JOURNAL OF INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION (JILTA)

MAY 2017 VOL.: LXVII NO.: 05 RNI NO.: 2839/57 REGD.NO.: ISSN 0019-5738

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Cover Designed & Printed by :

M/s TAS Associate

11, Priya Nath Dey Lane, Kolkata - 700 036

Published & Printed by :

S. D. Set, on behalf of Indian Leather Technologists' Association

Published from :

Regd. Office : 'Sanjoy Bhavan', 44, Shanti Pally

3rd Floor, Kasba, Kolkata - 700 107

Printed at :

M/s TAS Associate

11, Priya Nath Dey Lane, Kolkata - 700 036

Subscription :

Annual	Rs.(INR)	400.00
Foreign	$ (USD)	45.00
Single Copy	Rs.(INR)	50.00
Foreign	$ (USD)	4.00

All other business communications should be sent to :

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Kasba, Kolkata - 700 107, WB, India

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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), Geneva, Switzerland.

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.

Advertisement Tariff

Full Page / per month

Black & White	Rs. 5,000.00/-
Colour (full page)	Rs. 10,000.00/-
Colour Insert (One side) (Provided by the Advertisers)	Rs. 5,000.00/-

Full Page / per anum

Front inside (2nd Cover)	Rs. 96,000/-
3rd Cover	Rs. 84,000/-
Back Cover	Rs. 1,20,000/-

Mechanical Specification

Overall size : 27 cm × 21 cm
Print area : 25 cm × 17 cm

Payment should be made by A/c. Payee Cheque to be drawn in favour of :

Indian Leather Technologists' Association
and Payable at **Kolkata**

Send your enquiries to :

Indian Leather Technologists' Association
'SANJOY BHAVAN'
3rd floor, 44, Shanti Pally, Kasba, Kolkata – 700 107
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JOURNAL OF INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION (JILTA)

Future Trend of Indian Leather Industry

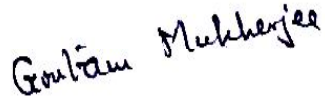
Manufacturing sector is the engine of growth for India. It provides for a stable economy, sells goods to other sectors and in turn buys materials and services from them. An analysis of the contribution of this sector to the GDP of the nation would indicate that it has not contributed to its full potential. The growth of manufacturing sector into an economic powerhouse can only be realized when it imbibes technology and constantly updates the same. Contributors to the sectoral roadmap begin with analysis of the current Indian and global manufacturing scenario leading to the identification of technology gaps, drivers for change and its possible contribution to the GDP of India. Towards this, eight major manufacturing segments where potential for innovation, creation of jobs and contribution to export earnings exist have been looked into. Traditional segments such as textile, chemicals, food processing, leather and metal fabrication have been analyzed alongside upcoming areas such as micro and nano manufacturing, electronics and ICT products and composites. Technology needs to meet increasing export and domestic demands, production of coloured cotton, customized apparels, technical textiles, implementing zero effluent discharge and appropriate adoption of technologies for cost reduction and quality improvement is highlighted in the textile and apparel chapter. Economic utilization of raw material and leather through a technology led growth path and adopting innovation driven manufacturing such that leather remains a consumer preference oriented fashion statement is highlight of the day. The requisite level of technology, infrastructure, skill and needs to reduce emissions from the chemical sector through routes including automation and process intensification has been presented in the chemical manufacturing segment. Short, medium and long term technology needs for each specific segment has been evolved based on available literature and also based on reports and scenario / trend analysis carried out by specific government departments and those published on the World Wide Web. The document identifies a few grand challenges that manufacturing sector is likely to face by 2035 and also provides a glimpse into possible blue-sky research areas to ensure the sustained global leadership for the sector. The vision perceived for the manufacturing sector is to create a technology edge that would turn India into a global manufacturing hub, resulting in large-scale job creation and enhanced contribution to GDP. All efforts to provide environmental and economic sustainability for the sector have been envisaged. The manufacturing sector in India needs to grow through adoption of technology platforms which include nano-engineering, additive and precision manufacturing, adaptive automation, next generation electronics, continuous and sustainable manufacturing. It is perceived that adoption of these would enable the manufacturing sector to meet India's domestic needs as well as export value added products. Areas requiring development and adoption of technologies for manufacturing of products based on the likely changes in lifestyle and demographic dividend have been identified.

Recommendations that have evolved from this exercise to turn Indian industries as a global hub of manufacturing are a) creating innovation eco-systems at all levels b) developing systems for skill development, upgradation and certification c) emphasis on both economies of scale and scope models based on investment required for technology updation d) making available essential inputs such as raw material and energy at globally competitive rates, e) innovative technologies for frugal utilization of material f) building coalitions and encouraging cluster approach of MSME's for appropriate investments in R&D, supporting technology acquisition and for design know how. It is felt that through adoption of the recommendations, the manufacturing sector could ideally contribute 30 - 35% of GDP by 2035. Accordingly, the technology roadmap concludes by highlighting the need for a concerted effort from stakeholders that includes the government, R&D organizations, industries and academia for realization of the Vision 2035.

Manufacturing sector which encompasses the entire spectrum covering transportation, energy, health, food, housing, clothing, leather, infrastructure, ICT, entertainment, consumer goods etc is vital and should contribute significantly to GDP of the nation. The competitive industrial performance index places India at a dismal position of 43 amongst 133 countries. Amongst the factors that determine competitiveness, India figures in the top 20 countries only with respect

to creating world impact and not so with respect to capacity to produce and export and technology deepening. This has resulted in Indian manufacturing sector contributing only 16% to the GDP as against global best of 30-35%. The technology roadmap for manufacturing is, therefore, focused on providing employment to the growing population, improving the quality of life, increasing the per capita income to the level of advanced countries, and placing a few Indian manufacturing companies among the top 100 in the world and several hundred Indian products competing globally, successfully in quality, cost and performance with brands from other countries. By 2035, India should be manufacturing for the world in areas where it has a competitive edge in terms of raw material supply as well as backward and forward integration. This requires both R&D and vastly improved education and massive skill development initiative to increase the productivity of young workforce. There is the need for creating an ecosystem of continuous technology development, upgradation, assimilation and adaptation to make the products competitive. In order to achieve this vision, it is necessary to scale up through adoption of new manufacturing strategies, creating a broad base of micro, small and medium industries and an effective and efficient ecosystem for transfer of technology from research to business on a scale several fold from the current level of 53 as against global best.

Manufacturing sector is on the threshold of a massive paradigm shift with additive manufacturing, molecular manufacturing, self assembly etc offering the potential of creating new products through unconventional but more efficient routes in addition to developing vastly improved products through environmentally sustainable and new technologies like micro nano technology. The long range vision for manufacturing requires development of innovative products, development of indigenous manufacturing and next generation ICT for clean, green and lean manufacturing. Changes in education system for enhancing creativity and innovation, developing R&D in emerging technologies and providing adequate infrastructure for seamless manufacturing is required. Educational institutions should bring about mindset changes in cultural disposition to use our own hands. For the manufacturing sector to reach its envisioned goals of contribution to the nation, it is likely to encounter some challenges requiring technology preparedness, sound implementation strategies and favourable policy environment. Grand challenge that this sector needs to resolve would be guaranteeing sustainability through adoption of appropriate global best practices on material, energy and time management. Indian manufacturing industry would benefit more from innovative utilization of available indigenous material and their transformation into value added products. Industry may need to adopt principles of additive or cloud manufacturing, cluster approaches to meet common needs etc. This would transform Indian manufacturing into one of micro enterprise model that can produce customized goods based on local needs.



Dr. Goutam Mukherjee
Hony. Editor, JILTA

From the Desk of General Secretary

LEXPO – XXIII at Siliguri :

The Inaugural Ceremony took place at 06.00 PM on Saturday the 31st March, 2017 at the Kanchanjungha Stadium adjacent ground before a good gathering of Local people, distinguished guests, participants and Press/TV Media etc.

The programme commenced with the Welcome Address by Mr. B. C. Jana a Sr. Life Member of ILTA followed by presentation of a bouquet & Uttariyo to honour and welcome Mr. Goutam Deb, Hon'ble Minister – in – Charge, Department of Tourism, Govt. of West Bengal, who graced the occasion as the Chief Guest and inaugurate the fair and subsequently Mr. Deba Prasad Ray, Hon'ble Ex-MP & MLA, Alipurduar Constituency and an eminent social activist who graced the occasion as the Guest of Honour.

In his address Mr. Deb wished for a grand success of the fair and promised to extend his helping hand to this fair in future also.

In his address Mr. D. P. Roy recalled his past experience about LEXPO both in Kolkata and other parts of Bengal as well as Eastern part of India. He also wished grand success of the fair.

The program concluded with offering Vote of Thanks to the gathering by Mr. S. K. Biswas, a Sr. Life Member of the Association.

Around 40 participants participated in the fair and had a handsome transaction amount of business. Around 40 to 50 thousand people visited the fair with a great appraisal of the venture.

The fair continued during 1st to 17th April' 2017.

Condolence Meeting – Late S. D. Set and Late Ranjan Gupta :

A condolence meeting to pay respect to the departed souls of **Late S. D. Set** and **Late Ranjan Gupta** was organized jointly by ILTA & Alumni Association of GCELT at 05.30 PM on Monday, 10th April, 2017 at the conference room of GCELT.

The program was held in a deep imposing ambiance where the guests honored the departed souls with garlanding on their portraits and through recalling and sharing their past experience gathered during association with the departed personalities.

Family members from both the departed personalities were present in the condolence meeting.

Reconstitution of Executive Committee of ILTA for the term 2017 - 2019

The Executive Committee of ILTA at its 498th Meeting held on 14.03.2017 approved the following schedule for Election of Executive Committee of ILTA and the Regional Committees for the term 2017 – 2019.

Mr. Dhiman Chakraborty, Controller of Finance, The Asiatic Society, Ministry of Culture, Govt. of India has kindly consented to act as the Returning Officer for the Election to reconstitute the Executive Committee for the term 2017 – 2019.

Election Schedule for reconstitution of Executive Committee of ILTA for the term 2017 - 2019 :

ELECTION SCHEDULE

Sl. No.	Events	Election Schedule 2017-2019	Day
01	Mailing of Nomination papers & Voters' List on or before	04.05.2017	Thursday
02	Last date for receipt of Nomination Papers	26.05.2017	Friday
03	Last date for receipt of Consent	15.06.2017	Thursday
04	Last date for withdrawal of candidature	19.06.2017	Monday
05	Mailing of ballot papers on or before	08.07.2017	Saturday
06	Last date for receipt of ballot papers From voters residing outside KMDA area & 24-Pgs (N & S)	05.08.2017	Saturday
07	Casting of votes by voters residing in KMDA & 24-Pgs (N & S) Area at ILTA Administrative Office 10-00 to 17-00 hrs. LUNCH BREAK : 1-30 to 2-30 PM	04.08.2017 & 05.08.2017	Friday & Saturday
08	Counting of votes at ILTA Administrative Office from 11-00 hrs. onwards	07.08.2017	Monday

You are requested to :-

a) Kindly inform us your '**E-Mail ID**', '**Mobile No**', '**Phone No**', through E-Mail ID: admin@iltaonleather.org or over Telephone Nos. : 24413459 / 3429 / 7320. 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.

(Susanta Mallick)
General Secretary

Executive Committee Members meet every Thursday at 18-30 hrs. at ILTA Office.
Members willing to participate are most welcome.

IULTCS' 2017 Congress – a Congress of World Leather Research in City of Leather Research (A Report)

The International Union of Leather Technologists' & Chemists' Societies, IULTCS, an international organization of Leather and allied professional societies was originally organized in London in Sept, 1897 by the initiative of Dr. H. R. Proctor, Dr. J. Gordon Parker, Mr. A. Seyonour Jones and Mr. C. E. Parker. They organized a congress where at least 200 people took part from Austria, Denmark, France, Germany, Hungary, Great Britain and Sweden. The originators of the conference constituted themselves the first "International Associates of Leather Trades Chemists and specified the conditions. By 1911, ten countries were represented in the association and membership had grown to 414. In addition to the above stalwarts, from 1914 onwards scientists, throughout the world with outstanding work in leather science and technology joined the array.

In 1917, due to hostilities, the members were divided into two groups. One group under the name "Internationalater Vereinder Lederindustrie Chemiker (IVLIC)" covered Germany, Austria, Hungary, Holland and Scandinavia. The other group, from 1925 under the name "International Society of Leather Trades Chemists (ISLTC)" covered Great Britain (and commonwealth), France, Italy and Belgium. Switzerland (VESLIC) and USSR formed their own societies, but the American Leather Chemists' Association (ALCA) had already been in existence since 1906.

In the meantime it was felt that a federation of separate autonomous national societies is formed and in 1949 the International Union of Leather Chemists' Societies was instituted.

A draft constitution was prepared and published along with Provisional statutes in 1948 and with minor amendments by the 1st Meeting of Council of delegates on 26th Sept., 1949 in Paris. During this time the first congress of union was held and ALCA agreed to join. Slowly number of countries joined the union. In 1983, there were 28 member societies and the union covered the whole world including Japan, Pakistan and India from Asia. The present title of the union "IULTCS" was approved by the Council of delegates of IULTCS at the congress in Vienna in 1973. Till 1998, 24 IULTCS Congress were held in 4 continents and the first congress in any Asian country was held in 1999 in India and this congress left a special mark. Now Asia covers India, Taiwan, Bangladesh, Japan and China. Out of 34 congresses so far, only 3 congress were held in Asia (one in China and two in India), i.e. the just held congress in Chennai in Feb, 2017.

According to IULTCS statutes the aims of union are to foster co-operation between member societies, to hold congresses to further the advancement of leather science & technology; to form commissions for special studies and to establish the international methods of sampling and testing of leather and materials associated to leather manufacture.

For number of years there were only three commissions namely IUP (for physical testing); IUC (for chemical testing) and IUF (for testing related to finishing). In this context there is a MOU with ISO and till date it is valid.

At present 84 published ISO Standards are under the direct responsibility of IULTCS and 9 Standards are under development and under the direct responsibility of IULTCS. The next inclusion was IUE (for Environment) Commission. During the E. C. Meeting in China in 2009; IUT (Training); IUR (Research) and IUL (Liaison) Commissions were approved for inclusion. The IULTCS Congress, 2017 is the second congress held in India, and the first one was in the year 1999 in CLRI Chennai jointly by ILTA and CLRI.

The 34th IULTCS Congress was conceived in the year 2009 during China IULTCS Congress. Prior to attending

the E. C. Meeting of IULTCS, a mini meeting was held among Indian delegates including the undersigned in the presence of Dr. A. B. Mandal, the then Director of CLRI, I was requested/suggested to put forward a demand for congress in India in the year 2015.

Since Brazil was an applicant in advance for a long time, the decision remained pending for further discussion and another demand of holding the (AILTCS) Asian Congress in Kolkata, India in 2010 was accepted. That congress was the 8th Asian Congress, though first in India. During the E. C. Meeting in Hong Kong during APLF in the year 2010, India was chosen by the house to hold IULTCS Congress in 2017. The Asian Congress was held jointly with CLRI in Kolkata with remarkable success and it was declared as IULTCS Regional Congress.

To fix up the calendar for Congress in India was a difficult task for lot of preconditions:-

- ✓ Usually the congress is held during last part of the English Calendar year and that is not suitable in Chennai.
- ✓ The biggest technological get together in India, the LERIG is used to be held during end of January and beginning of February. Hence as in 1999, the LERIG was amalgamated with IULTCS Congress.
- ✓ China is the biggest participant in Congress and the Chinese New Year was fixed during the third part of Jan, 2017 for this year.

Hence the time for IULTCS was fixed adjacent to leather fair matching the above factors, though the time for preparation was much lesser compared to the other countries holding congress earlier.

For quite some years, the question of sustainability of leather industry has evolved at different dimensions and magnitude. The scientists and technologists are putting forward their efforts to develop and establish the possible and feasible processes and systems to combat the challenge. Therefore, the theme and title of the congress was decided as "Science and Technology for Sustainability of Leather". For finding out the ways and means for graceful sustainability this congress was scheduled to discuss on latest trends in technology of leather manufacture, product innovation and environmental management. Among the salient papers presented in the congress were management of Chrome VI and the relevance of various process conditions, new range of formaldehyde free products in the market, wet green tanning, least water processing in tanning, elimination/ reduction of effluent in liming, mass balance benchmark for sustainability. Emission control, other intelligent smart chemicals, product innovation; H. R. and global networking on skill etc. were included.

The papers submitted were peer reviewed by a committee of eminent scientists from India, Argentina, Brazil, China, Ethiopia, Germany, Japan, New Zealand, Turkey, UK and USA. About 50 Papers were selected for oral presentation and 200 for poster presentation. At the end of all the sessions the authors of the best papers for oral presentation and papers for poster presentation was selected by a jury of experts and awarded. It is important to note that care was taken to encourage major number of countries to present their papers and to generate interest in this global union.

Heidemann lecture is the customary and prestigious lecture in all the IULTCS Congress. This year this lecture was delivered by Dr. John A M Ramshaw titled "Probing collagen structure and function." This programme was chaired by Dr. T. Ramasami, the President of the Congress. The sessions were divided in 8 (eight) broad groups –

- ➢ Fundamentals in Science;
- ➢ Advances in Chemicals for smart and intelligent leathers;
- ➢ Innovation and value addition for leather;
- ➢ Strategies for sustainability;
- ➢ Emission control technologies;
- ➢ Design innovation for life style leather products;
- ➢ Enriching human capacity/global research alliances and partnerships.

Every session was governed by the keynote address by eminent experts and scientists of the world.

They are :-

a) Fundamentals of Leather Science by Dr. Anthony Covington.
b) Tanning Strategies for sustainable leather production by Dr. Ing. Heinz Peter Germann.
c) Study of the variations of CrVI content inside the leather by Dr. Jean Claude Cannot.
d) Advances in bio-based polyurethane for leather finishing by Dr. Michael Costello.
e) Controlling emissions in leather manufacture by Dr. Jnrgan Christner.
f) Co-petition in Leather Engineering education – A Strategies for a win situation for concerned stakeholders by Dr. Sayeed Sadulla.

There were two chairs for every session. They were –

- Dr. T. Ramasami / Dr. N. K. Chandrababu ;
- Dr. B. Chattopadhyay / Dr. Campbell Page ;
- Mr. N. Shafeeq Ahmed / Dr. S. Chakrabarty ;
- Dr. Luis Zugno / Mr. R. Ramesh Kumar ;
- Mr. Israr Ahmed / Mr. N. R. Jagannathan ;
- Dr. B. Chandrasekaran / Mr. Arnab Jha ;
- Dr. D. Tegtmeyer / Dr. B. N. Das ;
- Mr. Habib Hussain / Mr. Thomas Yu ;

It is worthy to mention that according to IULTCS congress guideline, during the presentations of papers no trade name is allowed to be mentioned /or included in the lecture. Only the generic names are allowed. Unfortunately, in some of the presentations unethical use of trade names of chemicals were noticed. Thanks to Dr. Campbell Page, Secretary/ Treasurer of IULTCS who mentioned about this anomaly. The office bearers of the IULTCS, especially the President, Vice President and Secretary/Treasurer will need to give importance to this incident and forward a note of caution to the member societies to be very particular to select/allow the presentations free from the above lacuna.

The Registration of the delegates started one day earlier in CLRI, i.e. on 5th Feb., 2017 and continued till next day, i.e. 6th Feb., 2017 morning before starting of Inauguration Programme in Hotel ITC Grand Chola. The inauguration started with flag march. The IULTCS flag was carried by the President Dr. Tegtmeyer with the IULTCS anthem played in the background. The accompanying dignitaries with Dr. Tegtmeyer were Dr. T. Ramasami, Congress President; Mr. Rafeeq Ahmed, Chief Patron; Mr. Mukhtarul Amin, Chairman, CLE; Mr. Shafeeq Ahmed, Chairman, IFLMEA; Mr. Arnab Jha, President, ILTA; Dr. Page Campbell, Secretary/ Treasurer of IULTCS; Dr. B. Chandrasekaran, Director, CLRI along with Dr. N. K. Chandrababu, Convener, IULTCS – 2017 Congress; Dr. S. Rajamani, working President, IULTCS – 2017 Congress; Mr. N. R. Jagannathan, President, ILTA (Southern Region) and Mr. Bhogale Feleke, Minister of Industry, Ethiopia.
The welcome address was delivered by Dr. B. Chandrasekaran, Director, CLRI and Vice President of ILTA, Southern Region; followed by short address by Dr. T. Ramasami, Chairman of IULTCS – 2017 Congress; Mr. Rafeeq Ahmed, Dr. Tegtmeyer, Mr. P. R. Aqeel Ahmed, Mr. Mukhtarul Amin, Mr. Bhogale Feleke, Mr. Shafeeq Ahmed; Dr. Campbell Page and Mr. Israr Ahmed.

Dr. T. Ramasani was felicitated by the undersigned with a shawl and was requested to felicitate the other dignitaries on the dias with shawl. The Vote of Thanks was proposed by the undersigned and followed by National Anthem and the official inauguration was held by lighting the candles by the above dignitaries.

The Congress was attended by 650 delegates out of whom 230 were registered international delegates from 28 countries. Approx, 350 attendees were students and researchers.

The cultural programme was exceptionally admired. On 6th Feb evening the delegates (registered) were taken to visit "KALAKSHETRA", where dance drama / musical programme focused on art and culture of different corners of India. The total presentation was the unique picture of India's Unity in diversity. It was really appealing and mind appeasing to all the delegates from different part of the world.

An unique blend of science and music as generated in the musical instrument "Mridangam" from different angles using different materials with different effect and sustainability of using leather over others were projected by Umayalpuram K Sivaraman and Dr. T. Ramasami. As reported that Dr. Sivaraman is an artist exploring creativity of the ancient percussion

instrument "Mridangam" from South India. This total presentation of 7th Feb, 2017 evening was informative and yet full of entertainment. This unique idea was highly appreciated by the delegates.

The entire programme was a token of tribute to Shri A. Nagappa, a leader in the global leather sector for his contribution for a long period. It is important to note that Mr. Nagappa was also President of ILTA.

The Council of delegates meeting was held on 8th Feb, 2017. The copy of the minutes of the IULTCS COD Meeting dt. 27th Nov, 2015 in Novo Hamburgo, Brazil was circulated earlier.

The report of President and E. C. activities of IULTCS and the resolution in early E. C. meetings were distributed earlier and was declared by COD as unopposed and approved.

The Secretary/Treasurer's report of IULTCS including adoption of audited accounts for 2015 and 2016 was discussed and finally approved in the E. C. meeting, unopposed and declared approved by COD.

The IULTCS Merit Award was presented to Prof. Dr. Marilitz Guetters from Brazil on 7th Feb, 2017 by IULTCS President Dr. Tegtmeyer. The YLSG Award was granted to Santiago Ortiz Monsalva of Brazil. These were once again declared in COD meeting.

The proposed "Minimum Acceptable Environmental Standards (MAES) for Tanneries" framed by IUE Commission Chairman Mr. Thiery Poneet was accepted unopposed as document 12 of IUE Commission.

The selection of Dr. Ivan Kral of UNIDO as Chairperson of IUT Commission and Dr. Christine Powley-Williams was announced as Chairperson of IUL Commission. The report of the previous meeting of IUC, IUF, IUP were declared and noted.

The venue of XXXVth IULTCS Congress was declared and accepted at Dresden, Germany during 25th to 28th June, 2019.

The venue of XXXVIth IULTCS Congress was declared to be conducted by KOMESA in Ethiopia was noted.

The next IULTCS Council of Delegates Meeting will be held in Dresden, Germany during congress.

All these issues were approved unanimously.

This 34th Congress of IULTCS was way ahead compared to many earlier congresses in terms of hospitality. All the services were provided promptly by a well rehearsed team of volunteers. The congress kits were distributed with pen, key ring, important phone numbers of service providers, programme details, writing pad and a book containing proceedings and abstracts in a leather bag. From 6th Feb morning to 8th Feb afternoon sumptuous lunch / dinner / tea etc. was provided to all the registered delegates. Conveyance was provided to all of them. The entire 5th Feb, 2017 was busy with marathon meeting from morning to evening held in Director's Annex in CSIR – CLRI. There were IUE Commission Meeting, Meeting of Asian International Forum and Liaison; IULTCS Executive Committee Meeting. The concerned members and some special invitee attended the IUE and Asian International Forum meeting. Lunch and dinner were provided to all above members/delegates and industry sponsors and special invitees in CLRI campus in the lawn connected to CLRI guest house.

The IUE Meeting started with welcome address by Dr. Chandrasekaran, Director, CLRI (Vice President, ILTA, Southern Region). The meeting was conducted by Mr. Thiery Poncet, Chairman, IUE Commission. The main agenda of the meeting was to finalize the document 12 of the commission on "Minimum Acceptable Environmental Standards (MAES) for tanneries". On many issues of the prepared document many counterpoints on terminology, transparency, feasibility and all connected factors were discussed in detail. In many cases reference of early 11 documents were drawn and it was suggested and accepted to refer those documents in the final IUE12 document.

IUE Commission was suggested to work a lot on the preparation of carbon footprint. Some information by the experts present was given.

The meeting on "Asian International Forum" was conducted by Dr. S. Rajamani and a report on

updated status of the forum was narrated. It was stated as supplement to IULTCS in Asian Region. Among the Asian countries India, China, Bangladesh, Taiwan, Japan participated in the meeting. The forum invited the entire world to come and join and supports its functioning for the sustainable growth of the industry in this segment of the world. The next AICLST (Asian International Congress on Leather Science and Technology) was declared and finalized to be held in China in 1918 and the preparation of home works already been started.

In the IULTCS Executive Committee meeting, after lunch in Director's Annexe, the meeting was presided by the President, Dr. Tegtmeyer; the meeting was called in order by the President when the minutes of the last E. C. meeting on 30th March, 2016, circulated in advance was called to be read and approved by the house. The President's report was read out and approved. The Executive Secretary/Treasurer's report and audited statements of accounts for the years 2015 and 2016 was approved by the house. The budget for the year 2017 was also approved. The reflection of the final accounts were positive cue to the conversion rate of the currency (It was noted).

Discussion was also held on presentation of IULTCS Merit Award to Prof. Dr. Guetterres of Brazil.

Since there was no advance application demanding to hold 2021 IULTCS Congress, the matter was placed in the house for open house discussion and voting, if necessary. After a short discussion KOMESA, Ethiopia's demand was accepted and approved.

The subject of the Regional Congress in Asia, i.e. AICLST was explained in gist by Dr. Li Yuzhong, President of China Leather Industry Association (CLIA). Till date Asian Congress used to be held biennially and recently it was decided to be held once in four years. The year 2018 have been chosen for coming Asian Congress in China. It was also intimated to the house that the location and time will be notified very soon.

The Chairperson for IUT and IUL Commission and going to be vacated by retirement of present chairpersons, election was sought. Dr. Ivan Kral, UNIDO was elected as Chairperson of IUT Commission and Dr. Christine Powley-Williams was elected as Chairperson of IUL Commission.

The house requested for a short report on final preparation of the 34th Congress in Chennai for knowledge and fine tuning, if any. Dr. K. J. Sreeram, Head, Congress Secretariat (and Vice President of Central Body of ILTA) gave a short presentation on salient points and the house expressed its satisfaction.

A small but informative presentation of 2019 IULTCS Congress in Dresden, Germany during 25th to 28th June, 2019 was given.

The next Executive Committee meeting of IULTCS will be declared shortly.

The E. C. meeting ended with the vote of thanks to the chair.

On 8th Feb, 2017 afternoon after the completion of COD meeting and taking photographs of council of delegates, the closing ceremony was held. The office bearers of the E. C. thanked all the overseas and Indian delegates. The delegates from Germany and China (President, CLIA) invited all to join and support the IULTCS, 2019 Congress and Asian Congress, 2018 respectively.

The President, ILTA declared the closure of 34th Congress, extended thanks to all who supported to hold the congress from front and behind including IULTCS Executive Committee and made it grand success and also expressed his belief that the next IULTCS congress in Germany will be more glamorous and successful. It is a matter of great satisfaction that the President, IULTCS while delivering the closing address told that India 2017 congress has fixed a very stiffed target to achieve.

Dr. N. K. Chandrababu, the congress Convener offered the vote of thanks to delegates and gratitude to E. C. of IULTCS Sponsors, Associations, Institutions and Congress Partners CLE and IFLMEA. He congratulated the organizing committee for untiring service and pledge for such a glamorous congress. He also conveyed thanks to ILTA and its pioneers who made India to be a part of IULTCS and brought this mega event to India.

In IULTCS Congress, it is customary that the union flag is handed over to the country who will hold the subsequent congress, by the member society who holds the congress. Dr. Chandrasekaran handed over the flag under the custody of ILTA from the last congress, to the delegates of Germany.

The role of sponsors at different level is commendable. Without their support the congress could not materialize and be fruitful. ILTA awarded them individually with memento as token of appreciation and recognition. We must also thank the advertisers who supported us by providing advertisement in the "Abstract" and "Proceedings" book.

We are extremely fortunate to acknowledge the role and support of IFLMEA as important partner in the Congress. It is my responsibility to thank Mr. Shafeeq Ahmed and his office.

The inspiration for focusing strength of intellectual input and unparallel hospitality was embedded by Mr. Rafeeq Ahmed, Ex-Chairman of CLE and our Chief Patron deserves special thanks. Apart from this we are proud and privileged to enjoy the support of CLE as partner and its office as and when needed. The present chairman of CLE, Mr. Mukhtarul Amin was very keen about the progress of congress and extend continued support. Our thanks to Mr. Amin too.

From the very moment of conceiving the IULTCS 2017 Congress, CLRI became an integral part of it. Starting from Director, CLRI to all concerned to the congress from the institute were very serious to discharge their responsibilities.

The Vice-President of ILTA (Central Body) Dr. K. J. Sreeram and all the members of ILTA (Southern Region) from CLRI had to exercise the dual responsibilities very seriously and carefully. Hats off to all of them. The other E. C. members of ILTA, Southern region including President Mr. Jagannathan is exceptionally praiseworthy. My special thanks to all others from CLRI who took pains to make the congress successful.

It will be unwise on my part, if I do not specially mention the name of Dr. T. Ramasami, who was kind enough to agree to be the President of this congress and raised the congress to a special height. We are proud to have his involvement down to earth with us.

I feel that this IULTCS Congress will be remembered as a graceful event in the history of India's presentation by joint endeavor on leather science and technology in the international arena.

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Some Eminent overseas Speakers at XXXIV IULTCS-2017 Congress and Topics :-

1. Waste to Wealth Approach : Adhesive from unused goat head skin – Md. Abdul Hashem, Bangladesh.

2. Fabrication of Antibacterial Cresim –based ZnO Nano composite for Leather finished through in site route – Wang Yanen, Me Jianzhong, China.

3. Tanning with a Galic extract in combination with Etionie …… for the production of high performance leathers – Eric Poles, San Michelle Monds vi Italy.

4. Analysis in characteristic odor compounds in leather by GC-MS and G. C. – olfactome by – Hironhiko Washiya, Hyopo, Japan.

5. Method for determining the optimized exhaustion of Fexthpuor to minimize the ETI inflow.

6. Artificially induced collagen fibrit orientations affects tear propagation on Leather – S. J. Kelly, Palmevston North, New Zealand.

7. Chrome Free Tannage : Swede Garment leathers from rural vegetable shup oust leather – Ali Elnasim Musa, Khertonas, Sudan.

8. Effect of binder selection on topcoat property retention after accelerated weathering – Joseph Hoefler, Collegeville, USA.

9. Enzymative unhairing : Permeability assay of bovine skin epidermis with fungal enzyme extracts – Galevza Betina, Gonnet, Argentina.

10. Preparation and characteristics of surface modified PAN fiber by collagen protein – Ding Zhiwen, Beijing, China.

11. Study on the Recycling technology of unhairing, liming and tanning wastewater – Le-qiong Jin Shangqin, China.

12. Different pretreatments of Chrome Tanned Leather waste and their use in biogas production – Carolina Gomes, Freiberg, Germany.

13. Formeldhgade and Acetaldehyde on leather similarities and discrepancies – Jochen Amnenn, Ludwigshafen, Germany.

14. Concept of Sustainability : Looking forward – Anne Lama, Northampton, United Kingdom.

15. The elimination of effluent from liming, acid/ salt pickting and chrome tanning, verified by five years high volume wet blue leather manufacture – Richerd Daniels, Shangqin City, China.

16. Probiotic solutions for sustainable leather – Juan Carlos Castell, USA.

17. Green Bio Polymers for eco friendly leather – Dr. Valentine Beghetto.

18. Clean salt recovery and water recycling using Nanofiltration and reverse osmosis – Wolform Scholz, Vienna, Austria.

19. Biodecolorization and biodetoxification of leather dye from aqueous solution and dyecontaining effluents by nature while not fungi strains – Santiago Ortiz-Monsawe, Porto Alegre-RS, Brazil.

20. Novel formaldehyde scavenger containing active methyline for efficient removal of formaldehyde in leather – Ting Zheng, Xian, Sheanxi, China.

21. Analysis of flow and energy aspects of zero liquid discharge (ZLD) technology in treatment of tannery effluents in Tamilnadu, India – Jacov Buljan.

22. Studies on simultaneous removal of nitrogen and organic carbon from tannery wastewater using Airlift sequencing batch reactor – Aysanew Gorems Melesse, Addis Ababa, Ethiopia.

23. Reduction of skin orders by HCHO in leather products – Daisuke Murai, Osaka, Japan.

24. Comparison of visual assorting process and spectral photometer usage in leather apparel production – Mehmet Mete Mutlu, Izmir, Turkey.

25. E-leering and Blended Training in the Leather Professional Education – Iran Kral, Vienna, Austria.

26. Indo-Ethiopian Alliance for Transformation of Ethiopian Leather Sector – Wondu Legesse, Addis Ababa, Ethiopia.

27. Development of an International Proficiency Testing by Inter Laboratory comparison applied to physical and chemical test methods for mineral tanned leather – Carlos Awador Meza Moya, Guanajnato, Mexico.

The oral presentations by Indian Scientists / experts were commandable. The names to mention specially are :-

(i) N. Nishad Fathima ; (ii) M. Sathish ; (iii) V. Vijayabaske ; (iv) Malathy Jawahar (v) P. Thankaivelan ; (vi) P. Divyalakshmi ; (vii) S. Rajamani ; (viii) Md. Sadiq ; (ix) G. Sathish Babu ; (x) B. Kanimozhi.

Arnab Jha
President

Our Mirage® Upgrading range

Range	Description	Solids (%)	pH	Upgrading level
MU-288-BI	Aqueous protein binder developed for use in sealer- and basecoats for soft, flexible and elastic finishes; thin and fine extendable film; good filling properties with natural aspects and handle; maintains leather softness	13,5	10,0	Good
MU-389-FI	Burnishing wax emulsion; suitable for a wide range of leathers; enhances polishing effect and produces elegant brightness; provides a warm silky feel	16,0	9,0	Good
MU-787-FO	Oil emulsion used as softener for polishable and glazable finishes; enhances polishing effect	67,0	NA	Good
MU-875-MA	Dispersion of waxes and oils used for sealer coat formulations; designed for full grain or snuffed leathers; polishable and provides a warm, natural handle with silky feel	20,0	9,0	Good
MU-878-MA	Special sealer coat for soft corrected grain leathers; creates uniform appearance with excellent masking power; maintains leather softness with good dry milling properties	17,0	9,0	Very good
MU-879-MA	Modified polymer emulsion to use as sealer coat for full grain finishes; equalizes absorption of leather and imparts good adhesion properties	18,0	8,5	Very good
MU-881-FI	Modified wax emulsion; excellent filling properties; improves hold up and coverage; maintains leather softness; provides a soft, waxy and natural feel; good dry milling properties	21,0	8,5	Good
MU-890-MA	Slightly cationic, sealer coat for soft corrected grain leathers; promotes softness and fullness; provides grain restauration and equalizes absorption of the leather; exhibits good print retention and good milling properties	13,0	5,0	Very good
MU-892-MA	Upgrading compound for heat activation on corrected grain and splits; can be used in impregnation; pre-base and basecoats; excellent hiding and masking power	10,0	4,5	Excellent
MU-893-MA	Polishable soft sealer coat for lightweight finishes. Polishable, it brings warm, dry pleasant feel	27,0	8,8	Very good
MU-898-MA	Special sealer coat to upgrade medium grade corrected and soft lightweight leathers. Flows out very well with high temperature plating. Good adhesion and flexibility	16,5	6,5	Very good
MU-989-RU	Aliphatic polyurethane dispersion used in sealer coat formulations on nappa and full grain leathers to boost water drop resistance, dye fixation and adhesion. Very natural aspect and handle	5,5	8,0	NA

Opening new Stahl Application Lab: Kanpur Leather Complex

Stahl India will open a Stahl Leather Application Lab in Banthar, a specially developed area for leather industries in Kanpur, Uttar Pradesh. On the 25 of January 2017, Mr. Tuncay Deriner (Managing Director, Stahl India) and Mr. Om Prakash Pandey (Executive Director, Kanpur Unnao Leather Cluster Development Company Limited, KULDCL) signed a rental agreement for approximately 1000 square meters on the premise of KULDCL. The Application Lab for Wet-End, Leather Finish & Shoe Care is expected to open in the fourth quarter of 2017.

The new location enables Stahl to service their customers even better by demonstrating their products and working side-by-side with partners and experts to share knowledge and work on future-proof solutions, innovations and technologies. "The decision to renew and reposition this Application Lab strengthens our position as the industry leader for leather in the Wet-End, Finish & Shoe Care segment," Tuncay Deriner explains. "We are happy to found a location that fits our requirements and where we can cater the needs of the industry. The spacious building with the new state-of-the-art machineries enables us to test new innovations and work together with partners to improve the quality and other customers' demands." Moreover, the new site helps Stahl with their aim to reach a Zero Liquid Discharge in their lab by recycling the treated water back to the lab's processes.

The existing building will be modified to fit the requirements the Application Lab. At this moment, Stahl is obtaining the necessary government licenses and approvals to realize this. Stahl will proceed with the installation of the new machinery and equipment for setting up the laboratory.

POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

Dinker BAJPAI *

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Introduction :

Also known as: Polynuclear Aromatic Hydrocarbons, PNA, Polyaromatic Hydrocarbons

Key Words :

Benzo(a)pyrene, Benzanthracene, Benzo(b) fluoranthene, Fluoranthene, Naphthalene

What are PAHs ?

PAHs are a group of approximately 10,000 compounds, a few of which are listed above. Most PAHs in the environment are from incomplete burning of carbon-containing materials like oil, wood, garbage or coal. Many useful products such as mothballs, blacktop, and creosote wood preservatives contain PAHs. They are also found at low concentrations in some special-purpose skin creams and anti-dandruff shampoos that contain coal tars.

Automobile exhaust, industrial emissions and smoke from burning wood, charcoal and tobacco contain high levels of PAHs. In general, more PAHs form when materials burn at low temperatures, such as in wood fires or cigarettes. High-temperature furnaces produce fewer PAHs.

Fires can form fine PAH particles. They bind to ash particles and can move long distances through the air. Some PAHs can dissolve in water. PAHs can enter groundwater from ash, tar, or creosote that is improperly disposed in landfills.

How are people exposed to PAHs?

Breathing: Most people are exposed to PAHs when they breathe smoke, auto emissions or industrial exhausts. Most exhausts contain many different PAH compounds. People with the highest exposures are smokers, people who live or work with smokers, roofers, road builders and people who live near major highways or industrial sources.

Drinking/Eating: Charcoal-broiled foods, especially meats, are a source of some PAH exposure. Shellfish living in contaminated water may be another major source of exposure. PAHs may be in groundwater near disposal sites where construction wastes or ash are buried; people may be exposed by drinking this water. Vegetables do not take up significant amounts of PAHs that are in soil.

Touching: PAH can be absorbed through skin. Exposure can come from handling contaminated soil or bathing in contaminated water. Low levels of these chemicals may be absorbed when a person uses medicated skin cream or shampoo containing PAHs.

Do standards exist for regulating PAHs ?

Water: Wisconsin has established drinking water standards for five PAHs: Anthracene - 3,000 parts per billion (ppb), Benzo(a) pyrene - 0.2 ppb, Benzo(b)fluoranthene - 0.2 ppb, Fluoranthene - 400 ppb and Fluorene - 400 ppb. We suggest you stop drinking water containing more than these amounts. If other PAHs are found in your drinking water, contact your local public health agency for advice.

Air: No standards exist for the amount of PAHs allowed in the air of homes. We use a formula to convert workplace limits to suggested home limits. Based on the formula, we recommend levels of PAHs in air be no higher than 0.004 parts per million (ppm).

The Wisconsin Department of Natural Resources regulates the amount of several PAHs that can be released by industries.

Will exposure to PAHs result in harmful heath effects ?

The effects of breathing high concentrations of PAHs have not been studied. However, PAHs may be attached to dust or ash causing lung irritation. Skin contact with PAHs may cause redness, blistering, and peeling.

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The following health effects can occur after several years of exposure to PAHs :

Cancer: Benzo(a)pyrene, a common PAH, is shown to cause lung and skin cancer in laboratory animals. Other PAHs are not known to have this effect. Extracts of various types of smoke containing PAHs caused lung tumors in laboratory animals. Cigarette smoke will cause lung cancer.

Reproductive Effects: Reproductive problems and problems in unborn babies' development have occurred in laboratory animals that were exposed to benzo(a)pyrene. Other PAHs have not been studied enough to determine whether they cause reproductive problems.

Organ Systems: A person's lungs, liver, skin, and kidneys can be damaged by exposure.

In general, chemicals affect the same organ systems in all people who are exposed. However, the seriousness of the effects may vary from person to person.

A person's reaction depends on several things, including individual health, heredity, previous exposure to chemicals including medicines, and personal habits such as smoking or drinking.

It's also important to consider the length of exposure to the chemical; the amount of chemical exposure; and whether the chemical was inhaled, touched, or eaten.

Can a medical test determine exposure to PAHs ?

Many PAHs can be detected in blood or urine soon after exposure. Tests for these compounds are not routine and can only be performed using special equipment not usually found in doctor's offices. People who think they may have been exposed to PAHs for a long time should contact their physician. Blood tests of liver and kidney function are available. People exposed to PAHs in air may want to ask their doctor to consider having lung function tests done.

Seek medical advice if you have any symptoms that you think may be related to chemical exposure.

What are Polycyclic Aromatic Hydrocarbons ?

Polycyclic Aromatic Hydrocarbons (PAHs) are a group of chemicals that occur naturally in coal, crude oil and gasoline. PAHs also are present in products made from fossil fuels, such as coal-tar pitch, creosote and asphalt. When coal is converted to natural gas, PAHs can be released. Therefore, some former coal-gasification sites may have elevated levels of PAHs. PAHs also can be released into the air during the incomplete burning of fossil fuels and garbage. The less efficient the burning process, the more PAHs are given off. Forest fires and volcanoes can produce PAHs naturally.

Although hundreds of PAHs exist, two of the more common ones are benzo(a)pyrene and naphthalene.

How can I be exposed to PAHs ?

PAHs are found throughout the environment in the air, water and soil, and can remain in the environment for months or years. Levels of PAHs in urban air may be 10 times greater than those found in rural areas. You also may be exposed to PAHs in soil near hazardous waste sites or near areas where coal, wood, gasoline or other products have been burned. Some water supplies in the United States have been found to have low levels of PAHs.

In the home, PAHs are present in tobacco smoke, smoke from wood burning stoves and fireplaces, creosote-treated wood products and some foods. Barbecuing, smoking or charring food over a fire greatly increases the amount of PAHs in the food. Other foods that may contain low levels of PAHs include roasted coffee, roasted peanuts, refined vegetable oil, grains, vegetables and fruits. A variety of cosmetics and shampoos are made with coal tar and therefore may contain PAHs. The PAH compound naphthalene is present in some mothballs and cleaners.

How can PAHs affect my health ?

The health effects that can be caused by exposure to PAHs depend on :

- how much has entered your body,
- how long you have been exposed to PAHs and
- how your body responds to PAHs.

It is not clear whether PAHs cause short-term health effects. Other chemicals commonly found with PAHs may be the cause of short-term symptoms such as eye irritation, nausea, vomiting, diarrhea and confusion.

Possible long-term health effects caused by exposure to PAHs may include cataracts, kidney and liver damage and jaundice. Repeated skin contact with the PAH naphthalene (found in some mothballs) can result in skin redness and irritation. Breathing or swallowing large amounts of naphthalene can cause the breakdown of red blood cells.

Some people who have breathed or touched mixtures of PAHs and other chemicals for long periods of time have developed cancer. Some PAHs have caused cancer in laboratory animals when they breathed air containing them, ingested them in food or had them applied to their skin.

How can I reduce my exposure to PAHs ?

One of the greatest sources of exposure to PAHs is breathing these chemicals in tobacco smoke. Smokers can lower their own exposure and the exposure of their families by stopping smoking. Additional steps to lower exposure to PAHs include :

- eating less smoked and charbroiled foods;
- reducing the use of wood burning stoves and fireplaces;
- decreasing the use of coal-tar-based cosmetics and shampoos;
- using cedar shavings or aromatic herbs instead of mothballs, moth flakes and deodorant cakes; and
- avoiding skin contact when handling creosote-treated wood products by wearing protective clothing, such as long-sleeve shirts, long pants and gloves.

What can medical tests tell me about my exposure to PAHs ?

Tests are available to measure the presence of PAHs in blood or urine. These tests cannot be used to predict possible health effects, but can only show that you have been exposed to PAHs. These tests are not routinely available at a doctor's office because they require special equipment. Some hospitals can provide this testing. If you think you might be ill from exposure to PAHs, contact your doctor.

GC/MS is the preferred procedure due to superior selectivity and sensitivity over the HPLC method. Reporting limits vary with the technique and instrumentation. Trace level analyses are possible with the use of GC/MS in the Selective Ion Monitoring (GC/MS-SIM) mode. Typical reporting levels are listed in the table below. Lower reporting levels may be achieved by adjusting the analysis design.

ANALYSIS	METHOD	AQUEOUS SAMPLE REPORTING LIMITS	SOLID SAMPLE REPORTING LIMITS	TISSUE SAMPLE REPORTING LIMITS
GC/MS Full Scan Low-level option	EPA 8270C/D	10 µg/L 0.2 µg/L	330 µg/kg 10 µg/kg	NA
GC/MS SIM	EPA 8270C/D - SIM	0.02 µg/L	5 µg/kg	5 µg/kg
HPLC	EPA 8310	0.1-0.2 µg/L	20-100 µg/kg	NA

Liquid (aqueous) samples are extracted using traditional liquid-liquid solvent extraction techniques such as continuous liquid/liquid or separatory funnel. Sample cleanup procedures may be used prior to instrumental analysis of aqueous samples.

Solid samples (soil/sediment, etc) are extracted using various liquid-solid extraction techniques. Sample cleanup procedures are typically employed to reduce sample matrix interferences prior to instrumental analysis. This is common to sediment analysis and the analysis of complex waste or solid samples. The procedures used include Gel Permeation Chromatography (GPC) cleanup and/or silica gel cleanup.

Tissue samples require homogenization before analysis to ensure representative sampling for each analytical sub-sample. Most projects involving tissue samples have defined, project - specific, homogenization procedures that must be followed. After homogenization, tissue samples are then extracted and cleanups performed similar to those used on solid samples.

Air samples are analyzed by EPA TO-13 (high volume or low volume PUFs), NIOSH 5515 or California Air Resource Board (CARB) 425, depending on the project requirements. Reporting limits for these methods are between 0.5 and 5 µg/sample.

In addition to the PAHs typically analyzed, analysis for the associated PAH alkylated homologs is also available by GC/MS-SIM using specialized detection and quantitation procedures. The inclusion of alkylated homologs may be applied to the forensic aspects of the PAH determinations as it provides the connection to the source of the PAHs.

Core List of PAH and Alkylated PAHs by EPA 8270/SIM*

1-Methylnaphthalene	C1-Benzothiophenes
2-Methylnaphthalene	C2-Benzothiophenes
Acenaphthene	C3-Benzothiophenes
Acenaphthylene	C2-Naphthalenes
Anthracene	C2-Fluoranthenes/Pyrenes
Benz(a)anthracene	C3-Fluoranthenes/Pyrenes
Benzo(a)pyrene	C1-Chrysenes
Benzo(b)fluoranthene	C2-Chrysenes
Benzo(b)thiophene	C3-Chrysenes
Benzo(e)pyrene	C4-Chrysenes
Benzo(g,h,i)perylene	C3-Naphthalenes
Benzo(k)fluoranthene	C4-Naphthalenes
Biphenyl	C1-Fluorenes
Chrysene	C2-Fluorenes
Dibenz(a,h)anthracene	C3-Fluorenes
Dibenzofuran	C1-Dibenzothiophenes
Dibenzothiophene	C2-Dibenzothiophenes
Fluoranthene	C3-Dibenzothiophenes
Fluorene	C4-Dibenzothiophenes
Indeno(1,2,3-cd)pyrene	C1-Phenanthrenes/Anthracenes
Naphthalene	C2-Phenanthrenes/Anthracenes
Naphthobenzothiophene	C3-Phenanthrenes/Anthracenes
Perylene	C4-Phenanthrenes/Anthracenes
Phenanthrene	C1-Naphthobenzothiophenes
Pyrene	C2-Naphthobenzothiophenes
	C3-Naphthobenzothiophenes
	C1-Fluoranthenes/Pyrenes

Polycyclic Aromatic Hydrocarbons (PAHs):

Polycyclic aromatic hydrocarbons (PAHs) are a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic compounds. PAHs are known for their carcinogenic, mutagenic and teratogenic properties.

PAHs can be found in petrochemicals, rubber, plastics, lubricants, antirust oil, paints, leather and other products. Rubber and plastics are high risky materials containing PAHs. Tyre, electronics and toys are most affected by the restriction of PAHs in EU, German and US.

EU REACH Annex XVII has placed a restriction on the use of 8 PAHs in tyres and extender oil. Tyres will not be allowed to be placed on EU market if 8 PAHs exceed certain concentration thresholds listed in the following table. The restriction also applies to the marketing of tyres in EU.

Name	CAS	Structure	Limits
Benzo[a]pyrene	50-32-8		1 mg/kg
Benzo[e]pyrene	192-97-2		Sum of 8 PAHs < 10mg/kg REACH has designated ISO 21461 as standard testing method for 8 PAHs in tyre. For extender oil, IP346 is used. According to the ISO 21461, tyres are compliant with the restriction on PAHs if the concen -tration of vulca - nizates compound is not greater than 0.35% of Bay proton's limit.
Benzo[a]anthracene	56-55-3		
Chrysene	218-01-9		
Benzo[b]fluoranthene	205-99-2		
Benzo[k]fluoranthene	207-08-9		
Benzo[j]fluorant	205-82-3		
Dibenzo[a,h] anthrancene	53-70-3		

In addition to the EU restriction of 8 PAHs in tyre and extender oil, German has decided on the mandatory Polycyclic Aromatic Hydrocarbons (16 PAHs) testing for the GS-certification process. US EPA has restricted 18 PAHs in consumer goods.

The limits for PAHs that must be met for materials of consumer goods are stated in the following table :

Parameter	Category 1	Category 2	Category 3
	Material in contact with foodstuff, or materials intended to be put in the mouth and toys for children age of < 36 months	Materials with foreseeable contact to skin for longer than 30 seconds (long-term skin contact) and toys not covered by category 1	Materials with foreseeable contact to skin up to 30 seconds (short term skin contact) or without skin contact
Benzo(a)pyrene mg/kg	Not detectable (< 0.2)	1	20
Sum 18 PAHs (EPA) mg/kg	Not detectable (< 0.2)	10	200

Our PAHs Testing Services

CIRS is the first and also the only third party testing agency in mainland China that offers PAHs testing services according to both ISO 21461 and the German ZEK method.

We offer PAHs testing services according to the following criteria :

- EU REACH 8 PAHs;
- German 16 PAHs;
- US EPA 18 PAHs;

Reference :

a. http://www.cirs-reach.com/Testing/PAHs_Testing.html
b http://www.ponytest.com/english/pahstesting.asp
c. http://www.leathermag.com/features/featureproposed-ban-of-pah-in-consumer-products
d. http://www.eurofins.com/consumer-product-testing/services/research-development/projects-on-skin-exposure-and-protection/testing-method-for-gloves-pah-at-demolition-work/
e. https://www.blc-chemical testing.com / chemical-testing/pah-testing-services/
f. http://www.sciencedirect.com/science/article/pii/S0026265X13002038
g. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3270495/

Sambhu Das Sett

[16th January 1929 – 13th March 2017]

Sambhu Das Set was born on 16th January, 2017. He passed out from College of Leather Technology, Calcutta.

Started a small scale manufacturing unit of leather handgloves, leather belt, machine belt in a joint partnership farm – "Basak – Sett & Co." at Darjipara, North Calcutta. Later he left that farm and started his own business.

He was one of the senior most founder members of this association (ILTA) under the guidance & inspiration of late Prof. B. M. Das, Prof. Moni Banerjee and other distinguished personalities in the field of leather technology of that time.

He was enlisted to act as publisher of the monthly journal JILTA and remained as publisher till last date.

In the year 1977, his active participation and team effort through ILTA by which annual leather exhibition named LEXPO started and in those years LEXPO used to held at different star hotels like Great Eastern Hotel, Park Hotel, Hotel Hindustan International and other places. In those years he served ILTA as Honorary Treasurer too.

He was very much enthusiastic about the activities of ILTA and always opined for its growth.

On a personal note, his demise has created a great loss to ILTA and we all pray to God for his soul to rest in peace.

TRAINING OF CUSTOMES OFFICIALS AT RCED (CSIR-CLRI), KOLKATA

Leather industry in India is still largely export dependent. The industry not only exports leather and leather products, it also imports a variety of inputs including hides, skins and finished leather in compliance with the country's foreign trade norms. It is often said that complicated foreign trade procedure and inordinate delay in clearing the consignments is one of the important reasons why the country is losing out to its competitors in leather trade. Therefore, if the country has to facilitate the foreign trade of leather and leather products significantly, it has to put in place a system to clear promptly all consignments which satisfy the norms while bringing meticulously under scanner all those that show deviation. One of the major impediments that block speedy clearance of consignments at port and country border is lack of adequate number of Customs officers having specialized knowledge in leather, leather products and components. Therefore, Indian Customs authority, which is responsible for monitoring the foreign trade and checking the level of compliance with foreign trade norms, felt the need to undertake capacity building exercise for its people to enable them to make quick decisions in respect of import-export consignments.

As a part of the capacity building exercise to enable its officers to distinguish crust from finished leather and make distinction between leather and non-leather articles clearly, quickly and confidently to achieve the larger goal of prompt clearance of export-import consignments, the Customs Office at Air Cargo Complex of NSCBI Airport nominated ten officers to receive training at RCED(CSIR-CLRI), Kolkata. The Kolkata office of CSIR-CLRI designed a special programme titled'Examination of Finished Leather & Products for Export' for the Customs officers. It was a 4-day training programme having a blend of theory and practice supplemented by plant visit, discussion and self-study. The programme covered a number of key areas like i) Microstructure of different hides and skins, their commonalities and distinctive features, ii)Leather making operations and their impact on leather properties and physical appearance, iii)Finishes of various types and their distinctive features and classification. iv)Characteristics of various types of finished leather and their assessment in the light of finish leather certification norms, v)Standard protocols for physical & chemical testing needed for finish leather certification, vi) Leather non leather distinction and guidelines for ascertainment of leather product in India and abroad, and vii)Over view of Indian leather industry, its export dependency, economic importance, growth potential, development constraints and expectations such as simpler export procedure and faster customs clearance, etc. which can place this region and the country at par with the competing regions.

The programme commenced on 17th Feb, 2017 and it came to an end on 06th Mar, 2017. During the programme the Customs officers were taken to three leather making units in CLC for visit. The officers, who took keen interest in learning, went around the units, watched the on-going operations and interacted with the unit managers/proprietors to get a comprehensive view of leather making processes. The lecture-discussion and demonstrations that formed an important part of the programme were held at RCED, Kolkata Office. It was observed during and after the programme that the officers could identify the animal species and distinguish finished leather from the crust leathers independently and with confidence. They also became very familiar with the prevailing country norms for assessment of finished leather and leather articles. At the end of the programme feedback was collected. In the feedback the officers expressed their full satisfaction over the training course.

This initiative for capacity building taken by the Customs authority to achieve faster clearance of all export-import consignments is a welcome move for the exporters in this region and the trade in general. Appropriate and timely support from CSIR-CLRI to enable the Customs authority to achieve its goal will be a great boost. It is hoped that this programme will help the regulatory authority achieve the stated goal and facilitate the export trade from this region in a very significant manner.

Dr. Dipankar Chaudhuri, Chief Scientist and Head, RCED (CSIR-CLRI), Kolkata, explaining a point to the customs officials

A moment from the demonstration session. Mrs. Anusha Mediconda examining a piece of leather under microscope.

Mr. Nayan Sarkar, Technical Officer, RCED (CSIR-CLRI), Kolkata in a theory session. Officers attending the session (from the left) are Mr. Suryadipt Kumar Singh, Mr. Anil Verma and Mr. Devendra Kumar.

A photo of the factory visit by the team under the guidance of Mr. Nayan Sarkar (Technical Officer, CSIR-CLRI). Customs officers seen in the photo (from the left) are Mr. Lalit Kishor Merdwal, Mr. Harsh Mittal, and Mrs. Anusha Mediconda.

Dr. Sandipan Chatterjee, Scientist, RCED (CSIR-CLRI), Kolkata demonstrating the TLC technique. The Officers seen in the photo (from the right) are Mr. Vikki Kumar, Mr. Vishal Kumar (face blocked) and Mr. Manish Kumar Sharma.

UP SLAUGHTERHOUSE CRACKDOWN: LEATHER, CRICKET BALLS AND FOOTWEAR MAY GET COSTLIER

You may have to shell out extra money for a pair of Kolhapuri chappals or a fancy leather handbag if the ban on illegal slaughterhouse in Uttar Pradesh continues and if other states decide to follow suit.

From car upholstery to ladies' purses, it is mainly buffalo hide that is used. The mass closure of slaughterhouses in Uttar Pradesh has not only left many people in the meat business jobless but is threatening to affect the livelihood of tens of thousands of others associated with auxiliary sectors relying on meat and by-products in other states as well.

The multiplicity of laws has also meant that many legal abattoirs in UP have also been shut for failing to comply with an assortment of legal formalities.

The manufacturing of cricket balls, volley balls, the lucrative leather industry, soaps, handicraft, to name a few, are among 168 allied industries that depend on meat industry in India now find themselves in the line of fire over that slaughterhouse ban.

Uttar Pradesh where Yogi Adityanath government launched a crackdown on illegal slaughterhouses is the main source of buffalo hide for the leather industry, which in turn is used for 50% of products sold in the country as well as exported.

(Source : The Hindustan Times)

SLAUGHTERHOUSE BAN TO HIT LEATHER GOODS INDUSTRY, IMPACT MAKE IN INDIA

Leather manufacturers, who have experienced a slump in raw material supply from domestic sources, fear that the Bharatiya Janata Party (BJP)-led Uttar Pradesh government's action against illegal slaughterhouses could hit supplies and raise prices.

They also say a "blanket plan" on slaughterhouses could defeat the purpose of the Make in India programme for the $12 billion Indian leather industry, which is among the top five in the world's leather market.

In case of short supply of raw materials from the indigenous market, manufacturers need to look for costly imports of raw materials instead of cheap domestic sourcing which would make Indian leather exports less competitive in the world market.

"The crackdown on illegal slaughterhouses by the Uttar Pradesh government cannot be questioned, but a blanket ban will affect the domestic supply of raw material. Since illegal units were in the supply chain, some amount of short supply is expected," Tapan Nandi, Convenor Chairman for German Investment in India of the Council of Leather Export, told IANS.

According to industry sources, Uttar Pradesh being a large state contributes a majority of raw material supply along with Punjab, Bihar and West Bengal.

(Source : The Business Standard, Kolkata)

FOOTWEAR MAKERS SEEK TO STEP INTO THEIR OWN SHOES

As the country looks forward to the rollout of the Goods and Service Tax (GST), which is now likely on July 1, speculations are rife in every industry. One such industry is that of footwear. As a significant part of the fashion industry, it is hoping for GST to play a role in the ironing out of differences with its counterpart, the apparel industry.

Firstly, to put things into context, from the consumer standpoint, apparel and footwear, both fall under the single category of fashion. However, from the supply standpoint, tax and duties treat each of these as different. While the basic customs duty remains the same for both at 10%, countervailing duty (CVD) and excise duty, at 0% to 4% for apparel and around 12.5% of maximum retail price (MRP) for footwear is a huge game-changer. Moreover, value added tax (VAT) for footwear averages at about 14% across the country, whereas for apparel, it is at about 5%.

With blaring dissimilarities in the taxation structure. The footwear industry is at a disadvantage compared with the apparel industry. Now, as GST is expected to be the leveler, DH talks to industry players to understand what they anticipate. Monrow Shoes Head of Brand Veena Ashiya says, "Having higher excise on footwear makes it harder for the industry to compete with apparel brands, when it comes to consumer wallet share.
Pressure is definitely high as in consumers' mind, footwear and apparel fall under the same category as lifestyle. So many successful apparel brands have emerged in India and footwear can experience the same boom provided the government sees this as an opportunity to propel the footwear industry growth." Monrow is a premium women's footwear brand, which was recently launched in the market.

Woodland India Managing Director Harkirat Singh says, "The differential in VAT not only escalates the price of footwear, but also adds to cost of compliance, which in turn is ploughed back into the cost only. Consequently, footwear price becomes in-competitive compared with garments for no justifiable reason."

Mas Fashion India Executive Director Vasanth Kumar says, "Duties on footwear have always been higher,

even when we are not comparing footwear and apparel. It is a natural drawback. Therefore, hopes from GST to aid the industry are quite substantial." Max Fashion, which was launched as a value fashion brand in 2004, has a chain of 400 stores in 120 cities, and imports up to 12% of its merchandise, including footwear and apparel.

"With reduced disparity in the taxation structure, the entire process can be streamlined. Consolidation of warehouses and increased speed in the handling and transportation of goods would lead to improved business efficiency," he adds.

(Source : The Deccan Herald)

ILLEGAL ABATTOIR BAN IN UP HITS PUNJAB'S LEATHER INDUSTRY

Following stringent action and the subsequent closure of illegal abattoirs in Uttar Pradesh (UP) soon after the Bharatiya Janata Party (BJP) came to power last month, the roughly Rs.20,000 crore leather industry has been adversely impacted by short supply of rawhide.

Acting on the National Green Tribunal's (NGT's) directive to close illegal slaughterhouses in UP, thousands of unregulated and unregistered units, mainly manually operated, in thickly populated areas have been shut down.

Organized slaughterhouses, which export meat, are operating, they number roughly 45, and are not in a position to cater for the big demand for rawhide. This has virtually squeezed the supply of rawhide to industries based in Kanpur and Unnao districts. "The leather industry has taken a hit of almost 50 per cent due to short supply of rawhide to leather manufacturing and exporting units. There is a severe demand supply crunch," UP Leather Industries Association's (UPLIA's) former President Taj Alam told Business Standard.

Further, he said the prices of rawhide had appreciated by 20 per cent owing to supply scarcity over the last several weeks. "If this situation continues, the state leather industry would not be able to meet even half its current fiscal target."

"We are clearly not in a position to bargain with our buyers to renegotiate export prices since our buyers can source finished leather goods from other Asian countries like Pakistan, Bangladesh and Sri Lanka, where exporters are not faced with such a crunch situation," he added.

Meanwhile, Council for Leather Exports (CLE) regional chairman Javed Iqbal put the likely impact on the local leather industry at a much steeper 80 per cent.

HIDESIGN RELEASES BEAUTY AND THE BEAST COLLECTION

Indian leather goods brand Hidesign has partnered with Disney India to design a range of bags and wallets celebrating the live action remake of iconic film Beauty and the Beast, which is due to be released this month.

The collection, called 'Enchanted', features 30 different pieces in a range of materials, including leather and canvas. They are all manufactured at Hidesign's factory in Pondicherry, India.

Available in a variety of colours, the items incorporate designs and motifs that pay tribute to the original animated version of Beauty and the Beast, which was released in 1991.

(Source: LeatherBiz.com)

Technical Education in Leather Sector needs Major Improvements

Shomenath Ganguly*

Ex-Director of CFTI – Agra & Former Principal of Karnataka Institute of Leather Technology.

A good institution is not known by the building and machinery it has but by the merit of its students and teachers, the quality of education it offers. The facilities it holds for the students like laboratory accessibility, support for research work is very important. How efficient they are in providing training to the students on a day to day basis should be the main yardstick to measure any institution.

Though India is having around **40 institutes** in leather & its allied sectors but till date the quality of education in most of these institutions is not up to the mark. Most of the institutes in India are either **"fully Government controlled"** or under **"Govt. of India society".** There is no mechanism to check the standard of education maintained by the concerned institute on behalf of the Government. Leather/footwear business men in India are not happy with the candidates passing out from these institutes. The staff of pure Govt. Institutes are simply indifferent to work because of which the students are suffering. There is one i**nstitute** I am aware of where even after getting all sorts of help from **NLDP** (National Leather Development Project) during **1988-1990** they did not even start using the machinery for about **4 - 5 years** after acquiring them. **90% of machineries** given to that institute are lying unused for the last 25 years but no action has been taken from the government's side. This is unfortunate waste of the nation's money.

It is also a great surprise to me that the same institute has been granted permission for a new building and machinery during 2013-2016.The new building is to be inaugurated soon. One wonders if we should expect anything different from them this time around. Does our government have enough money to waste in this manner? Shall we not take any lesson from the past? There should be some accountability put in place for any institution which gets government aid.

Vocational Institute can't function well if they don't utilize their machineries. Most of the govt. sponsored institutes are not utilizing their machines because they have no control over their staff. These types of institutes are not capable of imparting vocational trainings. Teachers responsible for teaching are not having requisite qualification set by the **AICTE** (all India council for technical education). **Premier footwear Institutes** in India are offering Degree, Diploma & Certificates courses without proper strength of teaching staff. In India now-a-days huge numbers of candidates are being cheated by these types of institutes. Several cases are pending in the High Courts for **"Students v/s Premium Govt. Institute**".

Some Government institutes are receiving money from the students as well as government grants of **hundreds of crores**. Such institutes must obey the minimum qualification of a teacher set by AICTE if they are going to offer **B.Tech degree or Master's Degree** to the students. There are different types of educational qualification required for running Degree, Diploma & Certificate Courses. In our country, there are some norms to recruit qualified teachers. Government institutes must follow that norm.

I fail to understand why **Govt. of India Institutes** charge exorbitantly high fees from its student. The basic aim of these types of institutions should not be to run profit. One won't find any original research work by the students in those institutes where a fee of **Rs.6-8 lacks** is being charged from the students. High fees restrict the entry of **meritorious poor students** who might like to work in the leather industry. Students from affluent families usually do not continue in this industry due to the poor pay package.

Government should monitor the following

1. Same **syllabus** to be followed in all the institutes for major courses like **Degree, Diploma & Certificate**.

2. One **regulatory body** to be set up to **control the examination** all over India like degree & diploma course examinations usually conducted in India by various universities.

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3. Field wise Institutes may be broadly divided in three categories like:

    a) Footwear Institute
    b) Leather Goods Institute
    c) Leather Tanning Institute

4. **Fees structure** for the courses all over India should be decided & monitored by the Government.

5. Institutes should not be encouraged to **earn money** which ultimately effects the education.

6. **Intake of students** of the institutes to be set well in advance by the controlling authority & that should be followed by the institute.

7. Institute must maintain **student teacher ratio**.

8. Instead of providing **fund** to the institute only for purchasing machines government should allocate fund for **scholarship to the students** to encourage in research work.

9. **Research & developments wing** must be established in all institution.

10. For imparting "**fashion & creative**" education to the students the leather institutes must collaborate either with **NID (National Institute of design) or with NIFT (National Institute of fashion & Technology)** to enhance their quality.

11. We may **consult with western countries** for framing **syllabus** & **system of imparting education.**

12. India is having enough good creative artists and their abilities are indisputable. Kindly give them proper training with **NID / NIFT** for the development of leather sector. Try to give opportunities to the **professional artists** to become designer in the leather sector. These designers can give you result within 10 years and may even rule the world leather fashion market which is now **captured and dominated by Italian designers** only. An attempt in this respect by **NLDP** in their programme during 1997-98 in leather goods sector had **given positive result**. We need such type of designers in huge number in this sector which only government can do.

13. Give more emphasis on **practical, creative designing & research /developmental work.**

GST TO RATE TAXPAYERS, BUSINESSES ON PAYMENT RECORD, MAKE RATINGS PUBLIC

Trade and industry will be assigned a 'compliance rating' based on their credibility with regard to timely deposit of taxes to the exchequer and filing of returns under the goods and services tax structure.

Revenue Secretary Hasmukh Adhia said a system of GST Compliance Rating will be put in place so that every trader or businessman will be rated based on their track record.

Once the rating is made public on the GSTN portal, a businessman can decide on whether to deal with another trader or entity who does not deposit tax with the government and therefore, has a low compliance score.

GST Network (GSTN) is the firm which is building the IT backbone of the unified tax, which is scheduled to go into effect from July 1.

The GST Council in due course will approve the procedures to be followed for compliance rating and it will mostly depend on how a trader or business entity has complied with filing returns and other requirements under the Act, GSTN CEO Prakash Kumar said.

"We will start with by putting everyone at equal level, but if a taxpayer is non-compliant, then only your rating will go down," Kumar explained.

A GST compliance rating somewhat mirrors the credit score that CIBIL provides based on the credit history of a borrower. The score is a three-digit numeric summary and depends on an individual's credit payment history across bank loans and credit institutions over time.

The Central GST Act as passed by Parliament also provides that every registered person may be assigned a goods and services tax compliance score by the government based on his record of compliance with the provisions of this Act.

The parameters for determining the rating score are yet to be prescribed.

The rating will provide the name of the taxpayer as well as the GST Identification Number (GSTIN).

Speaking to reporters at the GST Conclave here, Adhia further said all efforts are being made to roll out GST from July 1 and the industry too should brace for it.

He said Telangana and Bihar have already passed the State GST (SGST) Bill in their respective state legislatures while Rajasthan is scheduled to pass it tomorrow.

As many as 14 states have said they will pass the SGST Bills by mid of May and by May 31, all state legislatures will pass the SGST bill, Adhia said.

"We are making all efforts to implement GST from July 1. We request the trade and industry that they should not be complacent and should make efforts to prepare for GST. The big industry will have to change the ERP software system, the small traders need no preparation as they can file return using the offline tool on the GSTN portal," Adhia said.

The secretary further said GSTN has already short-listed 34 companies to be the GST Suvidha Provider (GSP). The GSPs are mandated to provide innovative and convenient ways to taxpayers and other stakeholders while interacting with GST Systems, from registration of entity to uploading of invoice details to filing of returns.

GSTN will soon appoint some more startups and companies which will make easier software solution for filing returns, he said.

Besides, people with issues in filing returns can walk up to centres where 'GST practitioners' can assist them. Also, there will be help lines that will attend to queries from people both in national and vernacular languages.

(Source: Business India – 15.04.2017)

LAST DATE FOR FILLING ORIGINAL FY: 2014-15 ITR WAS 31.03.2017 – IF YOU MISSED THIS TOO, HERE'S WHAT TO DO

March 31, 2017 was the last date to file your original income tax returns for the financial year 2014-15. In fact, the Income tax department had, in a release on March 28, 2017, urged taxpayers to file their pending income tax return for this financial year before the expiry of the deadline of March 31st, 2017.

Amarpal Chadha, Tax Partner and India Mobility leader, EY says "An individual as per the tax laws is required to file the original return by July 31 every year. However, in this case, the due date was extended till Sept 5, 2015. Anyone who has missed the original tax filing date can still file the return within 2 years' period before March 31. 2017."

However, if you have missed this final deadline for filing the original returns for FY2014-15, then here's what can you do.

"An Individual who has missed both the deadlines is now left with an option of filing an application with the relevant tax authority to explain the delay in filing the tax return." Says Chadha.

If such application is accepted by the tax authorities based on the validity and correctness of the claim and satisfaction of the tax officer, only then is the person allowed to file the ITR.

The return, in this case, would be filed as a normal one. There would be no restrictions or conditions attached to the filing of the income tax return in this manner i.e. he can still receive the section 80C benefit. However, a person will lose certain benefits like the option of carrying forward and set off of losses, revision of tax returns.

What if you have received an income tax notice for the relevant FY?

A situation may arise where you haven't filed your return or your application (for filing after the aforementioned deadline) is rejected by the income tax department. In that case, you may receive a notice from the department.

As per the income tax laws, a person who has not filed his/her return within the stipulated time can be issued a notice under section 142 of the Income Tax Act.

Section 142 (1) (i) states that any person, whose total income exceeds the maximum amount which is not chargeable to tax and who has not furnished the details of the income earned in the relevant year can be served the notice by the Assessing officer asking for details of the same.

Chadha says, "In this situation, the individual has the option to file the return of the income in response to the notice received under this section. Application for condonation of delay is a suo moto action by the individual as compared to notice issued by tax authorities asking the individual to furnish the return of income ."

Also, one can also receive a notice under section 148. Notice under this section is served when the tax authority has a reason to believe that any income of an individual has escaped assessment.

Tax experts say that one should not panic if one receives such a notice. A taxpayer should, in a calm manner, respond to the notice. If he is unable to understand the queries raised or answer it in a proper manner, then one should seek help from a tax expert to answer these queries.

(Source: Economic Times – 26.04.2017)

Footwear Design & Development Process — A New Concept.

Sujit Kumar Basu *

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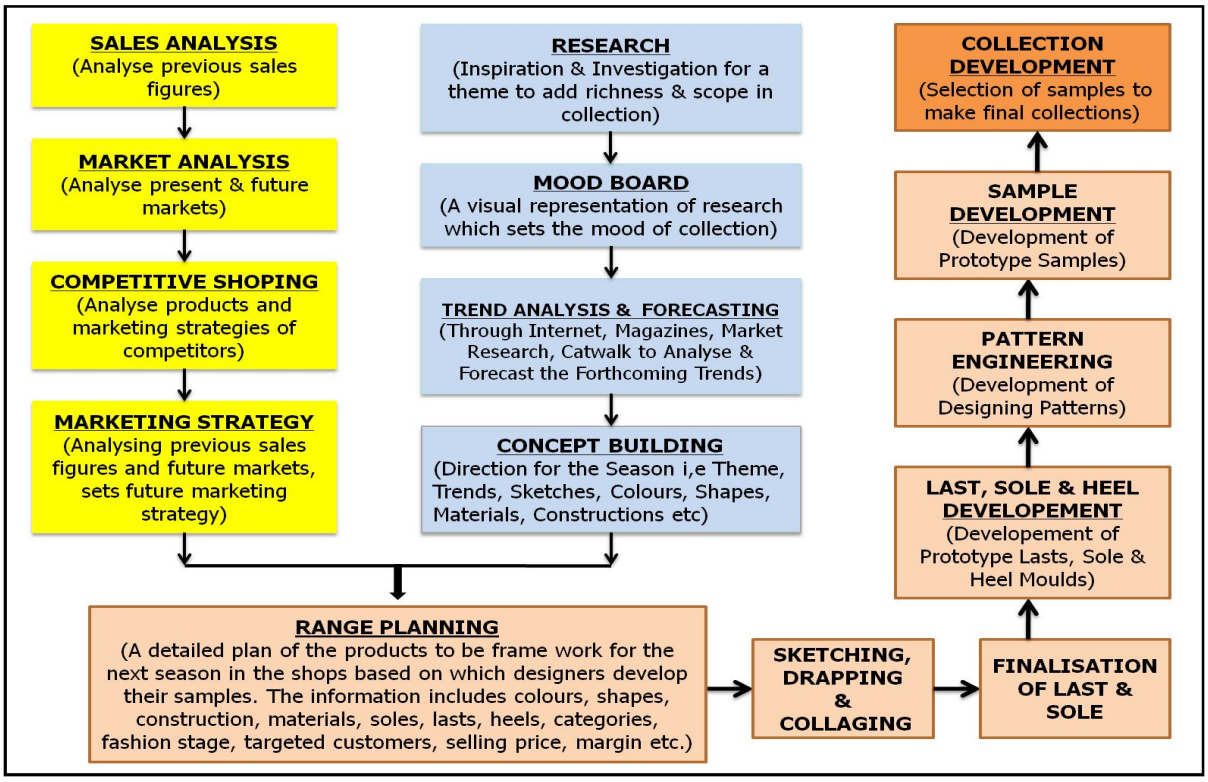
Abstract:

Footwear continues to enjoy the spotlight in the fashion world. Shoe designers have become internationally famous, while magazines and fashion supplements feature footwear as one of the most critical fashion accessories. There is a definite focus on footwear in high-street shops. The New York flagship store Saks Fifth Avenue boasts a footwear department so big that it has its own postal code. London's Selfridges store has the world's largest footwear department, housing more than 55,000 pairs of shoes during its launch in 2010; store-wide marketing – from window-dressing to visual merchandising – was dedicated to all things footwear related. Fast fashion companies, understanding the importance of footwear, have brought about an increase in the presence of shoes, even within the clothing shop, on the high street.

In today's scenario with the changed perception of customers, the footwear designers and merchandiser had to change their way of footwear designing and product development. Here, a detailed discussion is carried out on every steps of this new concept from Research to Inspiration, Inspiration to Investigation, Investigation to Trend Forecasting, Trend Forecasting to Concept Building, Concept Building to Collection Development etc.

Key Words: Footwear, Trend Forecasting, Concept Building, Mood Board etc.

Introduction: The vital steps for footwear design & development are as follows



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A. Research:

Research is an important part of design and development process. It is an excellent way of investigating a subject in depth and to find new ideas on themes, colours, texture, prints, materials and shapes for developing a new collection. Research helps to put together a collection that derives from a single pool of idea, thus creating a unifying story for all pieces. Some designers take their research and theme to the extend from it's shoe designing to all the way to printing shoe box tissue papers and their general marketing.

Inspiration: The straw and its use provides a cross –culture journey through material possibilities.

Generally there are three essential parts of research: Inspiration, Investigation and Process. At inspiration stage, the theme (the dominant unifying idea) is emerged out. During the investigation the theme will be refined through further exploration. In the process stage the work will be done on the practical translation of research ideas – in other words work is done on the possible application of research works in final collection.

The result of research will be a sketch book and a mood board. A sketch book is a powerful tool to use for the final collection and a good way to archive visual information for future reference. The working on sketch book should start with it's early ideas towards the end of the inspiration stage. The compilation of the sketch book should happen throughout the process stage and should be completed before the final collection of designs.

Whereas a mood or theme board is a visual representation of summarised research works as an introduction to design collection. The mood board can be constructed and finalised during the process stage.

Process: Creating and Compilation of ideas.

It should be carefully noted down that the colour plays an important part in research. The final colour palette can be added in mood board or kept on a separate colour board.

B. Story / Mood Boards:

This is a visual representation of research. It is the ultimate representation of ideas that sets the mood of collection. It acts as the opening page and helps the viewer to understand the direction. The storyboard is used by the footwear designer to 'set the scene', before they start designing. It is often used by the clients to understand a trend, or to explain a trend to a design & merchandising team. It can help a client to decide a range of footwear, if it is relevant to their customer before the designer starts to design. A mood board can be as simple as a single image or as long as it accurately sums up the collection.

Storyboards are usually made from fashion magazine photos; they may include notes, material swatches, other inspirational pictures, sketches or photos. There is usually an element of forecasting involved. We look at current trends, we look at what the opinion formers are doing and wearing, we look at what is happening in the world generally and use this information to predict what might be popular next.

C. Trend Forecasting:

Trend Forecasting is one of the most lucrative areas of the fashion industry and thus plays an important role in footwear designing. For many companies the knowledge of forthcoming trends is the key, since it is important to stay ahead in a competitive marketplace. Trend Forecasting consists of three stages as research, analysis and forecasting. The research stage varies, depending on the product requirement. The two basic aspect of trend research are catwalk trends (what will be in the shops next season) and trend forecasting (what might be in the shops in two or three season's time). For footwear designers working in a fast fashion category, they follow catwalk trends, so that they can have their products in the shops within weeks of the show. But for commercial footwear designers, they follow the trend forecasting, as it focuses more on the cultural direction of the seasons beyond the next one, thus helps them to gain the trend directions in order to have a competitive edge in the market place.

Research could also involve taking photographs of shoes at retail (shop windows), may be looking at all aspects of the design or may be using the photos to research the trends in toe shapes, heel shapes, materials, colours, hardware etc. This can be put together into a report format, where we highlight and group the trends so that they are easy to understand. For some projects, research may take place in art galleries, libraries, internets or anywhere else we may wish to find inspiration outside of the footwear design world, to get our creative juices flowing.

D. Concept Building:-

It is been developed based on the Trend Forecasting and the Strategy formed by the organisation. New creative and stylistic ideas are formed focused on target consumer. The use of different Construction and Materials to be used are decided. The decision also made upon the efficient and reasonable availability of materials and infrastructure. The decision also made upon the level of innovative but commercial products to be trade. Focuses also made on what the market asks in term of prices.

E. Market Analysis and Strategy Building:

PRESENT MARKET ANALYSIS

Where consumer buys ?
What is the other's collection structure ?
What is the price point of the competition ?
Which are the missing needs ?
What were the past sales figures ?
Who are the cometitors ?
Where the brand stands ?

FUTURE MARKET ANALYSIS

Who is our potential customer ?
What is our market segmentation ?
What is our brand position ?
What should be our selling price ?
What should be the quality policy ?
What should be the ethical business policy ?
What should be the supplier chain policy ?

It is been decided for the forth coming season, keeping in mind the last year's sales, the lessons, the competitors, the customers, the market potentiality, brand position, overall financial condition of the market etc. Every further step will follow based on this strategy. Generally the works are done by the buyers and merchandisers together and the strategy is framed at director level.

F. Range Planning:

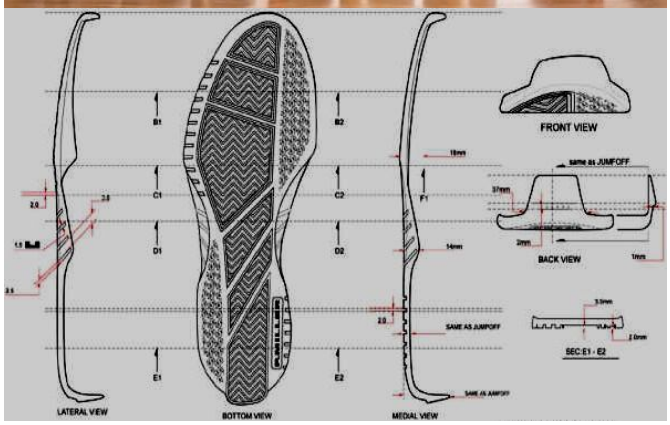
Project	Project Dev Type	Project Name	Segmentation	STYLE	Style Description	Competitors	Construction	Suggested Made In	Suggested RRP	MARGIN	Suggested Material Option	SKU/CCS	TOTAL PC
1	TR	NEW VULCANIZED W	CASUAL	1	simple low lace	CONVERSE, VANS, PHILIPPE MODEL	VULCANIZED	Far East	€50	60%	Canvas/Textile	5	12.000
				2	new low lace		VULCANIZED	Far East	€50	60%	Canvas/Textile	5	25.000
				3	mid lace		VULCANIZED	Far East	€55	60%	Canvas/Textile	5	15.700
2	RU	RESTYLING CUP SOLE PAST SEASON	CASUAL	4	mid lace	ADIDAS, LE COQ SPORTIF	CUP SOLE	Far East	€70	50%	Leath/Suede	4	3.000
				5	ballerina		CUP SOLE	Far East	€60	50%	Leath/Suede	4	3.000
3	TR	NEW - DRESSY CREATIVE THEME 1	DRESSY	6	sandal 1	ASH, ACNE, MICHAEL KORS	STACKED HEEL	EUROPE	€150	40%	Leather	3	1.500
				7	sandal 2		STACKED HEEL	EUROPE	€170	40%	Leather	3	1.500
				8	sandal 3		STACKED HEEL	EUROPE	€200	40%	Leather	3	1.500
												32	83.800

If we are developing a range of shoes for a customer, we generally like to make a range plan before we start to design. This is a plan to work out how many outsoles, styles and colours and what price points we want to achieve. This work is done by the merchandiser of an organisation. This is basically a feed back for the designer for collection to be developed and this merchandising plan is build based on concept building and last year's sales analysis. The designers follow this merchandising plan and create their initial sketches and development accordingly.

G. Sketching:

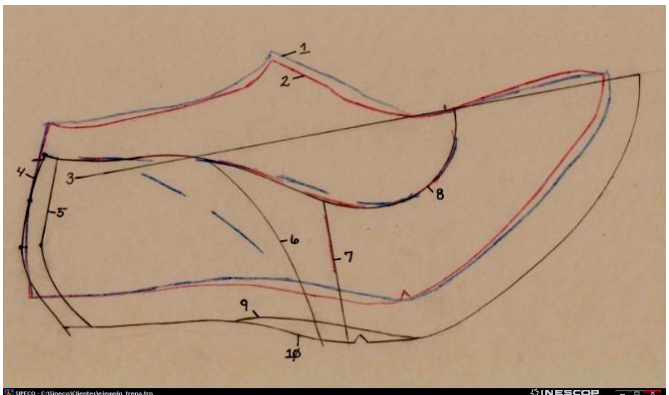
The designers usually start with lots of sketches based upon the merchandising plan to get an idea about what exactly the marketing team wants to have. This enables us to get our ideas down quickly on papers. The designers then discuss with the merchandisers on all the probabilities about the theme of the sketches and also any modification required. The designers and merchandisers both work together and pick the ideas they think are the strongest and make more detailed drawings again which are presented to the merchandisers and the sales team both for their final call upon categories, styles and options.

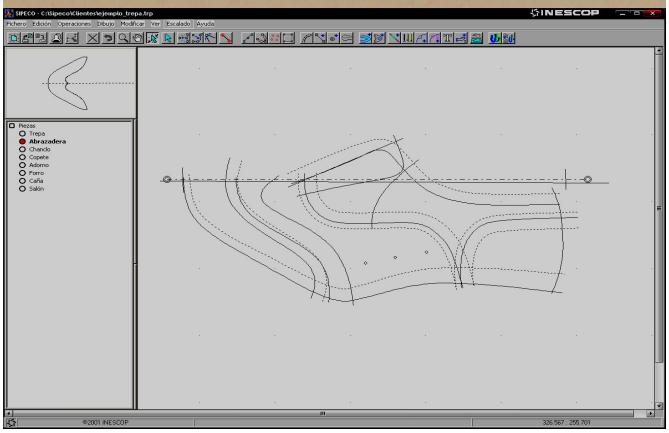
H. Development of Last / Heel / Outsole:



The last is a replica of foot. It is made of plastic, wooden or metal form. All shoes are made on last. Initially all the samples are made on prototype lasts. For samples with new concept, sometimes development of new lasts are required with their specified toe shape, heel height and toe spring. Similarly sometimes the designers need to develop new heels and outsoles depending on their new concept and designs.

I. Pattern Engineering:





Once the Sketches, development of Lasts, Heels and Outsoles are done and different upper materials are received according to the merchandising plan with their specific finishes, colours then the technical patterns are developed for each style. This work may be performed manually or by computer aided designing (CAD) software.

J. Sample Making & Collection Development:

After pattern engineering the samples are manufactured and presented to the merchandising & sales team for their final selection and make a

balanced collection for new season. Collection Development may be defined as a certain number of products which stand well together (Style) with lot of alternatives (Option) in a particular line (Category), give more commercial aspects and opportunities with a common identity for a targeted customer in a particular market segment.

LEATHER SCIENCE ABSTRACTS

VOLUME 50 **NUMBER 04** **APRIL, 2017**

NATIONAL INFORMATION CENTER FOR LEATHER & ALLIED INDUSTRIES (NICLAI)
NATIONAL INFORMATION SYSTEM FOR SCIENCE & TECHNOLOGY (NISSAT)

CENTRAL LEATHER RESEARCH INSTITUTE
ADYAR, CHENNAI 600 020, INDIA

Leather Science Abstracts **(LESA)** is published by National Information Center for Leather and Allied Industries **(NICLAI),** Central Leather Research Institute **(CLRI)**, Chennai.

It is a monthly abstracting periodical covering significant papers/articles published in the fields of Leather Science and Technology, Footwear Technology, Leatherware and Leathergoods, Leather chemicals, Leather machinery, Leather economics etc., appearing in about 500 scientific and technical periodicals published all over the world. The abstracts are presented under well defined subject headings and include indexes.

All enquiries for further details should be addressed to: THE DIRECTOR, **(ATTN.: EDITOR, LESA)**
CENTRAL LEATHER RESEARCH INSTITUTE, ADYAR, CHENNAI-600 020, INDIA.

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Paper Presented at the XXXIV IULTCS Congress held at Chennai, India during 5th to 8th February, 2017.

LEATHER SCIENCE AND TECHNOLOGY

LEATHER INDUSTRY. HISTORY. MANAGEMENT. ECONOMICS. EDUCATION

50.15407

Indian gas utilities : Crowding of regasification terminals could put pressure on utilization levels, regasification charges and returns. (Chem. Wkly.; 60, 52; 2015, Aug., 4;210-2).

Discusses in detail about the challenges that are faced by both the domestic and industrial gas productions. Discusses also about the problems that are encountered while implementing the various projects that have been prepared for the vast developments of the both domestic and industrial productions. The non availabilities of both the gases pose huge problems for these productions of the said products. The land acquisition and obtaining Right of Use (RoU)/Right of Way(RoW) and also the non-timely approvals specifically to the RoU/RoW) which pave for the stucking of them due to protests and political hindrances are the issues that play vital roles for lack or very slow progress of the productions. (1 Fig.).

50.15408

New urea policy 2015 : Positive for urea industry. GOLANI (NM), VAIDYA (K), (Care Ratings, M/s. Credit Analysis & Research Limited, 4th Floor, Godrej Coliseum, Off. Eastern Express Highway, K.J. Somaiya Hospital Road, Sion(East), Mumbai-400 022, India). (Chem. Wkly.; 61, 3; 2015, Aug., 25; 219-23).

Indicates the New Urea Policy(NUP) 2015 that has been notified by the Government of India and post approved by the Cabinet Committee on Economic Affairs(CCEA). This policy has principal objections of maximizing domestic urea production and promoting energy efficiency in urea units to rationalize subsidy burden. It aims at reducing the pre-set energy consumption norms and it also incentivizes urea units to maximize their production at the same time. (5 Tab.).

50.15409

Towards the smart tannery enterprise.GUTA (S), DUMITRACHE (I), IOANNIDIS (I), (INCDTP, Leather and Footwear Research Institute, 93 Ion Minulescu Street, Bucharest, Romania).(J. Soc. Leather Technol. (Chem.; 99, 4; 2015, Jul.-Aug.; 151-6).

Discusses the leather manufacturing processes that are distributed, complex and difficult to manage by current control systems. This is mainly due to the characteristics and diversity of raw materials. Automation technologies have evolved enormously in the last decade. Important progress was made in distributed manufacturing control using intelligent agents. A control system based on intelligent agents represents a viable solution to cope with the characteristics of the tanning industry. The proposed MAS (Multi-Agent System Architecture) approach allows decentralization of the control system by distribution of its function to autonomous, cooperative entities distributed geographically called agents. The MAS developed is promising in attaining real-time scheduling of processing operations, production scalability, robustness, error tolerance, self-organizing according to manufacturing conditions and also the smart tannery in contrast with existing automation technologies in leather industry. (35 Ref.; 3 Fig.).

50.15410

Corporate Social Responsibility(CSR).RAGHUNATHAN (CR.AR), (Leather News India; 6, 7; 2015, Jul.; 51-3).

Discusses briefly about the concept, applicability, activities, Committee and reporting of Corporate Social Responsibility(CSR). Aims to bring out an understanding of the CSR concept and the need and legal situation may vary case to case and the companies are requested to seek their own legal opinion in thematter.

50.15411

Discusses the biotransformation industry which is a rapid growth path, driven by advances in biocatalytic technologies and has currently thrown up novel and totally new opportunities. But the transition is proving as a major challenge for taking the industry to a market driven one from the current technology driven industry. Biotransformation in fine chemical manufacture is at present one of the rapidly growing areas of investments, as it has emerged as one of the vital platforms for complex multinational molecules. Novel advances in biocatalysts are driving the future prospects of biotransformation for many new projects. Discusses also about the early stage processes of biocatalytic transformations, promise of enzymes, enzyme immobilization, advances in biocataysis in pharmaceutical fine chemicals, Microbial cells driven biotransformations as well as the future directions like biocatalysis. (7 Ref.; 3 Fig.; 1 Photo).

50.15412

Survey on the Indian economy.SABNAVIS (M), CHACKOO (K), (Care Ratings, M/s. Credit Analysis & Research Limited, 4th Floor, Godrej Coliseum, Behind Evarard Nagar, Off. Eastern Express Highway, K.J. Somaiya Hospital, Road, Sion(East), Mumbai-400 022, India). (Chem. Wkly.; 60, 51; 2015, Jul., 28; 209-12).

It is very strongly felt that an insight into the views and expectations of the various market players was deemed pertinent in continuation with the regular monitoring of the economy and the progress made by various sectors, by M/s. CARE. CARE's Annual Survey on the Economy attempts to capture the market sentiments and expectations on the Indian economy and the investment therein. (12 Tab.).

50.15413

Reflections : Sustainability shifts, 'Make in India' and Indian chemical industry. RAJAGOPAL (R), (M/s. "Chemical Weekly", Corporate Office, No. : 6th Floor, B-Wing, Godrej Coliseum, Behind Evarard Nagar, Off. Eastern Express Highway, K.J. Somaiya Hospital, Road, Sion(East), Mumbai-400 022, India). (Chem. Wkly.; 61, 3; 2015, Aug., 25; 213-6).

Discusses the Indian chemical industry that faces new challenges arising out of mega shifts in the business of chemicals as this industry strives to seek its place in the world chemical landscape.It is viewed that the shifts can no more be isolated from the dynamics of the chemical businesses in other regions. Addresses the underlying shifts in the global fine and speciality businesses, the 'Make in India' din and the corrective measures needed to make the Indian chemicals industry face the emerging challenges. (2 Photos).

50.15414

Inside the Indian natural gas business.SRIVASTAVA (P), (Oil & Gas Division, Markets & Markets, Unit No. : 802, Tower No. : 7, SEZ Magarpatta City, Hadapsar, Pune – 411 013, Maharashtra State, India). (Chem. Wkly.; 60, 45; 20d15, Jun., 16; 217-20).

India's energy demand continues to soar as a result of its dynamic economic growth and modernization. Increasing natural gas demand from various sectors, coupled with falling production from domestic sources led to increasing dependence on imported liquefied naturalgas(LNG). Attempts to analyze the importance of natural gas and evaluates the viability of the gas-price pooling mechanism for the fertilizer and power sector. Reviews the sourcing gas from the US and Australia in the current oil price scenario. (3 Fig.; 3 Photos).

50.15415

Activated carbon : Manufacture, use & market trends. MAJUMDAR (S), (Flat No. : H-701, Neel PadmKunj, Vaishali, Opposite to Dabur Chawk, Ghaziabad-201 012, Uttar Pradesh State, India). (Chem. Wkly.; 61, 2; 2015, Aug., 18; 212-4).

Introduces the term viz. : 'Activated carbon' which is called also as the activated charcoal or activated coal,. Discusses also the manufacture and uses of AC particularly making the chemical-activated charcoal, applications and global market trends. (1 Tab.;4 Fig.).

50.15416

Solar photovoltaic rooftop systems : Opportunities and challenges. JOSHI (V), PARIKH (A), (CARE Ratings, 4th Floor, Godrej Coliseum, Behind Evarard Nagar, Off.

Eastern Express Highway, K.J. Somaiya Hospital, Road, Sion(East), Mumbai-400 022, India). (Chem. Wkly.; 60, 48; 2015, Jul., 7; 203-7).

Introduces the Solar photovoltaic(SPV) rooftop system. Discusses the various factors that pave for the huge growth of the SPV rooftop systems globally and its prospects in India.Discusses also the Central and State government policies on SPV rooftop system and the State government's initiatives/policies to promote SPV rooftop systems as well as the key observations from the State policies. Indicated different challenges that pose a serious threat to it and the initiatives that should be pursued to overcome these challenges. (2 Tab.; 2 Fig.; 1 Photo).

50.15417

Bio-based chemicals and material sector. DAMMER (L), CARUS (M), (Nova-Institute, Industriestrasse 300, 50354 Hurth, Germany). (Chem. Wkly.; 60, 48; 2015, Jul., 7; 209-12).

Highlights the most important changes and additions in the reform of the Renewable Energy Directive(RED) and Fuel Quality Directive(FQD) in the light of indirect land use change(ILUC) and explains what they mean for the sector of bio-based chemicals and materials. (1 Tab.; 3 Photos).

50.15418

Sebatic acid – A global outlook.DUTIA (P), **(**(M/s. "Chemical Weekly", Corporate Office, No. : 6th Floor, B-Wing, Godrej Coliseum, Behind Evarard Nagar, Off. Eastern Express Highway, K.J. Somaiya Hospital, Road, Sion(East), Mumbai-400 022, India). (Chem. Wkly.; 60, 50; 2015, Jul., 21; 217-20).

Introduces the sebatic acid as a bi-carbixylic acid with structure and as naturally occurring.It is being introduced also as a derivative of castor oil. Discusses the properties, commercial process, other routes, castor oil scenario, consumption and supply and the demand dynamics for this product. (4 Tab.; 4 Fig.).

50.15419

Evaluating energy and energy efficiencies in transportation sector of Iran. MOHAMADI (ZM), (Department of Mechanics, Yadegar-e-Imam Shahr Rey Branch, Islamic Azad University, Tehran, Islamic Republic of Iran). (Indian J. Sci. Technol.; 8, 11; 2015, Jun.; 1-6).

Discusses the energy that has gained an important role in planning and policies of many countries by considering the increasing energy demands.Presents the status of overall energy consumption in the transportation sector of Iran. The annual transportation of energy consumption of Iran is more than 296x106 barrels of oil equivalent, which is about 25% of Iran's total annual energy consumption as per most of the recently issued statistics. So, it is logical to analyze energy consumption in transportation sector for the purpose of better planning. Presented here, the statistics of energy consumption in Iran's transportation sector for a period of 24 years(1988 to 2011). Different transportation sub-sectors like highways, airways, railways and waterways and different energy forms were considered separately in the presented statistics. Derived the energy and energy efficiencies of the transportation sector by using these data. Analyzing the efficiency values in the mentioned 24 year period resulted in conducting some considerable points, which could be used in Iran's transportation principle policies in the future. (12 Ref.; 2 Tab.; 2 Fig.).

50.15420

Scenario making for the dimensions macro environment based on Fuzzy Delphi Method(Case study : Assembly companies in the Power industry). TAGHADOSI (R), SOLEIMANI (AG), (Department of Industrial Management, College of Accounting and Management, Qazvin Branch, Islamic Azad University, Qazvin Province, Barajin, Barajn Road, Islamic Republic of Iran). (Indian J. Sci. Technol.; 8, 11; 2015, Jun.; 1-12).

Aims for the scenario planning for the macro environment of four assembly companies in power industry. The scenario planning and PEST analysis have been used to predict the dimensions of macro environment of the above four assembler companies. One of the necessities of the investigations is the recognition of the environment about the industry which affects indirectly on industry and creates opportunities and threats for industry sectors. Here, at first recognized the scenarios which cover the major part of the future. The results show five scenarios

Biotransformations : Prospects & challenges. RAJAGOPAL (R), (M/s. "Chemical Weekly", Corporate Office, No. : 6th Floor, B-Wing, Godrej Coliseum, Behind Evarard Nagar, Off. Eastern Express Highway, K.J. Somaiya Hospital, Road, Sion(East), Mumbai-400 022, India). (Chem. Wkly.; 60, 52; 2015, Aug., 4; 205-9).
formed using four critical uncertainties, the stability of government, the nuclear issue, monetary and exchange rate. There is not any significant change in next three years and key uncertainties will continue as usual due to the experts opinions, in attention to the conditions prevailing in the country and agreements made. Therefore, the third scenario as the next likely scenario is chosen. Here, the applied method can be used to provide the necessary strategy for different companies and industries and introduce investment orientations for the intended industries. (36 Ref.; 6 Tab.; 4 Fig.).

50.15421

Single-use(disposable) systems in biopharmaceutical processing : Quo Vadis? (Chem. Wkly.; 60, 44; 2015, Jun., 9; 217-22).

Discusses the single-use systems(SUSs) that are accepted technology in all areas of biopharmaceutical processing which involve animal cell cultures. Researchers are making a concerted effort to overcome the existing limitations like standardization, enhanced sensor technology, improved automation solutions and single-use technology on a large scale. It is found that there will be a greater demand for single-use equipment to process stem and T-cells such as cell expansion, differentiation, harvesting and purification on the basis of the increasing level of success in cell, gene and immunotherapeutic applications. But, it is not clear whether single-use equipment developed for permanent cell lines can be used in particular for induced pluripotent stem cells which are very sensitive to shear stress. Market analyses indicate that SUS will continue to grow on a sustained basis by at least 15% a year. Increased use for commercial production and microbial processing is also expected. Re-usable equipment at existing plants is being replaced by SUS besides new construction of flexible, modular facilities for the production of biotherapeutics and biosimilars. (4 Ref.; 6 Tab.; 2 Fig.).

50.15422

The State, the market and the state of the Turkish pharma market. (Chem. Wkly.; 60, 45; 2015, Jun., 16; 205-11).

Discusses various factors that very much influence both the nation, prevailing conditions in the pharmaceutical markets and the current and the future prospects for the vast progress of the markets for the pharmaceuticals in Turkey. (3 Tab.; 1 Fig.; 1 Photo).

50.15423

Pressure sensitive adhesives : Formulations and applications. MAJUMDAR (S), ((Flat No. : H-701, Neel PadmKunj, Vaishali, Opposite to Dabur Chawk, Ghaziabad-201 012, Uttar Pradesh State, India). (Chem. Wkly.; 61, 3; 2015, Aug., 25; 205-8).

Defines the term called 'Pressure-sensitive adhesives(PSAs)'. Discusses four main technologies of PSA, difference between hot melt and pressure-sensitive adhesive, global markets of PSAs, manufacturing of PSA types as well as the components of adhesives like polymer/elastomer, tackifiers; waxes, stabilizers; and modifiers and also the testing of adhesives. (1 Tab.; 2 Fig.; 2 Photos).

50.15424

Efficient structures-rapid development : Automated formulation development saves time and reduces cost. (Chem. Wkly.; 60, 47; 2015, Jun., 30; 219-20).

Efficient systems for automated formulation development save valuable research-time and they can also reduce material consumption while producing better outcomes. The systems are used in the development of coatings in the chemical industry, healthcare products and drugs in the pharmaceutical industry and in biotechnology and drugs in the pharmaceutical industry and in biotechnology. Reviews the current technologies and trends highlights opportunities for product developers, system

manufacturers and development partners in industry and the research sector. (1 Photo).

50.15425

Shift to novel soda ash process : Implications for buyers. JEEVANANDAM (S), (Cost Modeling, M/s. Beroe Incorporation, Ground Floor, ASV Chandilya Towers, Nehru Nagar, 1st Main Road, Rajiv Gandhi Road(Old Mahapalipuram Road), OkkiyamTuraipakkam, Chennai-600 097, India). (Chem. Wkly.; 60, 48; 2015, Jul., 7; 213-6).

Discusses a novel technique for soda ash production which reduces production costs.Compared the soda ash production cost with the Solvay process and the novel modified Solvay process invented by Council of Scientific and Industrial Research-Central Salt and Marine Chemical Research Institute(CSIR-CSMCRI) and calculated the cost reduction across India, Europe and China. Derived the procurement strategies, on the basis of these cost comparisons. (1 Tab.; 7 Fig.).

50.15426

Business Intelligence for the Indian leather industry-the Technological Transformation. FAIZAL, (Leather News India; 6, 6; 2015, Jun.; 60-3).

Describes any company that invests in setting up a BI(Business Intelligence) department that will have an upper hand over its competitors. The company is more likely to handle all forms of challenges in a better fashion and on the other hand, it also opens up a wide array of new opportunities like never before. Altogether it gives the company an enhanced image in the face of its clients, employees, venders and government bodies. The Indian Leather Industries might have to go a long way in terms of utilizing BI as part of their process and reaping the benefits in using them. But it will definitely play a vital role with the change it needs in terms of achieving USD 18:50 billion export value by 2020. (5 Ref.; 5 Fig.).

50.15427

Environment science and technology innovations in leather research towards sustainable development in leather industry : A scientometric study. KASI RAO (V), (CSIR-Central Leather Research Institute, Adyar, Chennai-600 020, India). (Paper presented at the XXXIV IULTCS Congress held at Chennai, India during 5-8 May, 2017).

The present case study is dealt with LESA(Leather Science Abstracts) database on scientometric analysis of literature related to Environmental Science and Technology research trends in leather research. Analyses 4500 citations appended to 351 research contributions published in Environmental Science and Technology during the period(2001-2005) in LESA database. This study encourages the researchers to collaborative efforts for inter-disciplinary research activities particularly in Environmental Systems, Design Modeling and Optimization, Environmental Monitoring. Wastewater Treatment Technology, Environmental Impact Assessment (EIA) and Environmental Health Aspects in leather industry for sustainable development.

PROTEINS AND COLLAGEN

50.15428

Enter the matrix : collagen. ANTONIO (JS), (Stryker, Headquarters, No. : 2825 Airview Boulevard, Kalamazoo, Michigan 49002, USA). (Leather Intl; 217, 4856; 2015, Nov./Dec.; 37).

Describes the use of collagen. Discusses in detail about the preparative techniques that may involve methods not unfamiliar to those in the leather industry-solid phase methods are preferred to those of solution techniques-the former are often simpler and less expensive. The products are near-negative to particularly denatured meshes of cross-linked collagen fibrils. The size of the fibrils correlates to the strength of the products. The use of 3D(3 Dimension) printing is being considered but collagen preparations are not conveniently melted as are polymer plastics. Developments in the young industry are seen to offer great opportunities for making robust and bio-compatible medical devices.

ENZYMOLOGY

50.15429

Dechroming spent tanning liquor using filtration cake from enzymatic hydrolysis of chromium shavings. KOCUREK (P), KOLOMAZNÍK (K), BARINOVA (M), HENDRYCH (J), (Tomas Bata University in Zlin, Department of Automation and Central Engineering, NadStranemi 4511, Zlin, Czech Republic). (J. Soc. Leather Technol. Chem.; 99, 6; 2015, Nov.-Dec.; 288-92).

Deals with the treatment of spent tanning liquor using the chromium cake from alkali enzymatic hydrolysis of leather shavings. This scheme is seen as a part of complete recycling of chromium in the leather industry. There is a long-term worldwide effort to keep all chromium under control, ideally in a closed loop, since chromium, especially in its hexavalent form, has a negative impact on the environment and human health. The filtration cake obtained by hydrolysis contains a significant amount of chromium and due to its alkaline character it could be used for the treatment of spent tanning liquor. Demonstrates the possibility of the total dechroming of spent tanning liquor. The efficiency of the process depends on the weight ratio between chromium cake and spent tanning liquor and on the retention time. The dechroming level achieved was81.6% by using a ratio of 0.3 and a retention time of 1 hour and for a ratio of 1, the dechroming reached up to 98.3%. The dechroming level increased to 94.1 after 6 hours by using the former ratio. The treatment process has some limitations-the feed composition plays an important role in the process setup to achieve the high dechroming level. (13 Ref.; 4 Tab.;5 Fig.).

POST-TANNING

FINISHING

50.15430

From finishing : "The Milestone in leather finishing". (New Innov. Leather Chem.; 8, 2015; 24 & 26).Describes briefly about the foam finishing which is considered as a milestone in leather finishing. (1 Tab.; 3 Fig.; 1 Photo).

50.15431

Forever young-avoiding ageing in leather.REETZ (I), (Pulcra Chemicals GmbH, Isardamm 79-83, 82538 Geretsried, Germany). (New.Innov. Leather Chem.; 8, 2015; 34, 36, 38 & 40).

It has been shown that ageing has very different faces, which may seem to be completely different from each other. However, the mechanism of initiation of ageing processes is, with small exceptions, very similar. Therefore, methods for the prevention of ageing are also fairly universe. Special attention has to be given to CrVI, which although being an ageing related phenomenon, is particularly reversible and can also follow some different initiation scheme. However, as for other ways of ageing also for CrVI there are ways to keep leather in the pre-aged stage for long time. (11 Ref.; 7 Fig.).

LEATHER CHEMICALS AND AUXILIARIES

50.15432

Graphene : Redefines advanced materials space. RAJAGOPAL (R), (M/s. "Chemical Weekly", Corporate Office, No. : 6th Floor, B-Wing, Godrej Coliseum, Behind Evarard Nagar, Off. Eastern Express Highway, K.J. Somaiya Hospital, Road, Sion(East), Mumbai-400 022, India). (Chem. Wkly.; 60, 42; 2015, May, 26; 199-202).

Graphene, the new wonderkind of nanomaterials, has been the subject to intense research at the industry and university level world over. Analyses some of the recent trends in graphene industry, research and technology trends and its applications. (4 Ref.; 5 Fig.; 2 Photos).

50.15433

Alteration of wettability by cationic Gemini and conventional surfactants for carbonate reservoirs. JULIUS (P), ANANTHANARAYANAN (PN), MOHANAKUMAR (D), (Department of Petroleum Engineering, AMET University, Kanathur, Chennai-603 112, India). (Indian J. Sci. Technol.; 8, 11; 2015, Jun.; 1-4).

Carbonate reservoir properties are complicated to understand. Out of these properties altering wettability is an important property to be considered for oil recovery. Aims the comparison of the amount of oil recovered by applying cationic gemini and its original form. Investigates the cationic gemini form of Cetyl Tri Alkyl Bromide(CTAB) and its conventional form on carbonate cores for wettability alteration. Selected the concentration for surfactants on the basis of conductivity test.Compared these surfactants using oil recovery during core flooding. Gemini 16-3-16, 2Br(Bromide) has shown 0.35 pore volume additional recovery than CTAB. (7 Ref.; 1 Tab.; 3 Fig.).

50.15434

Improving recovery by altering wettability from oil wet to surfactant wet. JULIUS (P), ANANTHANARAYANAN (PN), GOPALAKRISHNAN (M), THIURMAVALAVAN (M), (Department of Petroleum Engineering, AMET University, Kanathur, Chennai-603 112, India). (Indian J. Sci. Technol.; 8, 11; 2015, Jun.; 1-3).

Describes the surfactants that have been introduced successfully into the core during water flooding to make it surfactant wet. Continuous injection of low concentration surfactants have made oil wet surfactants to mixed surfactant. Then, SDCof 330 ppm at CMC(Critical Micelle Concentration) has been in applied to improve recovery. Adsorption of surfactants has been successfully reduced by applying surfactants of low concentration during flooding. Surfactants contact with interfacial region has improved by this process. Adsorption was not reduced completely due to impurities like clay. Carbonate reservoirs are also likely to adsorb surfactants. This process has scope to apply on carbonate reservoirs for further investigation. (7 Ref.; 1 Tab.; 2 Fig.).

50.15435

Impact of typical surfactants on the collagenolytic and elastinolytic activities of proteases. LI (Y), LUO (F), PENG (B), XU (B), (Key Laboratory of Leather Chemistry and Engineering of Ministry of Education, Sinchuan University, Chengdu, Sichuan 610065, People's Republic of China). (J. Am. Leather Chem. Assoc.; 110, 7; 2015, Jul.; 227-36).

Most proteases exhibit broad spectrum activated to all of the protein components of skins, thus, the indiscriminate application of proteases will bring out undue and non-selective loss of skin structural proteins, especially collagen and elastin and lead to loose and damaged grain. Finding the effective ways to control proteases' activities against collagen and elastin in leather processes is very important. Investigated the influence of typical surfactants on the collagenolytic and elastrolytic activities of frequently used proteases and discussed the mechanism. The results indicated that the nonionic surfactants had slight effects and anionic surfactants exhibited quite different behaviors on the collagenolytic and elastenolytic activities of selected proteases. Both collagenolytic and elastinolytic activities trypsin preparations were obviously inhibited by all selected surfactants, especially SDS and SDBS(special database for organic compounds). Their elastinolytic activities were significantly activated and their collagenolytic activities were inhibited a variable extent by anionic surfactants for the bacteria proteases. Tanners may effectively control the selective action of proteases to collagen and elastin to achieve different requirements through correctly utilizing surfactants. (16 Ref.; 2 Tab.; 18 Fig.).

50.15436

Study of thermal properties of mixed(PR/EPR)/calcium carbonates. ANICET (NPM), LOUIS-MAX (AO),ROLAND (EM), SALEM (C), MERLIN (AZ), (Laboratory of Mechanics, Materials, Structure and Production, University of Dovala, Carrefour Ange Roghael, Douala, Cameroon). (Indian J. Sci. Technol.; 8, 11; 2015, Jun.; 1-8).

Studies the thermal point of view of the mixtures of the copolymer(PP/EPR) with calcium carbonates socal 312, socal 322, Winnofilspm marketed by Solvaz trading company. Focuses their effects on the thermal properties of the said copolymer. Analyzed and compared the dynamic scanning calorimetry(DSC) curves, summary tables of mixtures properties according to the type of machine used to carry out the mixtures(a micro twin screw or an interval mixer

HAAKE Poly Lab System) and the rate of reinforcement of calcium carbonate(5% and 10%)in the copolymer. It is shown two observations after tabulating results such as (a) first the presence of each type of calcium carbonate used, does not change the melting and crystallization temperatures of mixtures and this regardless of the reinforcements rates, afterwards, calcium carbonates generally decrease the thermal properties of the copolymer regardless of the type of mixer used, this constitutes a double advantage namely calcium carbonates reinforce the matrix while reducing the energy cost implementation. This phenomenon is much more pronounced when using Winnofilspm at low rates of reinforcement. These results are consistent with those provided by the literature and have in additional, that they provide more curves and detailed tables of DSC test values and situational analysis for the types of components used in this study(copolymer PR/EPR mixed with calcium carbonantesSocal 312, Socal 322v or Winnofilspm). (13 Ref.; 7 Tab.; 10 Fig.).

50.15437

Potential chemicals and polymers from biorefinery platforms. (Chem. Wkly.; 61, 2; 2015, Aug., 18; 217-22).

Describes the term viz : 'Syngas', the method of its manufacture and its uses for producing numerous chemicals including methanol, DME(dimethylether), ethanol and Fischer-Tropsch diesel. It is used also for the biogas production etc. Accessed C6 and C6/C5 sugar platform. Fermentation has been used extensively by the chemical industry to produce a number of products with chemical production through fermentation and lists few fermentation products. Discusses about few platforms namely plant-based; algae oil; organic solutions, lignin, pyrolysis. Lists also few chemical transformation products. (24 Ref.; 1 Tab.; 1 Fig.; 5 Photos).

50.15438

Bagasse as a source of furfural in the sugarcane industry. NATESHAN (MV), (Chem. Wkly.; 60, 39; 2015, May, 5; 217-8).

Indicates the sugar that can be put into several uses for making countless numbers of products among which, the sugar and bagasse are most prominent. Describes well in detail about the utility of bagasse which is 'the most prominent between these two products. The latter product is used for the production of furfural which is a very important reactive organic chemical and yields many important chemicals of industrial use, including furfuryl alcohol and tetrahydrofuran(THF) etc. But, above these products, the most important product to be considered is gamma-Butyrolactone(GBA), the monomer of the versatile and unique Nylon-4. Bagasse is used also as a fuel with the discovery of the autocatalytic process which gives no destruction of the residual bagasse. (1 Tab.; 1 Photo).

50.15439

Smarter terminals without wires.TANDON (V), (Global Product Marketing Division, M/s. Honeywell Process Solutions, P.S. Srijan Tech Park, 8th Floor, DN-52, Sector V, Salt Lake City, Kolkata-700 091, India). (Chem. Wkly.; 61, 25; 2016, Jan., 26; 285-8).

Discusses the possibilities and variety of applications of wireless keep continuing to grow as it becomes ever more tightly integrated into the plant. Those with the correct infrastructure already in operation are best placed to harness the benefits from the present technology, but will also be better placed for the future. The solutions and providers with turnkey experience for the wireless solutions are needed to the customers for these applications. This expertise and experience not only allows seamless integration of new infrastructure and applications into existing work processes and culture, but also allows the customer to focus on the core operation of the terminal rather than the technology. (2 Photos).

50.15440

Two methods for size selection of DG units in distribution networks.FATAHIAN (F), EFFATNEJAD (R), (Department of Electrical Engineering, Karaj Branch, Islamic Azad University, Alborz Province, RajaiShahr,

MoazzanBlv, Karaj, Alborz, Iran). (Indian J. Sci. Technol.; 8, 11; 2015, Jun.; 1-7).

Today, with advances in semiconductor technology and the ability to interface and power electronic converters and also the desires and motivations of economic and environmental another option has occurred to increase the capacity for network engineers and power systems planners. Size and place selection (planning) of distributed generation is the optimization problem that to solve it should get help from one of the optimization methods. Presents two methods for determining the size and location of distributed generation(DG) units in distributed system. Intends four objective functions including cost, power loss, voltage profile and environmental attributes. The proposed algorithms are tested on the 34 bus radial system. The results show that voltage profile and power loss improve with proposed solutions. (9 Ref.; 6 Tab.; 7 Fig.).

50.15441

Suitability of different oils for Chamois leather manufacture. SANDHYA (KV), VEDARAMAN (N), JOHN SUNDAR (V), MOHAN (R), VELAPPAN (KC), MURALIDHARAN (C), (Chemical Engineering Division, Council of Scientific andIndustrial Research-Central Leather Research Institute(CSIR-CLRI), Adyar, Chennai-600 020, India). (J. Am. Leather Chem. Assoc.; 110, 7; 2015, Jul.; 221-6).

Chamois leather, conventionally made using fish oil finds wide industrial application. The major advantage with fish oils is that they contain significant amount of pentadienoisfatty acid in addition to higher iodine value. But the main problem with fish oil is its strong odor and high cost. Aims for the study of the suitability of oil such as linseed oil, castor oil, sunflower oil, animal tallow for chamois leather manufacture in comparison with fish oil.The chamois leather, thus obtained was tested for properties such as sink, water absorption and strength characteristics. Experimental results show that among different oils, linseed oil based chamois leather possesses higher water absorption and strength properties. It also has mild odour. This study shows acceptable quality chamois leather can be made using linseed oil as tanning agent instead of fish oil. (14 Ref.; 7 Tab.; 1 Fig.).

50.15442

Investigating a new electrocatalyst for polymer electrolyte membrane fuel cells and the effect of carbon additives in the reaction layer.MIRZAIE (RA), HAMEDI (F), (Fuel Cell Research Laboratory, Department of Chemistry, Faculty of Science, ShahidRajaee Teacher Training University, Tehran Province, TehianLavizan, Shabaniou, Iran). (Indian J. Sci. Technol.; 8, 11; 2015, Jun.;1-11).

Describes the initial fabrication of the Gas Diffusion Electrodes(GDEs) by addition of Vulcan and graphite to reduction layer and later on investigates the mutual effects of these additions. (44 Ref.; 2 Tab.; 11 Fig.).

PRE-TANNING MATERIALS

50.15443

Microbial transglutaminases as pre-tanning agents in the leather industry. BAOZHEN (C), JING (C), (Tianjin University of Science and Technology, BihaiXinqu, Tianjin-shi, Tianjin 300457, People's Republic of China). (J. Am. Leather Chem. Assoc.; 110, 4; 2015, Apr.; 103-8).

Describes the microbial transglutaminase(MTG) that was used to pre-tan hide to investigate its effect on the hydrothermal stability of hide and the improvement for exhaustion of chrome tanning agent. Here, a test was done on the shrinkage temperatures of samples tested with MTG only and tanned MTG followed by the chrome tanning separately. Surveyed the Cr_2O_3 (chromium **III** oxide) content in effluents after chrome tanning. It was shown that the shrinkage temperature of hide sample treated with 0.6% MTG at *p*H 6.0 for 2 hours was above 80°Centigrade, much higher than 54.8°Centigrade, which is the T_s(shrinkage temperature) of control. While the T_s of leather sample, which was performed with 0.6% of MTG first, tanned with only 4% chrome tanning agent was higher than 100°Centigrade, but initial *p*H is 2.0.

Moreover, the exhaustion of chrome tanning agent in leather was improved significantly when the dosage of chrome salt was less than 4%. (16 Ref.; 3 Tab.; 4 Fig.).

TANNING MATERIALS

50.15444

Effect of mixed metal pretannage with zinc and titanium plus masking agents. CAO (S), CHEN (B), LIU (B), HE (X), (Faculty of Chemistry and Materials Science, Tianjin University of Science and Technology,BinhaiXinqu, Tianjin Shi, Tianjin 300457, People's Republic of China). (J. Soc. Leather Technol. (Chem.; 99, 3; 2015, May-Jun.; 120-3).

Focuses the effect of masking agents and tanning with zinc and zinc-titanium metal complexes. Sodium formate, sodium acetate**,** sodium citrate and sodium tartrate were used as masking agents. The best masking condition was chosen corresponding to the highest shrinkage temperature. Zinc sulfate and titanium sulfate in different concentrations, were chosen as tanning agents in mixed tanning experiments. The highest shrinkage temperature of the wet-white was 77°Centigrade and the attendant zinc content in its leather was 3.63%. The shrinkage temperature of the resultant leather increased as expected and reached 96°Centigrade after retannage with chrome powder. The wet-white was successfully split which lead to the use of non-chrome pre-tanning, the finished leather was able to meet the requirements. (8 Ref.; 5 Tab.; 5 Fig.).

FINISHING MATERIALS

50.15445

Filling of pigments or powders into bags-Challenges and solutions. NEO (G), (M/s. Howerlbau India Private Limited, Survey No. : 32/4/41&42, Khandiwada Baroda Halol Road, Post Asoj, Vadodara-391 510, Gujarat State, India). (Chem. Wkly; 61, 10; 2015, Oct., 13; 211-4).
Discusses that the filling of pigments or other powdery bulk materials into bags has been often a technical challenge and has realized that the reason behind it is the capacity of the materials to capture air between the solid particles. It is stressed that it is essential to have a very good knowledge of the product properties; the way of utilizing the bag properties and a thorough knowledge of the value bag filling machines for reducing the air in the filled bags. It is desired to maintain a further reduction of the air during the bag filling process due to the often non feasibility of the total reduction of air because of the technical and cost aspects. Bags with a certain de-aeration capacity allow de-aeration during and after filling. (11 Fig.).

50.15446

An introduction to waxes. MAJUMDAR (S), (Flat No. : H-701, Neel PadmKunj, 'Vaishali', Opposite to Dabur Chawk, Ghaziabad-201 012, Uttar Pradesh State, India). (Chem.Wkly.; 61, 1; 2015, Aug., 11; 213-6).

Introduces the term viz. : 'Wax' that has traditionally referred to a substance secreted by bees(bees wax) and used by them in constructing their honeycombs. Beeswax is animal based wax among the various types of waxes. Currently, the word 'wax' usually refers to a variety of organic substances(typically hydrocarbons) that are solid at ambient temperature but become free-flowing liquids at slightly higher temperatures. Wax is an imprecisely defined term, but generally understood to be a substance with properties similar to beeswax that have been listed. Discusses briefly about the chemistry, uses, types and its use particularly in the rubber industry. (4 Ref.; 10 Photos).

50.15447

Outlook for renewables-Bio-based polymers : Worldwide capacity to triple in 2020. (Chem. Wkly.; 61, 16; 2015, Nov., 24; 197-204).

Investigates every kind of bio-based polymer and for the second time, several major building blocks produced around the world. (1 Tab.; 9 Fig.).

LEATHER PROPERTIES. QUALITY CONTROL

50.15448

Hygienic properties of leather finished with formulations containing collagen hydrolysate obtained by acid hydrolysis. ZARLOK (J), SMIECHOWSKI (K), KOWALSKA (M), (Faculty of Materials Science, Technology and Design, Kazimierz Pulaski University of Technology and Humanities in Random, JackaMalczewskiego 29, 26-600 Random, Poland). (J. Soc. Leather Technol. Chem.; 99, 6; 2015, Nov.-Dec.; 297-301).

Presents the test results of finished leathers. Varying proportions of acrylic resin and collagen hydrolysate were used as binding agents. Produced the hydrolysate from waste chromium-tanned hide by means of acid hydrolysis. Assayed the sorption, desorption and water vapor permeability and determined the softness of leather finished with mixes of varying collagen hydrolysate contents. The testing has demonstrated that collagen hydrolysate in the finishing mixes improved the hygienic properties of finished leathers(increasing adsorption, desorption and water vapor permeability). On the other hand leather softness declined a little. It has been demonstrated that a new leather finishing mix containing protein hydrolysate recovered from chrome shavings can be proposed. (18 Ref.; 5 Tab.; 2 Fig.).

50.15449

Properties of metal and metal-gas hybrid ion implanted chrome-tanned leather surfaces. ASLAN (A), ÖZTARHAN (A), AÇIKEL (SM), OKS (E), NIKOLAEV (AG), (Ege University, Faculty of Engineering, Leather Engineering Department, MuhendisligiBolumu 35100Bornova, Izmir, Turkey). (J. Soc. Leather Technol. Chem.; 99, 5; 2015, Sep.-Oct.; 209-15).

Describes the leather samples that were modified by Ag(silver) and Zn+O(zinc oxide) ion implementation using a metal vapor vacuum arc(MEVVA) implanter. The ions were implanted at an accelerating voltage of 30 kV and with $1x10^{14}$, $1x10^{15}$ and $1x10^{16}$ ions/cm^2fluences and results are compared with an unimplanted control group. Examined the surface morphologies of the samples by scanning electron rnicroscopy(SEM). Examined also the physical properties(tensile strength and tear load), CIE(Commission Internationale de E'clairage) lab color analysis, contact angle measurements and fourier transform infrared(FTIR). The results showed that this technique can fulfill expectations of better quality and environmentally friendly and waterproof leather processing. (27 Ref.; 4 Tab.; 12 Fig.).

50.15450

Antimicrobial activity of chrome-tanned leathers treated with chitosan formate. OCAK (B), YASA (I), ASLAN (A), (Faculty of Engineering, Department of Leather Engineering, MuhendisligiBolumu, Ege University, 35100, Bornova, Izmir, Turkey). (J. Soc. Leather Technol. Chem.; 99, 5; 2015, Sep.-Oct.; 238-44).

Aims for the development of bio-functional leather materials with antimicrobial activity by using chitosan(C) as a natural biocide. Prepared chitosan formate(CF) solution and treated the chrome-tanned leathers(TL) with it at six different proportions(0.5-5.0%) to evaluate their physical and antimicrobial properties. Examined the CF solution for antibacterial and antifungal activity in vitro using the minimum inhibitory concentration(MIC), minimum bactericidal concentration(MBC) minimum fungicidal concentration(MFC) and fungal inhibition test(%). CF-treated leather samples were also characterized for their antimicrobial activity by the agar diffusion method. The treated TL showed broad-spectrum antimicrobial activity against all test organisms between proportions of 2.0 and 5.0%. The chemical structure of the prepared C, CF, TL and CF treated TL was characterized by Fourier Transform Infrared(FTIR) spectroscopy. The physical experimental results indicated that there was no noticeable change in the physical properties of the TL treated with CF. (59 Ref.; 4 Tab.; 4 Fig.).

50.15451

Calling for change : Perspectives for pharmaceutical manufacturing technologies/processes and continuous

improvements. MALHOTRA (G), (EPCOT International, No. : 200 Epcot Center Drive, Orlando, Florida 32821, USA). (Chem. Wkly.; 61, 8; 2015, Sep., 29; 211-2).

Discusses the regulations that are necessary for quality assurance of drugs and also about the vital importance of HPI(high purity ingredients) manufacturing which should never be neglected but which, most unfortunately has been rather completely neglected while discussions are being done generally about the pharmaceutical manufacturing. It is indicated that generally, the uses of the batch processes for producing most APIs and their formulations. Discussions are made also about the continuous manufacturing of APIs and their formulations, benefits and challenges of continuous improvement as well as the alternative proposal for manufacturing APIs. (3 Ref.; 2 Photos).

50.15452

A treatment to save historic leathers.LAMA (A), (ICLT(International Center of Languages and Training), No. : 67/1, Marshal Baghramyan Avenue, Yerevan, Armenia). (World Leather; 28, 5; 2015, Oct.; 19).

Describes the authoress' research into the acid deterioration of leathers. Successful treatments are based on aluminiumalkoxide and oxazolidine. Included the test results related to accelerated ageing. (27 Ref.).

BY-PRODUCTS

50.15453

Value added leather auxiliaries from paper and pulp industry waste. VEDHANAYAGAM (M), TEDDY (TK), SREERAM (KJ), RAGHAVA RAO (J), BALACHANDRAN UNNI NAIR, (Council of Scientific and Industrial Research-Central Leather Research Institute(CSIR-CLRI), Adyar, Chennai-600 020, India). (J. Am. Leather Chem. Assoc.; 110, 9; 2015, Sep.; 295-301).

Discusses the preparation of aretanning agent from the organics present in black liquor generated by paper and pulp industry. Black liquor organics was extracted by using solvent extraction method and subsequently separated as acidic, non-acidic and organic compounds that were not degraded. Acidic and non-acidic organics were sulfonated and further condensed with formaldehyde to obtain a product ideal for application. Sulfonation-condensation reactions were modulated to achieve particle size on par with that of commercial syntans. Condensed products from both acidic and non-acidic components were used in lieu of synthetic tanning agents in retanning. The final leathers exhibit off white color with good mechanical strength as compared to leathers from commercial phenolic syntans. It is revealed that the black liquor, which is a by-product of paper and pulp industry could through an innovative process, be turned into a retanning agent for leather processing. The product has the advantage of being able to replace phenol as product with high market fluctuation. (9 Ref.; 2 Tab.;7 Fig.).

50.15454

A comparative study of various collagen fiber wastes as oil sorbent materials. DU (W), HAN (X), LI (Z), SUN (G), LI (L), (Key Laboratory of Leather Chemistry and Engineering of Ministry of Education, Sichuan University, Wangjiang Campus, No. : 24 of Southern Section 1, Yichuan Road, Chengdu 610065, People's Republic of China). (J. Soc. Leather Technol. Chem.; 99, 6; 2015, Nov.-Dec.; 267-72).

Discusses the potential utilization of various collagen fiber wastes from the leather industry, such as raw hide waste, oil-tanned and chrome-tanned wastes, as oil sorbents and to compare a hydrophobic polydimethylsiloxane(PDMS) modified collagen fiber was prepared using raw hide waste and an epoxy-terminated silicone oligomer. The samples had been fabricated by a lypophilization technique utilizing the corresponding hide powder fiber(HPF). Studied the oil sorption capacity, sorption saturation time and retention capacity of prepared sorbents.The results showed that oil sorption capacity of prepared sorbents. The results showed that oil sorption capacity of PDMS-modified HPF for silicone oil and vegetable(rape) oil were 6.98 and 5.58g/g,

respectively. This sample exhibited the highest oil sorption capacity. The results suggest that with appropriate pore size, high porosity and low apparent surface energy, collagen fiber based sorbent would demonstrate favorable oil sorption characteristics and is very promising for oil clean up application. (21 Ref.; 3 Tab.; 9 Fig.; 1 Scheme).

50.15455

Value-added products from wastes : Need for national focus. VENKATARAMAN (NB), (M/s. Nandini Consulting Center, No. : M 60/1, 4th Cross Street, Besant Nagar, Chennai-600 090, India). (Chem. Wkly.; 61, 5; 2015, Sep., 8; 221-2).

Stresses the need for treating and managing wastes economically and probably by converting it into value-added products. Discusses briefly about the power generation from municipal waste, lists the selected methods for conversion of MSW(municipal solid waste) to power; types of gasification technologies; chemicals from carbon dioxide; fuel from plastic waste and the synthesis gas/methanol from sewage sludge as well as the erection of the hydropower plant from the treated effluent in Delhi. Discusses also the recent selected initiatives that have been implemented abroad such as NASA that have been turned as the human waste and the biofuelfrom urinary waste. It stresses also the need for national focus on the R&D initiatives. (1 Photo).

50.15456

Fiber-forming properties of collagen and gelatin derived from bovine lime-split waste. WEI (X), ZHANG (W), SHI (B), (The Key Laboratory of Leather Chemistry and Engineering of Ministry of Education, Sichuan University, Wangjiang Campus, No. : 24 of Southern Section 1, Yichuan Road, Chengdu 610065, People's Republic of China). (J. Soc. Leather Technol. Chem.; 99, 6; 2015, Nov.-Dec.;307-11).

Investigated the fibre-forming properties of collagen and gelatin derived from bovine limed-split. It was found that collagen was capable of assembling into fibers in salt environment. The morphology of collagen fibers was *p*H dependent. The collagen fibers formed at *p*H 4-6 was in random state while they were further aggregated into ordered fiber bundles with periodic structures in the *p*H range of 7-8(around the isoelectric point of collagen). Meanwhile, the directorial collagen fiber bundles growing along the lattice orientation of underlying inorganic substrate were prepared in the presence ofKCl (potassium chloride). In contrast, gelatin was not able to assemble into fibers in the same conditions since its triple helix structure had been broken. The results of this research might well interpret the phenomena that collagen presented better performance in preparations of collagen/gelatin-based biomaterials and importantly, be instructive for better utilization of tannery skin wastes. (12 Ref.; 18 Fig.).

50.15457

Characterization of wastewater from tanneries. GUTTERESS (M), BENVENUTI (J), FONTOURA (JT), ORTIZ-MNSALVE (S), (Federal University of Rio Grande do Sul-UFRGS, Chemical Engineering Department, Laboratory for Leather and Environment Studies-LACOURO, Rua Eng. LewizEnglert, s/n, Zip Code 90040-040- Porto Abegre-RS, Brazil). (J. Soc. Leather Technol. Chem.; 99, 6; 2015, Nov.-Dec.; 280-7).

Describes the industries that look for properly treating their effluents and for achieving efficient removal of contaminants due to the constantly increasing requirements and supervisory environmental agencies concerning the release of industrial effluents into receiving waters.The leather industry is responsible for the production of liquid effluents with high concentrations of pollutants since most of the process steps are carried out in an aqueous medium, Indicates the necessity of knowing and analyzing how tannery effluents vary according to the processing steps performed in different tanneries, due to the changes in leather technologies in recent years. This may be used to plan and design unit operations in wastewater treatment plans. Here, presents the characterization of raw tannery wastewater and provides and discusses an overview of effluent

treatment plants and some particularities of them in order to contribute to this purpose. The raw effluents were characterized by analysis of *p*H, turbidity, conductivity, chromium oxide, chlorides, total hardness, total Kjeldahl nitrogen(TKN), ammonium nitrogen(AN), solids(total, suspended, fixed and volatile, dissolved : fixed and volatile), five-daybiochemical oxygen demand(BOD_5), chemical oxygen demand(COD), phosphorus and total organic carbon(TOC). The test results of the parameters for contaminants for each type of tannery are related to previous researchers and they are discussed. (43 Ref.; 4 Tab.; 2 Fig.).

50.15458

On-line monitoring for improved wastewater system management : applications of UV/Vis spectroscopy. BRITO (RS), RIBEIRO (R), ARRIGA (T), (Universidade de Lisboa, R. BrancaEdméehers Marques, 1600-276 Lisboa, Portugal). (Spectrosc. Europe; 27, 6; 2015, Nov./ Dec.; 26, 6).

Urban wastewater characterization is usually conducted by examination of discrete samples. Thus the use of on-line techniques provides greater data availability and when inputs vary, provides increased resistance in the system. Discusses the immersiblespectropotometers and the advantages of real time management. (110 Ref.).

50.15459

Biosk-revolutionary wastewater saving technology. (World Leather; 28, 5; 2015, Oct.; 35).

Explains the new process that enables the re-use of all wastewaters from beamhouse through to tanning-water usage is reduced by 70% and chemical costs and lowered by 30%. The process does not use some magic ingredient-it is based on a completely new look at waste management and has been in use in a number of large tanneries for three years. The scheme does not contain added chemicals which convert waste reagents into useful beneficial products. Listed the overall benefits.

50.15460

Inverse chrome tanning technology based on wet white tanned by Al-Zr complex tanning agent. CAI (S), ZENG (Y), ZHANG (W), WANG (Y), SHI (B), (National Engineering Laboratory for Clean Technology of Leather Manufacture, Sichuan University, Wangjiang Campus, Section No. : 24 of Southern Yichuan, Chengdu 610065, People's Republic of China). (J. Am. Leather Chem. Assoc.; 110, 4; 2015, Apr.; 114-20).

Discusses that the chrome in wet blue be inevitably released into all the floats in post-tanning processes, which brings about a big amount of chrome-containing wastewaters, which can be difficult to treat in the conventional leather production. Investigated an inverse chrome tanning technology based on wet white tanned by aluminium-zirconium(AZ) as a result to this problem. The AZ was the co-complexes of Al^{3+}(Aluminium) and Zr^{4+}(Zirconium)(9:1, mole ratio) with polycarboxylic acids synthesized in the laboratory. The wet white tanned by AZ had a shrinkage temperature(T_s) of 95°Centigrade under optimal tanning conditions and therefore, it met the needs of splitting and shaving operations without generation of chorme wastes. More importantly, the wet white was suitable to be followed by retanning, dyeing and fatliquoring processes because of its satisfactory thermal stability and analogous electric charge characteristic to chrome leather. Chrome tanning was undertaken as final step after fatliquoring and fixing by acid. The leather with T_s around 110°Centigrade and comparable physical and aesthetic properties to conventional chrome tanned leather was obtained when 0.5-1% Cr_2O_3(chromium oxide) was used in this inverse chrome tanning technology. The evident advantage of this technology is that no chrome was discharged in whole leather making processes except final chrome tanning and washing processes and as a result, the volume of chrome-containing wastewater was largely reduced and easier to collect for recovery. (13 Ref.; 3 Tab.; 9 Fig.).

50.15461

Characterization of moderately halophilic bacteria from salt-pack-cured hides.CAGLYAN (P), SANCHEZ-

PORRO (C), VENTOSA (A), BIRBIR (M), (Division of Plant Diseases and Microbiology, Department of Biology, Faculty of Biology, Faculty of Arts and Sciences, University of Marmara, EgitimMahallesi, MU GoztepeKampusu, 34722 Kadikoy Istanbul,Turkey). (J. Soc. Leather Technol. Chem.; 99, 5; 2015, Sep.Oct.; 250-4).

Aims for the characterization of the moderately halophilic bacteria on the salted hides and an examination of their biochemical activities to determine whether or not these strains damage salted hides. (34 Ref.; 5 Tab.).

TANNERY. ENVIRONMENTAL ASPECTS

50.15462

Polycyclic aromatic hydrocarbons(PAHs) & the rubber industry.MAJUMDAR (S), (Flat H-701, Neel PadmKunj, Vaishali', Opposite to Dabur Chawk, Ghaziabad-201 012, Uttar Pradesh State, India). (Chem.Wkly.; 60, 37; 2015, Jun., 30; 209-12).

Describes the polycyclic aromatic hydrocarbons (PAHs) as a group of chemicals that occur naturally in coal**,** crude oil gasoline and they have been a subject of discussions for a most long time because of their toxicity in rubber products. They are present in products made from fossil fuels such as coal coal-tar pitch, creosote and asphalt. PAHs are being released when coal is converted to natural gas. Chemically a single aromatic hydrocarbon is benzene. PAHs are, therefore, chemical that begin with naphthalene with double aromatic ring. They have been found as one of the most widespread organic pollutants in nature at present. They are also formed by incomplete combustion of carbon containing fuels such as wood, coal, diesel, fat and in carbon black feedstock additionally to their presence in fossil fuels. Discussed also the chemistry, hydrocarbons that are surely affect the environmental and human health, detection of the health hazards and finally, the sources of PAHs in rubber materials. (3 Fig.; 2 Photos).

50.15463

Tannage, leather and SVHC substances. NAVIGLIO (B), CALVANESE (G), CARCCIOLO (D), (SSIP(Stazione SperimentalePelli), Via Nuova Poggioreale, 38, 80143 Napoli, Italy). (CuoioPelli Mater.Concian.; 91, 5/6; 2015, Sep./Oct.), (Italian).

Describes the REACH Regulation as is known, that provides, among other things, various restrictions on hazardous chemicals; in particular, between the so-called SVHC(Substances of Very Highly Concern) there are some which directly affect the tanning industry and consequently also the leather and the leather items. SVHC substances that can potentially be used in the leather production process, are for example azo dyes that can develop banned aromatic amines, short chain chlorinated paraffins SCOP C10-C13, pentachloro-phenol (PCP) and its salts,nonylphenol and ethoxylatednonyphenols, boric acid and sodium tetraborate, phthalates andso on. Recently, with the adoption of the Regulation(EU) 30/1/2014, a further restriction concerning the Hexavalent Chromium applies specifically on leather articles; in fact, the Regulation has started that the leather articles coming into contact with the skin shall not be placed on the market when they contain chromium hexavalent in concentrations equal to or greater than 3 mg/kg(0,0003% by weight) of the total dry weight of the leather. Examined the challenges related to the management and control of SVHCs in the tanning industry and at the same time reported the role of the tanneries in the context of the REACH Regulation.

50.15464

Reducing waste in Indian leather industry to suffice profits.SHWETA (S), RAJAMANI (S), (Indian Leather Industry Foundation (ILIFO), No. : F-2, "SHREYAS", No. : 87, Greenways Road, Raja Annamalai Puram, Chennai-600 028, India). (Leather India News; 6, 8; 2015, Aug.; 54-8).

Describes the waste minimization method that should have to be implemented continuously for reducing pollution and environmental impact through source-reduction, i.e., eliminating waste within the process rather than at the end-of-pipe treatment. It discusses also about the implementation that improve the process efficiency, besides reducing pollution, which

lead to reduction in process and production cost. It helps to meet regulatory standards. (2 Ref.; 1 Fig.).

50.15465

Determination of antioxidant properties of commonly used vegetable tannins and their effects on prevention of Cr(VI) formation. CIGDEM (KO), HASAN (O), DENIZ (K), (Faculty of Engineering, Department of Leather Engineering, Ege University, MuhendisligiBolumu 35100, Bornova-Izmir, Turkey). (J. Soc. Leather Chem. Assoc.; 99, 5; 2015, Sep.-Oct.; 245-9).

Discusses that even though chromium(VI) is not used in any step of leather making, the presence of Cr(VI) in leather has become a concern in the leather industry. Free radicals usually play an important role in the formation of Cr(VI) in leather. The effectiveness of antioxidant materials in preventing free radical formation is well known. Tannins as phenolic materials are also known to have antioxidant properties. However, the antioxidant effectiveness shows variations regarding the type and structure of tannins. Describes the vegetable tannins which are commonly used in the leather industry like minosa, quabracho, sumac, tara, Valona and chestnut which were selected and their antioxidant powers were determined by FRAP (The Ferric Reducing Ability of Plasma) and TEAC/ABTS (Trolex-Equivalent Antioxidant Capacity/2,2'-azinobis- (3-ethylbenzothiazoline-6-sulfonic acid) methods. Furthermore, these vegetable tannins were used in leather processing and examined their effect on prevention of Cr(VI) formation. The results show that gallotannins within the hydrolysable tannins have taken the first place in ranking with superior antioxidant activities and compatible with their antioxidant powers they were found to be the most effective tannin types at preventing Cr(VI) formation. (32 Ref.; 4 Tab.).

LEATHER PRODUCTS

FOOTWEAR

50.15466

Report on "Bangladesh leather industry". ISLAM (S), (Leathergoods& Footwear Manufacturers & Exporters Association of Bangladesh, Erectors House, No. : 18, Kemal Atalurk Avenue, (9th Floor), Banani C/A, Dhaka-1913, Bangladesh). (Leather News India; 7, 1; 2016, Jan.; 69-73).

Overviewed briefly about the leather footwear and leather goods sectors; strengths of Bangladesh leather sector, current stage of the Bangladesh's export of leather and leather products; future potentiality of the sector; the major challenges faced by the particular leather sector in that country and the plans that are to be implemented for overcoming those challenges that hamper the smooth functioning of that particular leather sector; the current status of shifting to new location and when shifting is complete, the way that particular sector view the growth prospects of both that leather sector and the leather and tanning industries in that country; vision for augmenting the production and accelerating the export growth to USD 5 billion within 5 years etc. (5 Photos).

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Owner: Indian Leather Technologists' Association, ***Printer***: Mr. S. D. Set, ***Publisher***: Mr. S. D. Set, ***Published From***: 'Sanjoy Bhavan', (3rd floor), 44, Shanti Pally, Kasba, Kolkata - 700107, West Bengal, India *AND* ***Printed From***: M/s TAS Associate, 11, Priya Nath Dey Lane, Kolkata-700036, West Bengal, India, ***Editor****:* Dr. Goutam Mukherjee.