLIKELY FOR INDIA INC THIS YEAR

They say that a stimulus package may not be necessary because, unlike last year's total lockdown, public transport, including the railways and airlines, is running and the restrictions on movement are localised and, in some cases, are partial rather than total.

Despite a grim economic outlook amid a worsening COVID-19 crisis and lockdowns in major cities, government officials have ruled out any fiscal support to industry for now.They say that a stimulus package may not be necessary because, unlike last year's total lockdown, public transport, including the railways and airlines, is running and the restrictions on movement are localised and, in some cases, are partial rather than total.

"It is premature to think of a fiscal stimulus package. In fact, it won't be necessary as the impact is nowhere close to what it was last year. Not everything is shut down," a senior government official told Business Standard. He said there was no real cause for 'alarm' nationally and that 'some localized issues could be addressed later after assessing the impact'.

While Delhi announced a week's 'curfew' last Monday, Maharashtra had already imposed its own restrictions, impacting at Least 50 per cent of manufacturing units producing non-essential items.Cities in Madhya Pradesh, Chhattisgarh, and Karnataka have also imposed similar curtailments."The impact on GDP would not be significant due to lockdowns in some states and the estimates made in the Budget have been conservative," said another government official.

Last year, Finance Minister Nirmala Sitharaman had announced three rounds of fiscal stimulus packages to help the economy emerge from the recession caused by the pandemic. This time, though, she may let state governments take a call on whether and how to support industry and citizens.

For instance, last year, the Centre, under the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) scheme, distributed five kilos of wheat or rice per person per month at the height of the lockdown to almost 80 crore beneficiaries.This was over and above the normal entitlement under the Food Security Act.

In addition, all the eligible families were also given one kilo of pulses per month free. While they battle a particularly vicious

second wave, some state governments have asked New Delhi to re-start a scheme similar to PMGKAY.Despite being flush with food grains, the Centre is not very keen on the idea.Instead, it prefers states to start their own food grain distribution based on their assessment of specific local needs.

Maharashtra is the first state to announce free extra food grains for ration card holders for the next three months, above the usual allocation, starting from May 1.A few days ago, Madhya Pradesh followed suit announcing free rations for the next three months. Pronab Sen, a former chief statistician with the government, said that policymakers will have a more complex job during this second wave owing to the fact that the problem is on the demand side whereas last year it was both the demand and supply side.

"The government should focus on rebuilding confidence. It could consider giving an option of a moratorium this year as well, but make it clear that an interest on interest will be levied," said Sen.He pointed out that localised lockdowns mean that economic activity will be affected in different places at different times and so supply will be disrupted temporarily.

Industry has a different point of view. Fearing it won't be able to survive a second hit, it seeks government support. Anil Bhardwaj, secretary general at the Federation of Indian Micro and Small & Medium Enterprises, said the RBI should be given the flexibility to provide credit facilities to creditworthy SMA-2 accounts, given the unprecedented emergency."The government should also extend the Emergency Credit Line Guarantee Scheme for micro and small and medium enterprise accounts that have been overdue for more than 60 days, as against 60 days now," said Bhardwaj.

He also urged the government to ensure that public sector units made timely payments to these enterprises to ensure that no business had to shut down. ASSOCHAM President Vineet Agarwal said that industries are currently facing local issues as compared to last year."There could be some impact in the next few weeks on the supply chain and demand."The impact could be larger if state governments extend these lockdowns beyond the specified period," he said.

Agarwal wants the government to provide relief measures for the services sector as it generates largescale employment and take measures to protect daily wage labourers to avoid a gigantic exodus.Ratings agency Crisil in a note on Tuesday pointed out that, so far, electricity consumption and GST e-way bills collection (which are used as proxies to track economic activity), have softened only somewhat.

It further pointed out that while more and more lockdowns are being imposed, they are not as stringent as last year.Manufacturing and construction activities continue and travel and recreational services are allowed in most states, with social distancing."The impact of these restrictions, though, are beginning to affect retail mobility which dipped across more states, with the highest decline seen in Maharashtra - a 17.7 percentage point decline between March to April to date, on average," said Crisil.

(Source : Business Standard – 29/04/2021)

-: JILTA :-

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ILTA PUBLICATION

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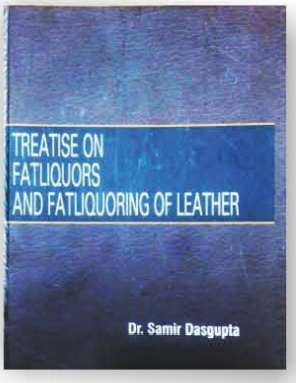

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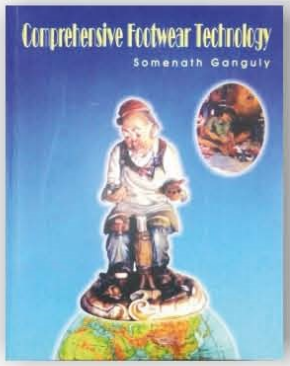

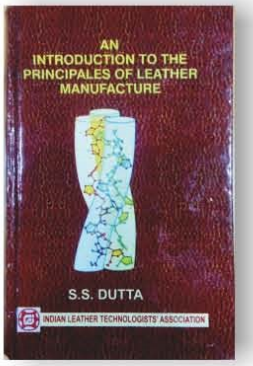

Title of the Book
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Author
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Price per copy*
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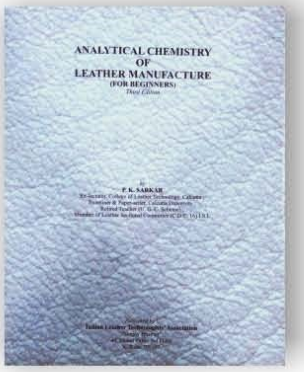
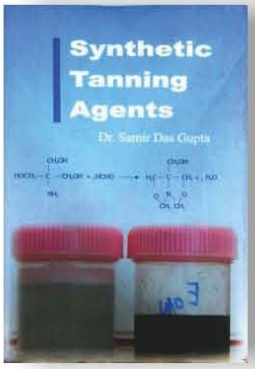




Title of the Book
Synthetic Tanning Agents

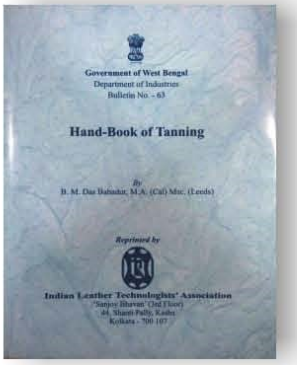
Author
Dr. Samir Dasgupta

Price per copy*
₹ 900.00 / $ 30.00

Title of the Book
Hand- Book of Tanning

Author
Prof. B. M. Das

Price per copy*
₹ 750.00 / $ 25.00



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History and Activities of Indian Leather Technologists' Association

The Indian Leather Technologists' Association (ILTA) was founded by Late Prof. B. M. Das, the originator of Das-Sisseney theory and father of Indian Leather Science on 14th August' 1950.

The primary objectives of the oldest Leather Technologists' Association which celebrated its Diamond Jubilee year in the 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 Planning Commission, 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.
- As the part of many social activities ILTA has donated Rs. 1 lac to Consul General of Nepal towards relief of earthquake effected of Nepal on 15th Sept, 2015.

INTERNATIONAL & NATIONAL SEMINAR

- ILTA is the Member Society of International Union of Leather Technologists & Chemists Societies (IULTCS), a 115 years old organization and for the first time the IULTCS Congress was organized in January 1999 outside the developed countries in India jointly by ILTA and CLRI.
  2017 IULTCS Congress is scheduled to be held in India again.
- 5th Asian International Conference on Leather Science & Technology (AICLST) was organized by ILTA in 2010 during its' Diamond Jubilee Celebration year.

SEMINAR & SYMPOSIUM

ILTA organizes Seminar & Symposiums on regular basis to share information, knowledge & latest development and interactions for the benefit of all concerned. Few are as under :

- Prof. B. M. Das Memorial Lecture every year during the Foundation Day Celebrations on 14th August every year.
- Sanjoy Sen Memorial Lecture on 14th January every year, the birthday of our late President for several decades.
- Prof. Moni Banerjee Memorial Lecture on 15th March every year, the birthday of this iconic personality.
- Seminar on the occasion of India International Leather Fair (IILF) at Chennai in February every year.

It has also organized :

- Prof. Y. Nayudumma Memorial Lecture.
- Series of Lectures during "Programme on implementing Emerging & Sustainable Technologies (PrIEST)".
- Seminars in occasion of India International Leather Fair, 2014 and 2015 at Chennai etc. 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.

PUBLICATION

ILTA have published the following books :

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

ILTA has a good Library & Archive enriched with a few important Books, Periodicals, Journals etc.

AWARDS OF EXCELLENCE

- ILTA awards Prof. B. M. Das Memorial, Sanjoy Sen Memorial, J. M. Dey Memorial and Moni Banerjee Memorial Medals to the top rankers at the University / Technical Institute graduate and post graduate levels to encourage the brilliants to evolve with the Industry.
- 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).

LEXPOs

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 & Durgapur, ILTA has organized LEXPO at Bhubaneswar, Gangtok, Guwahati, Jamshedpur and Ranchi.

MEMBERS

The Association's present (as on 31.03.2018) strength of members is more than 600 from all over India and abroad. Primarily the members are leather technologists passed out from Govt. College of Engineering & Leather Technology, Anna University, Chennai, Harcourt Butler Technological Institute, Kanpur, B. R. Ambedkar National Institute of Technology, Jalandhar and Scientists from Central Leather Research Institute.

ESTABLISHMENTS

In order to strengthen its activities, ILTA have constructed its own six storied building at 44, Shanti Pally, Kasba, Kolkata – 700 107 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]

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