



ILTA
Since 1950

JILTA

Journal of Indian Leather Technologists' Association

JILTA 2022
2023

VOLUME : LXXIII

NO :08

AUGUST, 2022

Rgtn. No. KOL RMS/074/2022-24
Regd. No. ISSN 0019-5738
RNI No. 2839/57
Date of Publication: 6th

₹ 50.00



Our Activities

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

Indian Leather Technologists' Association

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

'Sanjoy Bhavan', 3rd Floor, 44, Shanti Pally, Kolkata- 700 107, WB, India
Phone : 91-33-2441-3429 / 3459 • WhatsApp +91 94325 53949
E-mail : admin@iltaonleather.org; mailtoilta@rediffmail.com
Website : www.iltaonleather.org



ILTA
Since 1950

**JOURNAL OF INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION
(JILTA)**

AUGUST, 2022

VOL.: LXXIII

NO.: 08

RNI NO.: 2839/57

REGD.NO.: ISSN 0019-5738

Contents

Portfolio.....03 - 08

Editorial.....09 - 10

STAHL Corner.....11 - 16

ILTA News.....17 - 19

Obituary(Y. D. Mahajan).....20 - 20

Solidaridad Corner.....21 - 25

Article -"Design and Development of Low – Cost LDR Shoe" by Arjun Verma, D.K. Chaturvedi, Tipu Sultan.....26 - 31

IULTCS Corner.....32 - 35

News Corner.....36 - 42

Down Memory Lane.....43 - 54

Economic Corner.....55 - 62

Hony. Editor : Dr. Goutam Mukherjee

Communications to Editor through E-mail :

admin@iltaonleather.org; jiltaeditor@gmail.com

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', 3rd Floor,
44, Shanti Pally, 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 :

Indian Leather Technologists' Association

'Sanjoy Bhavan', 3rd floor, 44, Shanti Pally

Kasba, Kolkata - 700 107, WB, India

Phone : 91-33-2441-3429

91-33-2441-3459

E-mail : admin@iltaonleather.org;
mailto:ilta@rediffmail.com

Web site : www.iltaonleather.org

Opinions expressed by the authors of contributions published in the Journal are not necessarily those of the Association

JOURNAL OF INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION (JILTA)

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

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

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

Mechanical Specification

Overall size	:	27 cm X 21 cm
Print area	:	25 cm X17 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
Phone : 91-33-24413429 / 91-33-24413459
E-mail : admin@iltaonleather.org / mailtoilta@rediffmail.com
Website : www.iltaonleather.org

INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION (ILTA)

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

Executive Committee (2019-21)

Central Committee

President : Mr. Arnab Jha

Vice-Presidents : Mr. Asit Baran Kanungo
Dr. K. J. Sreeram
Mr. P. K. Bhattacharyya

General Secretary : Mr. Susanta Mallick

Joint Secretaries : Mr. Bibhas Chandra Jana

Treasurer : Mr. Kaushik Bhuiyan

Committee Members:

Mr. Jayanta Chaudhury
Mr. Pradipta Konar
Mr. Subir Datta
Mr. Aniruddha De
Mr. Ratan Chowdhury
Mr. Kunal Naskar
Mr. Alokesh Ray
Mr. Sudagar Lal
(Secretary of Northern Region)

Dr. R. Mohan
(Secretary of Southern Region)

Ex-Officio Member : Dr. Goutam Mukherjee

Regional Committees

Southern Region :

President : Mr. N. R. Jagannathan

Vice-President : Dr. J. Raghava Rao

Secretary : Dr. R. Mohan

Treasurer : Dr. Swarna V Kanth

Committee Members :

Dr. N. Nishad Fathima
Dr. P. Thanikaivelan
Dr. Subhendu Chakrabarti
Dr. S. V. Srinivasan

Northern / Western Region :

President : Mr. Jai Prakash Saraswat

Vice-President : Mr. Rajeev Mehta

Secretary : Mr. Sudagar Lal

Treasurer : Mr. Jaswinder Singh Saini

Committee Members:

Mr. Kamal Sharma
Mr. Mohinder Lal
Mr. Rajveer Verma
Mrs. Sunita Devi Parmar
Mr. Y. D. Mahajan

INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION (ILTA)

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

Various Sub-Committees of ILTA

1) HRD Sub-Committee :-

Co-Ordinator : Mr. Ratan Chowdhury

2) Seminar Sub-Committee :-

Co-Ordinator : Mr. Subir Datta

3) Regional Activities Sub-Committee :-

Co-Ordinator : Mr. Pradipta Konar (Northern Region)
Mr. Jayanta Chaudhuri (Southern Region)

4) Membership Sub-Committee :-

Co-Ordinator : Mr. Bibhas Chandra Jana
Mr. Pradipta Konar

5) Welfare Sub-Committee :-

Co-Ordinator : Mr. Kaushik Bhuiyan
Mr. Jiban Dasgupta

6) LEXPO Sub-Committee :-

Co-Ordinator : Mr. Asit Baran Kanungo
Mr. Susanta Mallick

7) Placement Sub-Committee :-

Co-Ordinator : Mr. Kunal Naskar

8) Estate Management Sub-Committee :-

Co-Ordinator : Mr. Bibhas Chandra Jana
Mr. Kaushik Bhuiyan

9) Documentation & Filing Sub-Committee :-

Co-Ordinator : Mr. Subir Datta
Mr. Kaushik Bhuiyan



ILTA
Since 1950

JOURNAL OF INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION (JILTA)

EDITORIAL BOARD OF JILTA

Chief Patron	:	Dr. T. Ramasami
Advisers	:	Prof. Dr. A. B. Mandal Mr. Deriner Tuncay Dr. Bi Shi Dr. B. N. Das Dr. Buddhadeb Chattopadhyay Dr. Campbell Page Dr. Carlo Milone Dr. Chandan Rajkhowa Mr. E. Devender Dr. Pisi Dr. Roberto Vago Dr. Samir Dasgupta Prof. Swapan Kumar Basu Mr. Suparno Moitra Dr. Subha Ganguly Dr. Tim Amos Dr. Tapas Gupta
Peer Reviewing Committee	:	Prof. A. K. Mishra Mr. Abhijit Dutta Mr. Animesh Chatterjee Dr. B. Chandrasekharan Mr. Diganta Ghosh Dr. J. Raghava Rao Mr. Jayanta Chaudhuri Dr. N. K. Chandrababu Mr. Prasanta Kumar Bhattacharyya Dr. Subhendu Chakrabarti Mr. Satya Narayan Maitra
Hony Editor	:	Dr. Goutam Mukherjee
Joint Editors	:	Dr. Sanjoy Chakraborty Dr. Anjan Biswas



ILTA
Since 1950



Economic Prospective of ASEAN



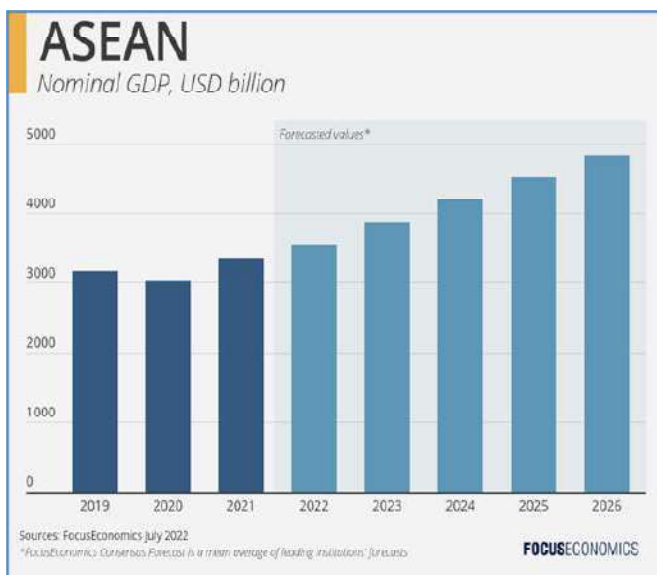
ASEAN—the Association of Southeast Asian Nations—is a trade bloc covering 10 Asian economies, including Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam. Over the last 20 years, the bloc’s cumulative GDP in nominal terms has risen from a mere USD 600 billion to USD 3,300 billion in 2021. Over our forecast horizon to 2026, GDP is seen rising to USD 4,800 billion, with average annual growth of close to 5%. If these projections are realized, they would make ASEAN the fifth largest economy in the world—behind only the U.S., China, Japan and Germany.

suffered an army-led coup in 2021—is also aiding economic activity. It is reported by the analysts that the gap in growth projections among member states is large. At one end of the scale is Myanmar, which our analysts expect to contract 1.3% this year. At the other are the dynamic economies of the Philippines and Vietnam, with forecasts of 6.9% and 6.7% growth respectively.

Moreover, to unlock its full economic potential, ASEAN must still surmount several obstacles. One crucial outstanding task is deepening the bloc’s internal market. While goods tariffs have been largely eliminated among members, a host of non-tariff barriers remain, and as such ASEAN is still a much looser economic union that other trading blocs, such as the EU or NAFTA. Increasing resilience to climate change is another, given the already-prevalent tropical storms and other extreme weather events in the region. Maintaining friendly trade relations with both the U.S. and China is another challenge in a context of increasing belligerency between the two global powers.

On relations with the U.S and China, the **EIU** has said: *‘We believe that ASEAN will not choose sides between the US and China. ASEAN leaders view the growing risks of bifurcation of the economic and military spheres of influence with alarm, as these could have profound implications on their trade and manufacturing activities as well as technology adoption. ASEAN will strive to stay engaged with both camps. While welcoming more proactive engagements by the US in the region, ASEAN nations will be careful not to antagonise or downgrade their ties with China. They will balance their relationships with both powers.’*

On Joe Biden’s recent proposed U.S.-Asia cooperation framework, **analysts have commented** that: *“Participating nations, especially the ASEAN countries, may be wary of being included in a U.S. strategy to counter China in the region that at this point appears to place burdens on them without providing*



A series of factors are fuelling the region’s development. Favourable demographics are one: the population is currently growing by around six million per year, and around 60% of people are under the age of 35. The bloc’s outward-looking trade policy is another important driver. In late-2020, the bloc secured a trade pact with other Asian neighbours called RCEP for instance, and many ASEAN members also participate in the Pacific-Rim CPTPP. This trade policy is boosting the region’s manufacturing base, and helping it secure the investment of firms looking to relocate from China. Relatively stable domestic politics—with the notable exception of Myanmar, which

any clear benefits, such as greater access to the U.S. market— sort of a ‘carrot and stick’ strategy that lacks ‘carrots.’ This concern may be one reason why Indonesia will begin negotiating an FTA with the Eurasian Economic Union (EAEU), whose members include Russia, Belarus, Kazakhstan, Armenia and Kyrgyzstan.”

India’s relationship with ASEAN has emerged as a key cornerstone of our foreign policy. The relationship has evolved from the ‘Look East Policy’ enunciated in early 1990s which led India to become a Sectoral Partner of ASEAN in 1992, a Dialogue Partner in 1996 and a Summit-level Partner in 2002. The up gradation of this partnership to Strategic Partnership during the celebration of 20th anniversary Commemorative Summit at New Delhi in 2012 was a natural corollary to the growth of India-ASEAN relationship during last two decades. The India-ASEAN Strategic Partnership acquired a new momentum with the announcement of “Act-East Policy” in the 12th Summit in 2014. It conveyed a clear intent on the part of India to up-scaling its engagement with the ASEAN Member States. The Act-East Policy emphasizes Connectivity, Commerce and Culture as the focus areas of action for a greater ASEAN-India integration. It takes into account the blueprints of the three pillars of ASEAN community building process, the ASEAN vision

document ASEAN 2025-Forging Ahead Together, the ASEAN Master Plan for Connectivity

2025, the ASEAN ICT Master Plan 2020 and the Initiative for ASEAN Integration. Strengthening Connectivity, including land and sea connectivity, with ASEAN is one of the strategic objectives of India and ASEAN Member States. Regular exchanges take place between ASEAN Connectivity Coordinating Committee (ACCC) and India on Connectivity. The signal effort under the ASEAN-India Connectivity initiative is the India-Myanmar-Thailand Trilateral Highway. India-Myanmar-Thailand Trilateral Task Force on Connectivity and Infrastructure has been set-up to undertake time bound work on completion of the Trilateral Highway and also undertake negotiations on the Motor Vehicles Agreement. India and ASEAN are holding consultations on extension of Trilateral Highway to Laos, Cambodia and Vietnam. India and ASEAN are also working to strengthen the Maritime Connectivity.

Goutam Mukherjee
Dr. Goutam Mukherjee
Hony. Editor, JILTA





ILTA
Since 1950

Tell me and I forget, teach
me and I may remember,
involve me and I learn

Stahl Campus®



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

Our approach is modular, making it easy to tailor learning programs to specific needs. Stahl Campus® has at its core the drive to unlock human potential and make that new

competitive advantage. By providing the possibility of sharing knowledge, we embrace our role in the dynamic leather and chemical industry. Stahl Campus® is a great opportunity to strengthen skills and capabilities in order to make working methods more efficient by sharing experiences and studying products and procedures.

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

If it can be imagined, it can be created.





ILTA
Since 1950



Seize the opportunities of renewable chemistry



Today's leather consumers not only have to deliver high-quality durable products – they must also deliver them with minimal environmental impact and without compromising on the health and safety of people. At Stahl, we see this as an opportunity to support our customers and the wider leather industry in driving responsible products and sustainable living in close

cooperation with our partners, we recently launched Stahl 'Impact', a family of leather chemical solutions made with renewable biochemicals. Stahl 'Impact' will help consumers to reduce their environmental footprint without compromising on the quality and performance of their products, since these ZDHC-compliant solutions follow the same rigorous

function performance to conventional alternatives. After the introduction of 7 product solutions of renewable carbon polyurethanes for tannin- and topcoats in leather finishing, we've now also introduced 13 specific solutions of renewable carbon wet-end products for leather processing.

If you would like more information about Stahl 'Impact' or how we can support you to embrace the opportunities of an exciting leather industry, visit stahl.com or get in touch with us at communications@stahl.com.

If it can be imagined, it can be created.



stahl.com



ILTA
Since 1950

STAHL TARGETING REDUCTION OF SCOPE 3 UPSTREAM EMISSIONS BY AT LEAST 25% WITHIN 10 YEARS

Stahl, is submitting a greenhouse gas (GHG) emissions reduction target that is aligned with the most recent guidance provided by the Science Based Targets initiative (SBTi). The new target marks a key milestone on the company's journey toward carbon neutrality.



Stahl's SBTi submission includes a specific commitment regarding the company's Scope 3 upstream emissions, which Stahl aims to reduce by at least 25% over the next 10 years, compared with the base year (2021). This reduction would primarily be achieved by Stahl replacing its fossil-based raw materials with lower-carbon alternatives. The target is a major step towards the objective of limiting global warming temperature increase to 1.5°C above pre-industrial levels by 2050, as agreed at the 2015 Paris Climate Accords.

Stahl's extended commitment builds on the company's existing targets to reduce its emission for Scopes 1 and 2, which were set shortly after the Paris Agreement in 2015. Stahl has since reduced its Scope 1 and 2 (direct) GHG emissions by more than 30%, thanks to operational efficiency gains and by decarbonizing its energy supply. Scope 3 GHG emissions cover all the additional indirect emissions that can occur in the value chain, including those associated with purchased raw materials, packaging, business travel, and transportation. Stahl's Scope 3 emissions currently represent over 90% of its carbon footprint.

Stahl CEO Maarten Heijbroek: *"Aligning our GHG targets to the Paris Agreement goals is ambitious and will require continuous technology advances throughout the value chain. We are already working closely with our upstream partners to reach the 10-year milestone, and we will report on our progress each year in our annual ESG report."*

Stahl ESG Director Michael Costello: *"By setting a clear, quantifiable target to reduce our Scope 3 emissions, we aim to offer our stakeholders the most robust and complete indication to date of how we will realize our climate ambitions as a company. We are committed to taking the necessary steps together to meet this important ambition for our stakeholders, for our planet, and for society at large."*

(Stahl News – 05/07/2022)

MAARTEN HEIJBROEK – ONE YEAR AS CEO, AND COUNTING

On July 1, 2021, Maarten Heijbroek took the wheel as Chief Executive Officer (CEO) at Stahl. Now, one year on, he looks back at his first 12 months in the role – and ahead to what's next for the company.

What were your impressions during your first few months at Stahl?

Stahl is a very strong company in many respects. It has a world-leading market position, fantastic technology, and a highly driven and entrepreneurial workforce. These are the qualities that first led me to Stahl, and the company has more than met my expectations on each of these areas.

What are your main takeaways from the year as a whole?

It has certainly been challenging at times, but I'm really happy with what we've achieved together this past year. As a business, we've had to cope with huge amounts of uncertainty: the conflict in Ukraine, significant cost inflation, and supply chain disruptions. We are proud that we managed to keep our customers supplied, albeit with occasional delays, across the world. Our well-developed global manufacturing footprint and supply chain served us well.



Of course, these challenges are not unique to Stahl; everyone in our industry is affected. Stahl is a resilient organization, and we've adapted successfully so far. I'm confident that we're well positioned to face whatever comes next as long as we maintain our agile and flexible approach.

You've visited almost every single Stahl manufacturing site; you've talked to employees, customers, and suppliers. How do you view the market landscape based on these experiences?

Everywhere I go, the recurring theme is sustainability. It's now the highest priority for our customers and our customers' customers. We consider ourselves a sustainability leader here at Stahl, and we've always been one step ahead when it comes to environmental, social, and governance (ESG) topics. Our proactive mindset will continue to set us apart from our competitors – our aim is not simply to meet our customers' demands, but to anticipate on their future needs. Our commitment to sustainability is demonstrated by our recent innovations in the field of renewable feedstock coatings and finishes – for example, Stahl Ympact® and Stahl NuVera®. We're also investing in resources that will help accelerate our leading position in ESG. We've grown our ESG team with people who will dedicate their time to key areas such as supply chain transparency, life cycle assessments, and environmental excellence. We've also invested in an Open Innovation team, to connect Stahl to innovation taking place at universities and start-ups.

Do you have any concerns going forward?

The high level of uncertainty we're seeing in the world is here to stay. At Stahl we need to remain agile in dealing with new challenges, like we successfully did with COVID-19. For our industry, and many others, a key challenge will be the availability of technical talent, which is crucial for a knowledge-intensive company like Stahl. This is one of the reasons we launched the Stahl Campus training institute six years ago, and we now have partnerships with four centers of learning around the world. These collaborations enable us to help university students, as well as our customers' young talents and other interested parties, develop essential technical skills for coatings and surface treatments for flexible substrates.

A little under eight years from now, Stahl will celebrate its 100th anniversary. How do you see the company evolving in the years to come?

Even more so than today, I see Stahl at the heart of a truly sustainable value chain. We want to be the go-to innovation partner for the various stakeholders across our value chain and continue to touch millions of consumers around the world every day. More on this soon!

(Stahl News – 01/07/2022)



ILTA
Since 1950

STAHL INTRODUCES INTEGRA®: “MODULAR TOOLBOX” OF FLAME-RETARDANT AND PERFORMANCE COATING TECHNOLOGIES

Stahl, announces the launch of its Integra® portfolio, a versatile toolbox that provides tailor-made, customer-orientated solutions under the umbrella of flame-retardant technology, protective surfaces, and protective coatings. The integrated, polymer-driven approach behind Integra® offers customers greater flexibility in terms of product development, helping them to achieve regulatory and environmental compliance while ensuring superior product quality and fabric integrity.



The market for flame retardants and performance coatings is increasingly complex and subject to extensive – and often conflicting – demands and requirements. This includes increasingly stringent chemical industry legislation that limits flexibility regarding chemical and additive usage as well as growing expectations from stakeholders regarding environmental, social, and governance (ESG) factors.

With Integra®, Stahl offers a unique polymer-driven solution that builds upon the market-leading flame-retardant technology offered through Stahl's Eagleban™ brand, which is enhanced by Stahl's expertise in polymer-based technologies for protective coatings and surfaces. By using Stahl's proven polymer technology as its “backbone” while harnessing the other technologies in its toolbox, including specialty crosslinkers and other additives, Integra® can help customers solve complex challenges in a flexible, integrated way that goes beyond traditional additive-driven approaches.

A flexible, modular approach

The Integra® portfolio follows the modular toolbox principle, whereby specific mechanical functionalities and solutions – from breathable coatings to stay-clean technologies – are introduced to meet specific end-market requirements. Integra®'s modular product range includes an extensive array of high-quality polymer-based technologies in the flame retardant and protective coatings space. These solutions include waterborne and solvent-borne performance coatings (Integra® FRC), specialty waterborne polymers with flame retardant effect (Integra® RU), and additives boosting the above (Integra® FRA).

Jan Terras, Global Market Manager Coated Fabrics & Flame Retardants at Stahl: *“Our flexible Integra® portfolio offers solutions to meet complex regulatory requirements as well as rising market expectations in terms of mechanical properties and fabric integrity. At the same time, Integra® underlines our commitment to responsible chemistry: our polymer-driven approach enables a shorter, simplified manufacturing process that typically equates to a lower environmental footprint and less consumption of energy, water, and other resources. It stands to reason that we see Integra® as the future of combined flame-retardant and performance coating technologies.”*

(Stahl News – 16/06/2022)



STAHL POLYMERS LAUNCHES RELCA® PD-805 MATTING RESIN TO TACKLE ENVIRONMENTAL AND SUPPLY-SIDE CHALLENGES

Stahl, has introduced a new, water-based, and additive-free matting resin, Relca®fIPD-805, to its Relca®fIMatt Binders portfolio. The 100% clean, VOC-free solution is targeted at paint and coating and printing and packaging markets, providing a safe, affordable, and high-quality matting performance for wood, metal, plastic, and glass. In this way, Relca® PD-805 helps customers to achieve regulatory and environmental compliance while also ensuring a superior matte finish.

In contrast to traditional matting solutions, which use additives to lower the gloss level for paints, coatings, or inks, Relca®fIPD-805 is a water-based resin, meaning it can achieve a quality matte finish without the use of added matting agents. This, and the fact that Stahl's solution is free from other additives, including formaldehyde, amines, solvents, and heavy metals, makes the product less sensitive to current supply-chain volatility and steep rises in the price of raw materials.



In addition to its superior matting efficiency, Relca® PD-805 delivers a high level of thermal and chemical resistance, superior anti-blocking, anti-fingerprint, wetting abilities and improved abrasion resistance compared with current market alternatives. For end-users, this means tougher, more durable coatings that last longer, with no compromise on finish. Moreover, the formulation of Relca®fIPD-805 is also more stable than standard matting agents, meaning it has a longer shelf life and experiences fewer separation and sedimentation issues during transport and storage.

A future-focused approach to better coatings solutions Stahl believes in the power of innovation to respond to customer demand and changes in the paints and coatings marketplace. With increasingly stringent legislation around the use of solvents in the paints and coatings industry, as well as growing supply chain uncertainty, new solutions are needed to ensure coatings are both environmentally friendly and affordable.

“In line with our commitment to sustainable development and responsible chemistry, we are helping to advance the transition to water-based coating technologies,” says Raymond Bakker, Global Business Director of Stahl Polymers. *“Based on rigorous performance testing, our Relca® PD-805 resin shows clear advantages in a number of key areas compared with conventional matting agents like silica. The fact it is free from additives also means it is less harmful to health and the environment, and more resistant to rising raw material costs. With this new technology, we can help our customers to make cost-effective decisions that also help protect our planet. For us, water-based resins are the future of coatings solutions.”*

For more information on Stahl's Relca® Matt Binders portfolio, please visit our website.

(Stahl News – 01/06/2022)





From the desk of **General Secretary**

72ND FOUNDATION DAY CELEBRATION OF ILTA & PROF. B. M. DAS MEMORIAL LECTURE

This would be organized by our association on Sunday the 14th August' 2022 at 2.30 pm (Registration form 2.00 pm) at Science City Seminar Hall followed by a Cultural program and Dinner.

Mr. Subrata Das, M. Tech. (Leather Technology), Freelance Leather Technologist and Consultant, Chennai has kindly consented to deliver the prestigious 'Prof. B. M. Das Memorial Lecture' titled "**New Trends, Opportunities and Pathways in the Application and Marketability of Leather in a Post-Covid World**".

Few Life Members for their lifetime achievement in their concerned fields and Retired Staffs of ILTA for their dedicated contribution to this association, under consideration to felicitate on this occasion respectively.

Toppers in B. Tech & M. Tech Leather Technology Examination from Moulana Abul Kalam Azad University of Technology, Kolkata and Anna University, Chennai would be felicitated with Prof. B. M. Das Memorial award & J. M. Dey Memorial award on this occasion.

Author of the Article published in JILTA during calendar year 2021 adjudged as the Best Article in the said year would be felicitated with J. Sinha Roy Memorial Award in the occasion.

A colorful cultural rendition would be presented on this occasion followed by dinner.

Formal Invitation for joining in the event along with e-Invitation Card would be sent to all the members, associations, organizations, institutions and industry in due course.

(Copy of Invitation Crad overleaf)

ANNUAL GENERAL MEETING OF ILTA

The 64th Annual General Meeting of our association is likely to

to be organized by third week of September' 2022. Audit of Accounts and Annual Report of the association for the F.Y. 2021 – 22 is under progress.

Status of this forthcoming event will be intimated in due course.

ELECTION FOR RECONSTITUTION OF EXECUTIVE COMMITTEE OF ILTA AND THE REGIONAL COMMITTEES FOR THE TERM 2022 - 2024

The Executive Committee of ILTA as decided at its 548th Meeting held on 24/02/2022 for holding the Election of the Executive Committee and the Regional Committees of ILTA for the term 2022-2024, this has been done successfully.

Formal declaration of the Election Result would be announced by the Returning Officer of the Election Mr. Dhiman Chakraborty, Controller of Finance, The Asiatic Society (Under Ministry of Culture, Govt. of India), Kolkata at the time of forthcoming 64th Annual General Meeting of our association.

LEXPO – XXXXI AT KOLKATA

The Kolkata LEXPO – XXXXI which has been rescheduling repeatedly due to COVID 19 situation since last two years has now been proposed to be organized at Kolkata Ice Skating Rink from 23rd December to 1st January' 2022.

Booking money of the venue for the fair had already been deposited to the KISR authority earlier.

However, latest progress and status report regarding the proposed fair will be informed in due course.



(Susanta Mallick)
General Secretary



ILTA
Since 1950



Indian Leather Technologists' Association

72nd Foundation Day Celebration
& Prof. B.M.Das Memorial Lecture



Indian Leather Technologists' Association
requests the pleasure of your company at the
72nd Foundation Day Celebration & Prof. B. M. Das Memorial Lecture
at
Science City Auditorium on Sunday, the 14th August' 2022 at 02.30 PM
(Registration from 02.00 PM)



Mr. Subrata Das,
M. Tech. (Leather Technology),
Freelance Leather Technologist and Consultant
has kindly consented to deliver the
72nd 'Prof. B.M. Das Memorial Lecture' titled
"New Trends, Opportunities and Pathways in the Application and
Marketability of Leather in a Post-Covid World"
!! You are cordially invited to participate !!

Arnab Jha
President

Susanta Mallick
General Secretary



Indian Leather Technologists' Association

72nd Foundation Day Celebration
& Prof. B.M.Das Memorial Lecture

PROGRAMME

02.30 PM to 04.30 PM : Prof. B. M. Das Memorial Lecture &
Felicitation of Award Winners

04.30 PM to 05.00 PM : High Tea

05.00 PM onwards : **Cultural Programme**

05.00 PM to 06.00 PM : A musical rendition by 'Harbola Band'

06.00 PM to 6.30 PM : Break

06.30 PM to 8.00 PM : One-act play 'Pratima Purchhe'
– a 'Shyambazar Anya desh' production

8.00 PM onwards : Dinner

**Members along with their spouse are cordially invited to participate
in the Cultural Programme & Ceremonial Dinner**

YOUTUBE CHANNEL & FACEBOOK PAGE OF ILTA

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

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

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

RECEIVING PRINTED COPY OF JILTA EVERY MONTH

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

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

PUBLISH YOUR TECHNICAL ARTICLE

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

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

Members are requested to :-

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

General Secretary and the Members of the Executive Committee are available to interact with members at 19.30 hrs, at our Registered Office on every Thursday



Y. D. Mahajan

(28.09.1960 – 12.07.2022)

Late Y. D. Mahajan was born on 28th September, 1960 at Nasik, Maharashtra. In the year 1980, he passed Diploma in Leather Technology from Govt. Institute of Technology, Bandra, Mumbai. He started his career as a Technical Supervisor in M/s Prima Tannery, Barabanki, U.P. from 1980 till 1985. In 1986, he joined a Kanpur based chemical company as Sales Executive & worked till March, 1991. He joined M/s Leo Tannery, Jalandhar, Punjab in April, 1991 as a Production Manager and worked there till end of 2019. He left his job from M/s Leo Tannery, Jalandhar due to health problem and went back to his native place Nasik, Maharashtra.

He joined ILTA in the year 2007 as a Life Member and was a senior Executive Committee Member of ILTA – Northern Region since 2019 till date.

He left for his heavenly abode on 12th July, 2022.

May his soul rests in peace & may God give strength to the members of the bereaved family to bear this irreparable loss.



ILTA
Since 1950

Solidaridad

With over 50 years of experience in developing sustainable solutions to make communities more resilient, Solidaridad has been working on many different issues, from supporting marginalized communities to fostering a more sustainable supply chain.



Castor



Tea



Sugarcane



Leather



Textile



Palm Oil



Aquaculture



Dairy



Fruits &
Vegetables



Gold



Soy



Cocoa



Coffee



Livestock



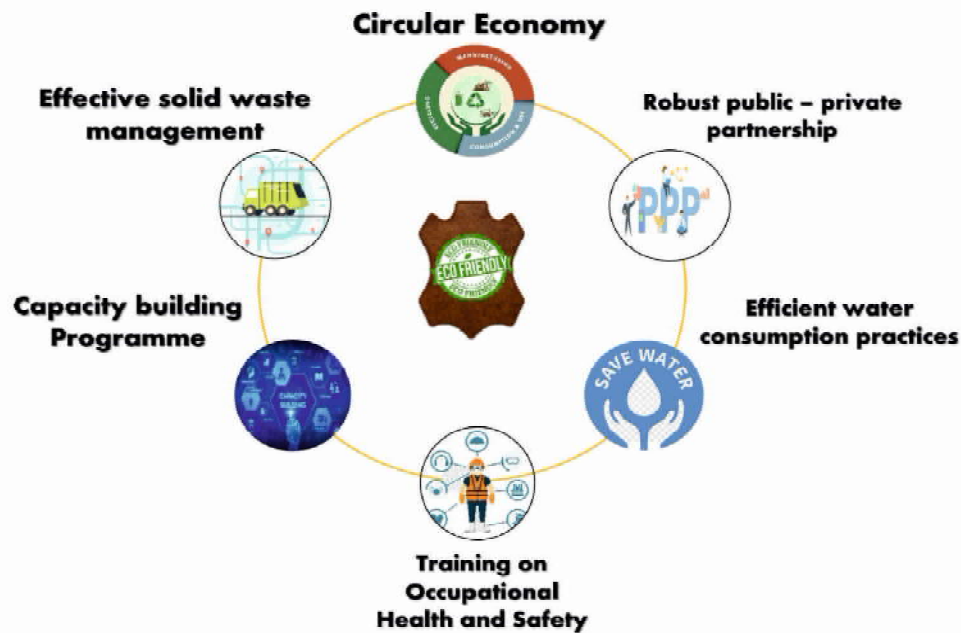
Medicinal Plant

Solidaridad

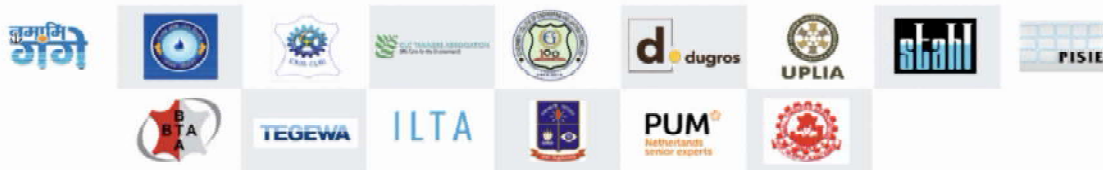
switchasia GRANTS PROGRAMME 

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

2022-2023



PROJECT PARTNERS IN ASIA



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

Solidaridad Regional Expertise Centre

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

Multi Stakeholder Consultation Workshop harmonized by Solidaridad on Green Tanning Practices

Solidaridad performs a very essential role on elevating the green trend in Kolkata Leather Cluster (Bantala) under the project of *“Effective Waste Management and Sustainable Development of MSME Tanning companies in Kolkata Leather cluster (Bantala)”* in collaboration with Calcutta Leather Complex Tanner’s Association, STAHL, PISIE (International Polytechnic for Industrial and Economic Development) Dugros and funding partner EU Switch Asia.



The project is relevant to the theme of Waste Management and complies with the Global

Objective in relation to: Inclusive Sustainable Growth; Economic Prosperity and Poverty Reduction; and Green Economy and Transition Towards a Low-Carbon, Resource-Efficient and Circular Economy. The projected action in the cluster is designed to promote sustainable production practices in the extremely contaminating tanning sector, and to generate a permitting environment for well-organized and effective public-private collaboration by establishing a round table / platform. With other interventions, Solidaridad along with pioneer leather chemical company, STAHL, exhibited articles and goods made out of Low Salt Tanning Technology and also demonstrated the green impacts by Mr. Prasanna Maduri, Campus Manager and Mr. Deriner Tuncay, Managing Director of Stahl India Private Limited.



Pickle-free tanning system provides efficient process outcome with upgraded quality leather. This process will help the tanners to reduce the water, salt and other chemicals in the conventional process and as result the overall environment impact will get down. This way we can reduce water consumption by about 40% and work towards a more efficient tanning process. They have already started their intervention in Kolkata & Kanpur’s leather geographic and will initiate in Chennai.

Mr. Tatheer Zaidi, General Manager- Pollution Management in MSMEs welcomed everyone to the workshop and delivered a brief presentation on the EU

supported project ‘Effective Waste Management and Sustainable Development of MSME Tanning companies in Kolkata Leather cluster (Bantala) and initiatives undertaken.

Mr. Sanjay Leekha, Chairman, Council for Leather Exports launched a unique portal for the Indian leather industry- *Leather Trade Intelligence Portal* at the Stakeholder Consultation Workshop organised by Solidaridad, Calcutta Leather Complex Tanneries Association (CLCTA) and STAHL in collaboration with Council for Leather Exports (CLE). LTIP is designed by Solidaridad and was launched in the presence of senior delegates from both public and private partners.

Mr. Pradipta Konar, Programme Manager of EU funded Kolkata project, demonstrated Solidaridad's progress in these two years and achievement through various interventions. He also mentioned the support got from CLCTA and other prestigious association.



On this auspicious event, **Mr. Leekha**, Chairman, Council for Leather Exports (CLE) shared that he is glad to launch the portal for the tanneries as it is the need of the hour. The industries are transforming very rapidly in terms of scale, markets, sustainability standards, social standards, etc. Thus, The LTIP portal will greatly benefit the tanneries through self-assessment tools and its piloting must start from the Kolkata tanneries.

Mr. Jawed Ahmed Khan, Minister- Civil Defense & Disaster Management encouraged the tanneries by saying that adoption of such green innovative technologies will surely help in the business operations and provide a great visibility to the industry.

Mr. Subrata Ghosh, Chief Engineer, West Bengal Pollution Control Board commended the progressive nature and open-mindedness of Kolkata tanneries towards adoption of waste management solutions.

Mr. R. Selvam, IAS, Executive Director, Council for Leather Exports highlighted that affordability and accessibility are two factors to be considered when introducing green technologies to the tanneries. We must also work toward achieving Zero Waste Discharge and the waste to value technologies promoted under the project will surely contribute to it.



Dr. Gianluca Rubagotti, Consul General, Consulate General of Italy mentioned that there is a clear scope of partnership between the Italian model and the Kolkata leather cluster. 1 out of 4 products comes from Italy, which makes it a real export-oriented model. There are opportunities of twinning between India and Italy. He assured full support and cooperation between Government of Italy and the Kolkata leather cluster.



Ramesh Juneja, Regional Chairman-ER, Council for Leather Exports and President, Calcutta Leather Complex Tanners Association endorsed the initiatives taken under the project and assured full cooperation from the industries.

Mr. Tuncay Deriner, Managing Director, Stahl lauded the Solidaridad-Stahl partnership in Kanpur and Kolkata since 2017. He specifically mentioned that Stahl not only provide quality chemicals but also offers the most competitive prices. Stahl will also be talking about ESG soon as Stahl is working on Scope 3 emissions.

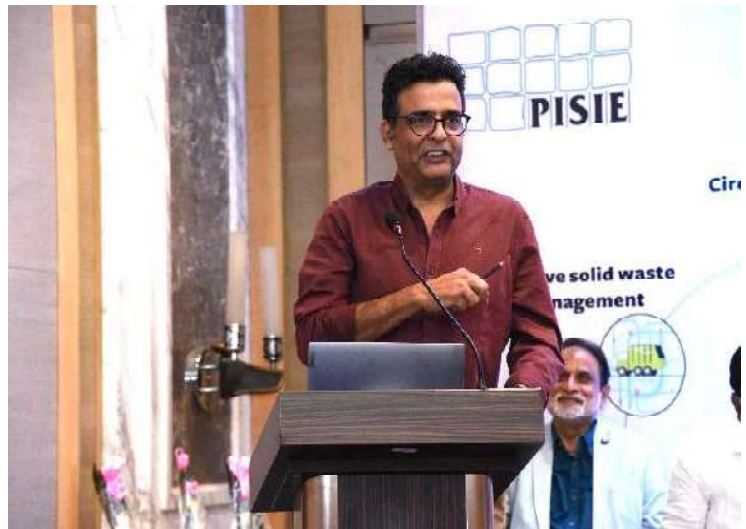


ILTA
Since 1950

Solidaridad Corner

Mr. Kamal Ahmed Khan, Managing Director, Dugros mentioned that Dugros as a project partner, supports in the commercialization of efforts and provides market-based solutions. The story of sustainability really sells in the market; hence it is very important for the industries to adopt sustainable practices.

Mr. Taj Alam, Vice Chairman, Uttar Pradesh Leather Industries Association endorsed the efforts of Solidaridad in Kanpur and mentioned the list of interventions demonstrated which have shown scientific results and impacts, significantly reducing the pollution parameters. Solidaridad has played a great role in not only technical cooperation but also lessened with regulatory authorities.



Lastly, **Mr. Imran Ahmed Khan**, General Secretary, Calcutta Leather Complex Tanners Association concluded the event by thanking everyone who have provided their support and cooperation to the Kolkata leather industries. And also inspired us to unite together for better, sustainable and a green future.



Solidaridad



Design and Development of Low - Cost LDR Shoe

Arjun Verma, D. K. Chaturvedi, Tipu Sultan

Faculty of Engineering, Dayalbagh Educational Institute, Dayalbagh, Agra, U.P.



ABSTRACT

This paper talked about a brand-new concept of LIGHT EMITTING SHOE which emits light through a LED (light emitting diode) bulb after sensing darkness. It will solve a range of problems regarding darkness in all spheres of life. It will relieve us from the extra baggage of carrying a source of light in darkness which could be a torch, lamp, emergency lights etc. in the night. As it senses light, the circuit activate which turn on the LED bulb and emit light. This project concept helps to the people right from a farmer to a soldier and to a common mine worker. It has come as a boon and the blessing in descries. It will change the life style of people. In this project, it has not been used any complicated electrical design or circuit, simply proposed a very basic electrical composition and took an ordinary shoe of leather thickness 1.2 mm. heel height 5mm, toe spring of 2mm, shoe laces of 0.5m with a tongue of 10 cm and eyelets of aluminium. Hence it is sufficed to say that it can turn on a revolution in the life style of the people, influence the people mind set, and it will bring the paradigm shifts in the people's way of looking at the shoe.

Keywords - LED, LDR, Leather, Shoe last, Sensors, Shoe upper, Insole, Outsole, Midsole.

1. INTRODUCTION

A light dependant resistor also known as a LDR, photo resistor, photoconductor or photocell, is a resistor whose resistance increases or decreases depending on the amount of light intensity. LDRs (Light Dependant Resistors) are a very useful tool in a light/dark circuits. A LDRs can have a variety of resistance and functions. For example, it can be used to turn on a light when the LDR is in darkness or to turn on a light when the LDR

is in light. It can also work the other way around so when the LDR is in light it turns on the circuit and when it's in darkness the resistance increases and disrupts the circuit [1].

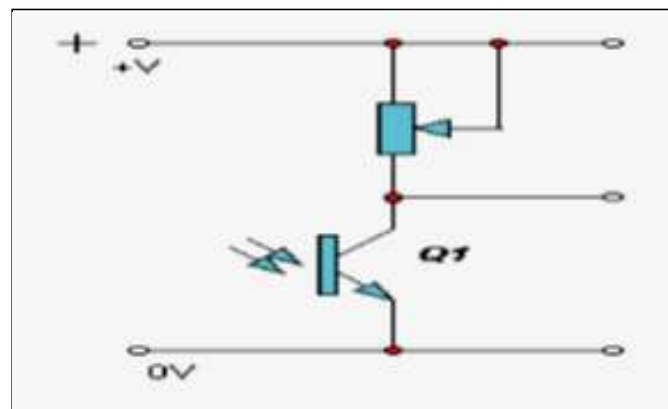
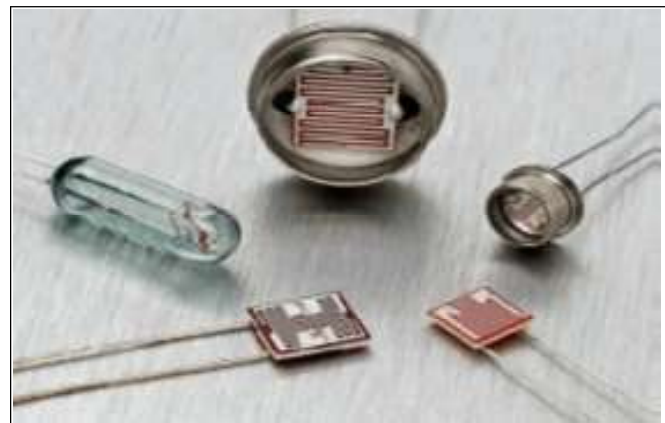


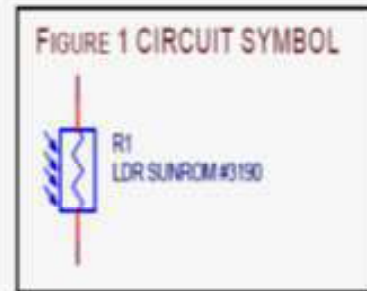
Fig.1 Photoresistor

1.1 WORKING PRINCIPLE

The way an LDR works is that they are made of many semi-conductive materials with high resistance. The reason they have a high resistance is that are very few electrons that are free and able to move because they are held in a crystal lattice

Guide to source illuminations

Light source Illumination	LUX
Moonlight	0.1
60W Bulb at 1m	50
1W MES Bulb at 0.1m	100
Fluorescent Lighting	500
Bright Sunlight	30,000



and are unable to move. When light falls on the semi conductive material it absorbs the light photons and the energy is transferred to the electrons, which allow them to break free from the crystal lattice and conduct electricity and lower the resistance of the LDR [2].

1.2 INTERFACING WITH ARDUINO

A light sensor or LDR can be very easily interfaced with an Arduino. The light sensor is connected to the analogue inputs of the Arduino. One of the pins of the LDR is connected to the ground while the other is connected to one of the 5 analogues in pins. Depending on the function of the LDR it may need another resistor connected to it. Say for instance if the LDR is controlling a LED, if it allows too much current to get through it might cause the LED to blow up. This is the reason for another resistor being needed [1-3]. And of course, the Arduino will need to be programmed in order for there to be an output from the input of the LDR.

1.3 DIGITAL APPLICATIONS

- Automatic Headlight Dimmer
- Night Light Control
- Oil Burner Flame Out
- Street Light Control
- Absence / Presence (beam breaker)
- Position Sensor

1.4 SENSITIVITY

The sensitivity of a photo detector is the relationship between the light falling on the device and the resulting output signal. In the case of a photocell, one is dealing with the relationship between the incident light and the corresponding resistance of the cell [4].

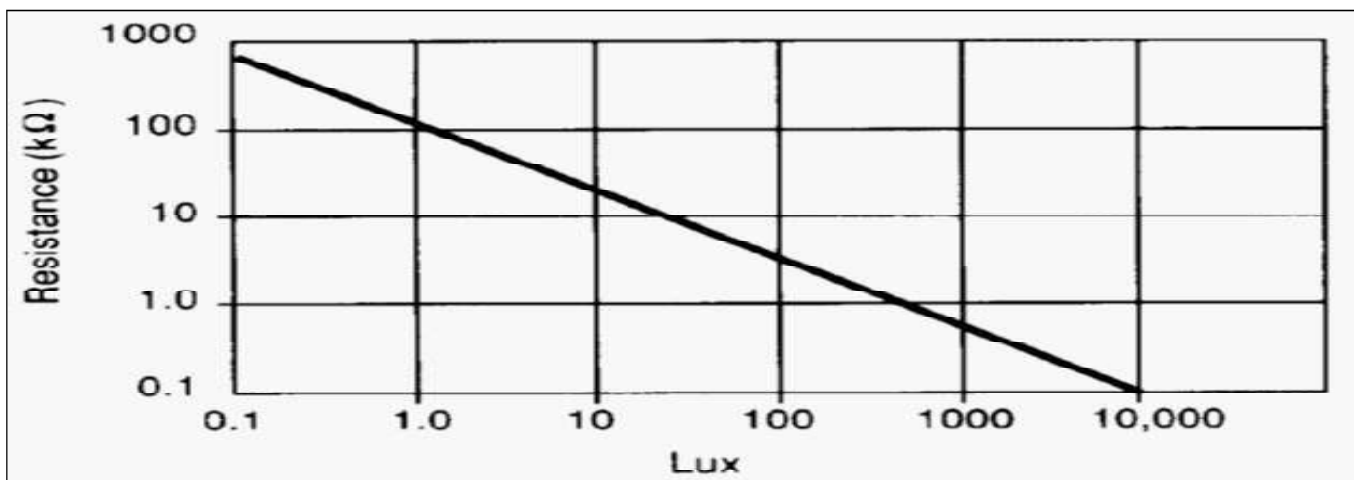


Fig. 2 Resistance as a function of Illumination

2. DESIGN AND DEVELOPMENT OF LDR SHOE

2.1 BASIC CIRCUIT WITH RELAY

When the LDR is exposed to light its resistance falls, thus the base current increases and consequently the collector current. The LED will be illuminated and the relay will energize. RV2 will adjust the level of light needed to turn the LED on [4].

2.2 PROCEDURE

- Identify all the components you will use.
- Place and solder the resistors R1, R2 and D1.
- Now place and solder VR2, LDR1 and the LED.
- Place and solder the battery clip and TR1: making sure the base connection goes to the center hole of TR2, not to its normal position.
- Place and solder the relay RL1.
- Check the circuit works by connecting a battery to the clip. Set VR2 to its mid position, cover the LDR with your hand, the LED should be off and the relay de energized. Now remove you hand from the LDR and provided there is enough light in the room the LED should come on and the relay energized. Remember VR2 acts as a light sensitivity control.

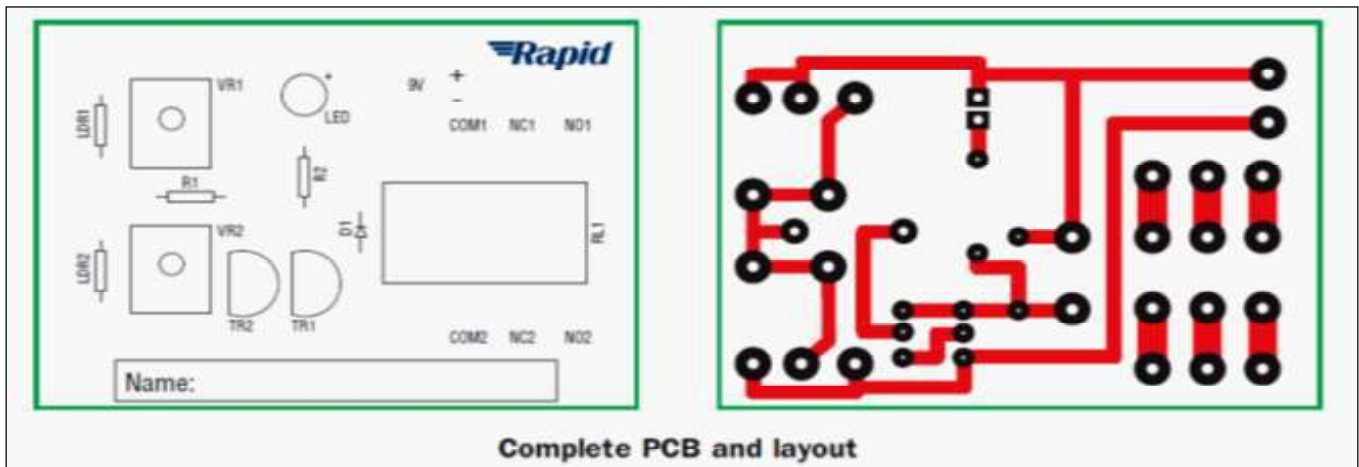
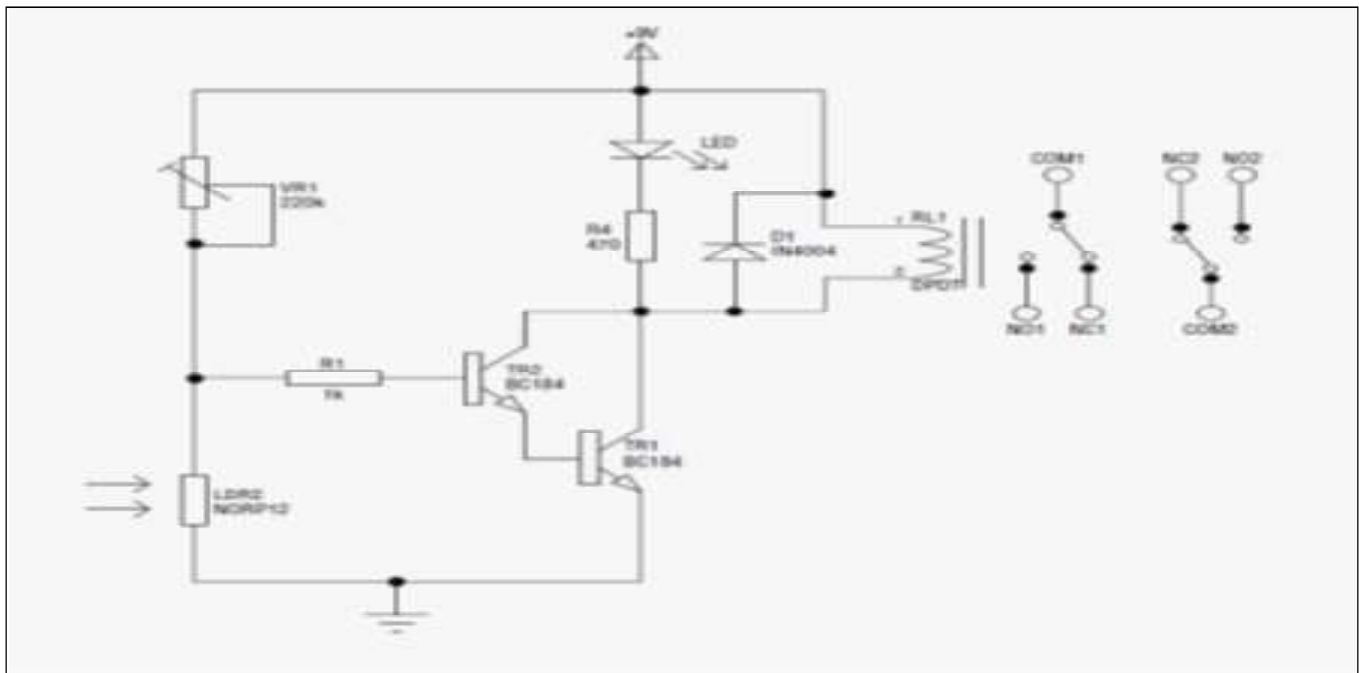


Fig.3 PCB layout

2.3 REVERSE OPERATION CIRCUIT USING DARLINGTON TRANSISTORS

This circuit has the pre-set and the LDR reversed. When the LDR is covered the LED and the relay will be ON, uncover the LDR and the LED and relay will be OFF [3-4].

2.4 PROCEDURE

1. Identify all the components you will use.

2. Place and solder the resistors R1, R2 and D1.
3. Now place and solder VR1, LDR2 and the LED.
4. Place and solder the battery clip, TR1 and TR2.
5. Place and solder the relay RL1.
6. Check the circuit works by connecting a battery to the clip.
Set VR1 to its mid position, cover the LDR with your hand, the LED should be on and the relay energized. Now remove your hand from the LDR and provided there is enough light in the room the LED should be off and the relay de-energized. VR1 now acts as a light sensitivity control.

Components list		
Reference	Description	Order code
R1	1k0 0.25W	62-0370
R2	470R 0.25W	62-0362
D1	1N4004	47-3136
VR2	10k horizontal preset	67-0230
LDR1	NORP12	58-0132
LED	Red	55-1790
TR1	BC184	81-0038
PCB	LDR PCB	70-0250
Battery clip	PP3 clip	18-0094
RL1	5V 70Ω DPDT relay	60-4690

Fig.4 Components list

2.5 SEQUENCE OF OPERATIONS FOR LDR SHOE

1. Consider an ordinary shoe and prepare it by certain operations like roughing, buffing, skiving by deconstructing the shoe. After preparing the leather upper and separate sole heel, all the electrical stuff fitted in the shoe. Preparing of shoe in such a way that it can bare the complex circuit design.
2. Cut a sole and place whole circuit in it, it is to be careful while putting the electric circuit in it. The wires should be carefully arranged as the space is less.
3. Fixing the battery in the middle sole and connect the positive and negative terminal to the battery.
4. Now place LED bulb in tongue area and carefully connect all the wire via battery carefully.
5. Now insert a sensor in the quarter area of the shoe such that it can sense the darkness immediately [8-10].



Fig.5 Front view of LDR shoe



Fig.6 Side view of LDR shoe



Fig.7 LDR working shoe

2.6 APPLICATIONS OF LIGHT EMITTING SHOE

- It can be used by coal mine workers at night as they don't have to carry night vision equipment with them.
- During the night patrolling of the cops as they don't have to carry torch with them the shoes will automatically illuminate when it senses darkness.
- As we know that most of the operation of the army are carried out in the night including the surgical strikes cross borders raid and hot pursuit. In the present scenario they have to carry heavy illuminating devices which causes immense problems to the soldiers during wars but after the development of LIGHT EMITTING SHOE, it will relieve them with this cumbersome process as light is fixed in the shoe there is no need to carry a heavy illuminating device with them.
- It can be used by farmers during the night when they go to check or look after their crops. They will not to carry any heavy objects for illuminations.
- It will be very useful for people who go on early morning walks or late evenings walks.

CONCLUSION

This type of unique technology helped the people for doing various works under different circumstances. Because of the unique structure and compact design, it is can be easily reached to that place where the need of that things is required by simply wearing on it. And this technology overcome the problem of space management as well as carrying that specific thing for those purposes here and there. Light Emitting shoe helps to overcome the problem of light by simply wearing on it and doing the specific work in a very easy way because by virtue of that there is no need to carry any luminous device with them.

REFERENCES

1. Diffenderfes, Robert (2005). Electronic Devices: System and Applications. New Delhi: Delimar. p. 480. ISBN 978-1401835149
2. "Photo resistor - Light Dependent Resistor (LDR) » Resistor Guide". resistorguide.com. Retrieved 19 April 2018.
3. NCERT textbook of class 12
4. Physics by S.L. Arora
5. [HKB 1999] H. K. D. H BHADESHIA (1999), "Neural Networks in Materials Science", ISIJ International, Vol. 39, No. 10, pp966-979

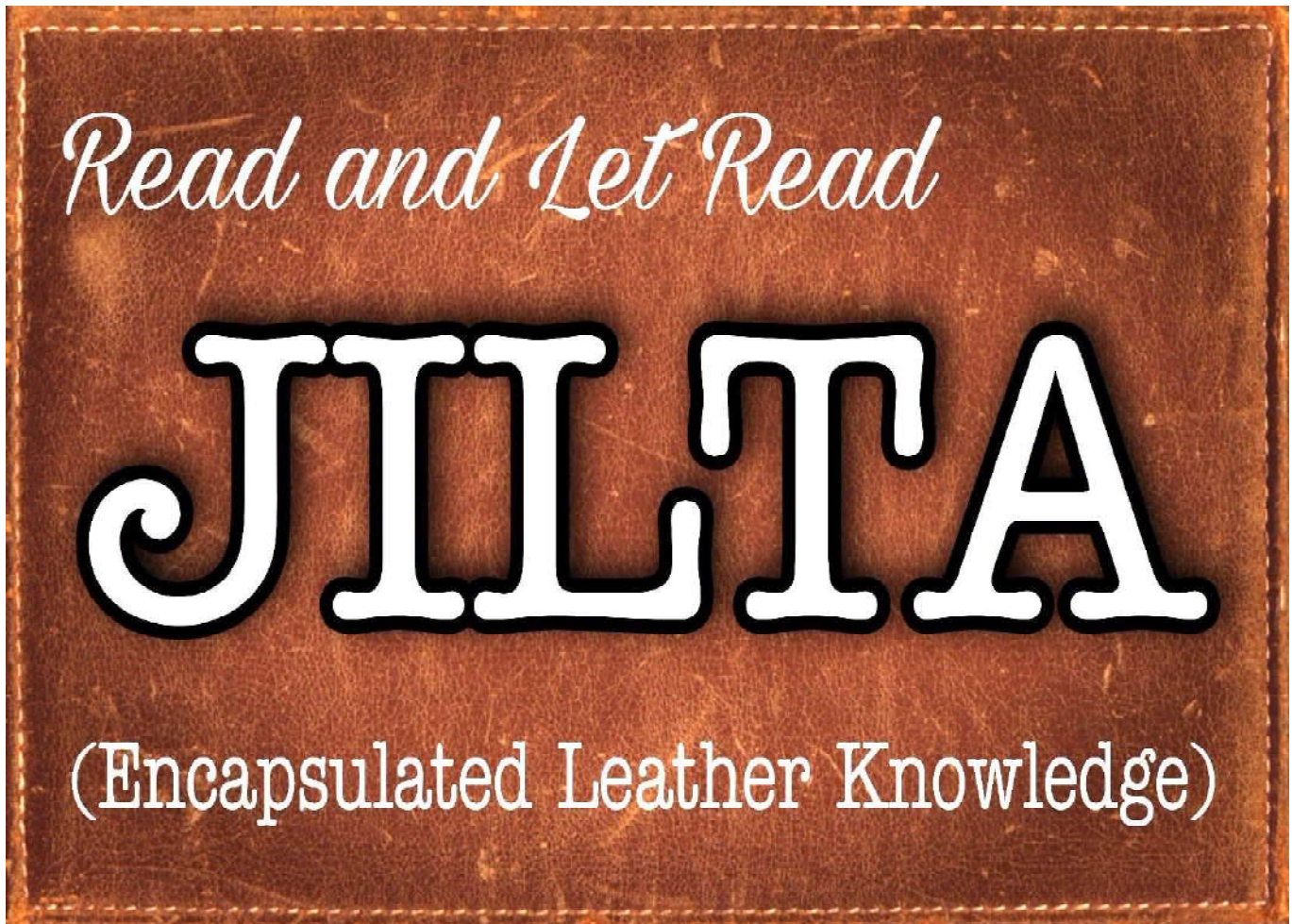


ILTA
Since 1950

6. [KPB 2006] Kristin P. Bennett, Emilio Parrado-Hernandez (2006), "The Interplay of Optimization and Machine Learning Research", Journal of Machine Learning Research, Vol. 7, pp 1265–1281
7. [DAV 2009] Davis E. King (2009), "Dlib-ml: A Machine Learning Toolkit", Journal of Machine Learning Research, Vol. 10, pp 1755-1758
8. [SOM] Somenath Ganguly, Comprehensive Footwear Technology, Journal of Indian Leather Technologists Association, Kolkata, India, ISBN: 81-901423-0-5.
9. [HAJ 1982] Harvey, A.J (1982), "Footwear Materials and Process Technology", LASRA Publications, New Zealand
10. [LUX 2013] Edited by A. Luximon (2013), "Handbook of footwear design and manufacture", Woodhead Publishing Limited, Cambridge (UK), ISBN 978-0-85709-539-8.

SOME USEFUL WEBLINKS :

- https://www.electronics-notes.com/articles/electronic_components/resistors/light-dependent-resistor-ldr.php
- <https://www.oxfordreference.com/view/10.1093/oi/authority.20110803100105354>
- <https://en.wikipedia.org/wiki/Photoresistor>
- <https://components101.com/resistors/ldr-datasheet>
- <https://www.igi-global.com/dictionary/light-dependent-resistor-ldr/72177>





INTERNATIONAL UNION OF LEATHER
TECHNOLOGISTS AND CHEMISTS SOCIETIES
(www.iultcs.org)

WELCOME TO ASIA INTERNATIONAL CONFERENCE OF LEATHER SCIENCE AND TECHNOLOGY



Industry meets Science and Technology

AICLST | 2022

ASIA INTERNATIONAL CONFERENCE of Leather Science and Technology

🪑 250 SEATS 👤 14 SPEAKERS 📍 QUEENSTOWN, NEW ZEALAND 📅 18TH - 20TH OCTOBER

[Book Now](#)

It is with great pleasure, that we invite you to participate in the 12th Asia International Conference of Leather Science and Technology (AICLST), hosted and organised by the New Zealand Leather & Shoe Research Association in the beautiful and picturesque city of Queenstown in New Zealand's South Island on 18-20 Oct. 2022.

Queenstown sits on the shores of the South Island's Lake Wakatipu, set against the dramatic Southern Alps. Renowned for adventure sports, it's also a base for exploring the region's vineyards and historic mining towns. There's bungee jumping off Kawarau Gorge Suspension Bridge and jet-boating on the Shotover and Dart rivers. There is also the possibility of skiing on the slopes of The Remarkables and Coronet Peak.

The three-day programme promises excellence in science, along with practical examples of science impact and the drive to sustainable leather production. We seek to foster strong and lasting bonds between leather scientists across the international community with companies engaged in leather production and chemical companies who deliver the products used to manufacture leather.



ILTA
Since 1950

Main Topic Areas:

- ❖ Advances in Basic Science of leather
- ❖ Benign chemical developments
- ❖ Cleaner leather production and closed-loop processing
- ❖ High value uses for leather manufacturing by-products and wastes
- ❖ Technologies to advance protection of the environment in the leather industry
- ❖ Advances in detection technologies applied to leather manufacture and quantification
- ❖ Intelligent leather technologies – Industry 4.0
- ❖ Design innovation for fashion leathers



III IULTCS EuroCongress Vicenza 2022

Rinascimento: The Next Leather Generation
Vicenza, 18th – 20th September 2022

[Visit Site](#)



The XXXVII IULTCS Congress

will be held October 2023 in Chengdu, China.

[Visit Site](#)



INTERNATIONAL UNION OF LEATHER
TECHNOLOGISTS AND CHEMISTS SOCIETIES

Registration for AICLST Conference in New Zealand Underway

The 12th Asia International Conference on Leather Science and Technology (AICLST) will be taking place in a hybrid format from 18 – 20 October at Massey University's Sport and Rugby Institute, situated in Palmerston North on the North Island of New Zealand.

Conference organiser and Director of New Zealand Leather and Shoe Research Association, Mr Geoff Holmes, welcomes abstracts from potential presenters and registration for delegates wishing to attend in person or virtually. He highlighted some of the key benefits of attending the conference saying "The 12th AICLST Conference will provide a 3-day programme that seeks to stimulate discussion and bring together the wider leather community of scientists, leather manufacturing companies and chemical and equipment suppliers. It will showcase the latest advances in leather science and technology, promoting science excellence and impact in support of the drive towards more sustainable leather production.

The Gala Dinner for AICLST will be held at Massey University's Refectory. The 3-day event costs \$250 NZD per person or just \$75 NZD for those joining remotely."

Full details can be found on the conference website: <https://www.aiclst.org>

There will be 7 main themes covering a wide range of topics to appeal to anyone involved in leather science or manufacturing :

1. Advances in Basic Leather Science
2. Raw stock improvement
3. Cleaner leather production and closed-loop processing

4. Value-added uses for waste streams and by-products
5. Environmental protection and impact assessment
6. Industry 4.0. Detection and traceability
7. Advances in machinery used in the leather processing Industry

The AICLST conference also offers the opportunity for sponsorship.

Mr Holmes ends by saying "While celebrating our 75th year of incorporation we invite scientists and industry chemists from across the globe to join us for this joyous occasion, to foster international communication and collaboration across the leather community and to boost advancement in leather science and related manufacturing technology."



III IULTCS Euro Congress Scientific Programme Announced

The organising committee of the III IULTCS EuroCongress are pleased to announce that the scientific programme has been finalised and participants are now able to register to attend (closing date for registration 05 September 2022).

The congress will be held in Vicenza, Italy from 18-20 September 2022 at the Vicenza Convention Centre with a full package of events included in addition to the extensive scientific presentations. The highlight will be the exclusive Gala Dinner which will be held in Bevilacqua Castle, a medieval construction dating back to 1300, situated in the town of Bevilacqua (Verona).

For further information visit :

www.iultcs2022italy.org ;

www.iultcs2022italy.org/programm ;

<https://www.iultcs2022italy.org/registration/>



Tyson Foods to Sponsor IULTCS Young Leather Scientist Grant in 2023

The Executive Committee of the IULTCS is delighted to announce that Tyson Foods will be joining the prestigious list of sponsors who support our young leather research community. This will be the 9th year that grants have been awarded and each year the research projects aim to address industry needs.

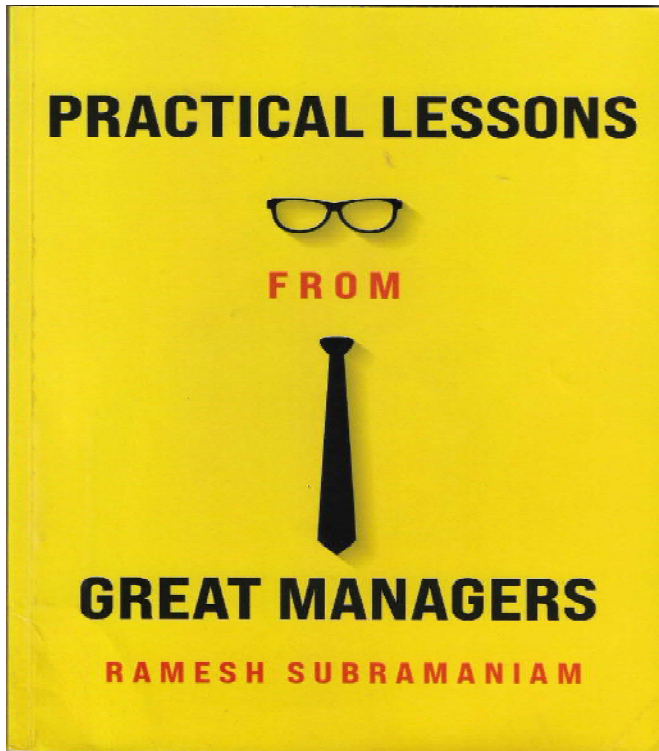
“Tyson Foods is proud to sponsor the 2023 IULTCS grant for young scientists,” states Mike Larson, VP Hides & Tannery, Tyson Foods. “We’re involved in the first step in the leather-making process and committed to producing high quality hides in a sustainable and responsible way. We’re pleased to support innovative leather research to help the industry continue to learn, understand and advance.”

IULTCS President Jean-Pierre Gualino expressed his thanks saying “We are very happy to have the support of Tyson Foods as they represent the starting point of leather production. Without good quality raw material, we cannot produce good quality leather. We hope that we can attract young scientists who will direct their studies at understanding more fully, how best to utilise this valuable commodity in a sustainable way. We really appreciate the grant being provided.”



ILTA
Since 1950

PRACTICAL LESSONS FROM GREAT MANAGER'S BY RAMESH SUBRAMANIAM – A REVIEW



“Practical Lessons from Great Managers” is a book that seems to be documenting for young entrepreneurs/managerial staff and would-be managers. It is an autobiography of the author who vividly recollect his journey as an apprentice In BATA India Limited and subsequently with TATA international and lessons comprehend from his interaction with great managers in BATA and TATA. He matured with the organization and learned several practical lessons and Enterprise management skills which were later implemented successfully in his subsequent assignments as highlighted in his bibliography at the end cover. It is an excellent recollection of memories and written in lucid language. Kudos to the author.

It is a paperback publication. It has 14 chapters. The total number of pages is 104. In the first two chapters, the author recollects his appointment as a trainee and his interaction with his superiors. The author then shares his experience earned to be a successful manager. Training of mind highlights the importance of punctuality and time management. The author suffered from jaundice and how he managed to retain his employment during that period is great learning for a young manager. Communication is the key word for today’s cutthroat competitive job market.

“People are not good or bad. One can learn good points in the people we interact with Similarly, situations can be good or bad. There are lessons to be learned, even in bad situations”. I quote from the author. Integrity and work ethics are two important for a good manager which have been discussed in detail.

Education is expensive today. Management education is very expensive. A person already employed at the early stage of employment may acquire skills in management from this book. The book may help one to apply knowledge gained from this to overcome adverse situations and improve the enterprise’s overall efficiency. The book should be part of the curriculum for diploma /degree students to empower them with management skills without undergoing an expensive management program.

(Dr. B. N. Das, Former Chief Scientist, CSIR - CLRI - 25/06/2022)

LEATHER WORKING GROUP REACHES 1,000 MEMBER MILESTONE



More than 1,000 leather manufacturers worldwide have now obtained Leather Working Group (LWG) certification, meaning that they are committed to responsible leather production.

Leather Working Group (LWG) has announced a new membership milestone, with over 1,000 leather manufacturers achieving LWG certification and becoming part of the global LWG community. As of July, a total of 1,040 sites have been audited by an LWG-approved auditor and awarded one of four ratings (audited, bronze, silver, or gold) by complying with the requirements of the LWG global audit standard.

Christina Trautmann, head of Leather Working Group, says: “Our membership has been growing rapidly over the past couple of years, and in fact, we only reached 1,000 members across all

sectors back in 2020. It's great to see so many more leather manufacturers getting involved and joining our community, as it is crucial for making the goal of a fully responsible leather supply chain a reality. This collective of companies working together will drive positive action at scale and amplify our impact."

LWG has seen an increase in the level of engagement and collaboration across all membership sectors, including leather manufacturers, leather traders, subcontractors, commissioning manufacturers, brands and retailers, suppliers, and NGOs.

Last month, LWG published the latest update to the Leather Manufacturer Audit Protocol, Version 7.2.2 (also known as P7.2.2). As announced at the most recent virtual LWG Member Meeting in April, Version 7.3 is planned to be published later this year including changes related to the traceability requirements of the LWG audit.

While earlier this year, LWG joined forces with Leather Naturally in a move aimed at more clearly defining what sustainable leather is and where it can be sourced from.

(Just Style News – 19/07/2022)

INDIAN LEATHER EXPORTS TO CROSS US\$6 BILLION IN FISCAL 2022 – 23



According to the latest estimates from the Council for Leather Exports (CLE), Indian exports of leather and leather products are expected to cross US\$6 billion in the 2022-23 financial year.

CLE Chairman Mr. Sanjay Leekha said that changes in global market dynamics caused by the pandemic have created huge export opportunities for the sector. He said: "The emerging business opportunities coupled with the slew of trade

agreements signed and, in the pipeline, and the active support of the government will help in sustaining the export growth in the remaining months of this year." Leekha added that the sector is aiming for a target of US\$10 billion by 2025-26.

(ILM – 12/07/2022)

TWO-DAY LEATHER EXPO SHOETECH 2022 IN VELLORE



The exhibition to be held during July 22-23 will have 119 stalls from 98 exhibitors

The Indian Shoe Federation (ISF) and the Indian Footwear Components Manufacturers Association (IFCOMA) will jointly organise the next edition of their exhibition, SHOETECH, in Vellore in Tamil Nadu on July 22-23. Various component and machinery manufacturers will participate in the two-day event, said Habib Hussain - President, ISF

The footwear and the component industries must work together to create a supply chain which has unbeatable turnaround times through digitisation, skilling up of the workforce and the adoption of globally integrated production and information systems, he told newsmen.

The exhibition will be inaugurated by MM Hashim Sahab, Chairman, KH Group and Rafeeqe Ahmed, Chairman of the Farida Group, says a release.

Sanjay Gupta, President, IFCOMA, said there will be 119 stalls and 98 exhibitors. All have been sold out. This is the seventh edition of ShoeTech. Around 1,000 visitors are expected to attend the two-day event, he said.

Turnover and Growth

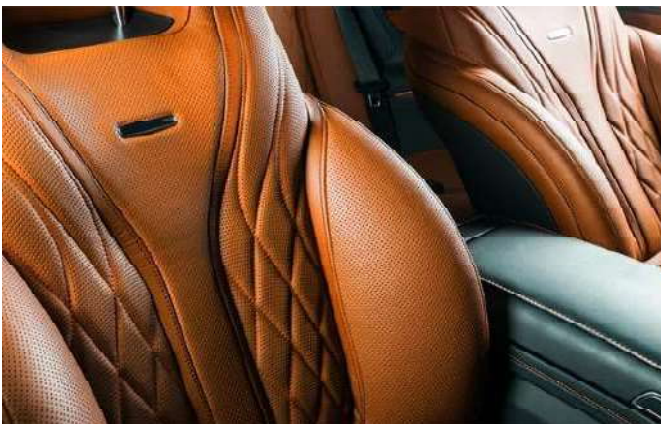
IFCOMA has sought help from the Government to conduct a component sector survey and explore the possibility of joint ventures with Spanish, Taiwanese and Italian companies for specific components that are presently being imported, he said.

The shoe component industry in India is projected to grow at a rate of 15 per cent this financial year and around 45 per cent in the the next three years. The turnover of the Indian footwear industry is expected to increase from \$10 billion in 2021-22 to \$18 bn by 2025-26. The production will increase from 2.6 billion pairs in 2021-22 to 4.55 billion pairs in 2025-26, says a release. The Government is playing a big role by implementing the Indian Footwear & Leather Development Programme during 2021-26 with an outlay of Rs. 1,700 crore. This aims at providing support to technological upgradation of production units, environment management, enhancing institutional capacity, promoting brands and creating mega production clusters.

There is a sizeable domestic market in India for components, but Indian shoe components only form 50 per cent of their purchases as most of the sourcing is currently being done from Italy, Spain and Korea. IFCOMA and ISF expect there to be a greater demand from the domestic markets as an outcome of holding these pan-India exhibitions, the release said. "International brands like Clarks, Marks & Spencers, Timberland and Kickers France are among the brands who will be attending. We expect SHOETECH to boost our efforts to make India the biggest sourcing hub in the world," said Yavar Dhala - Vice President, ISF.

(The Hindu Business Line – 21/07/2022)

AUTOMOTIVE LEATHER CONFERENCE HEADS TO MILAN



The ILM Automotive Leather Supply Chain Conference 2022 will take place in central Milan following the upcoming Lineapelle and Simac Tanning Tech trade shows in Milan on September 23. The hybrid event will mark the return of a live half-day conference since the pandemic.

The ILM Automotive Leather Supply Chain Conference is now in its seventh year and will bring together speakers and delegates from throughout the supply chain in Europe, one of the largest automotive markets in the world.

This year, the half-day event will be hosted at the five-star, NH Collection President Hotel in central Milan on Friday, September 23 (10am-15.30pm). The price of the live event includes a welcome coffee and a networking lunch. For those unable to make it in person, a pre-recorded version of the conference presentations will be available and broadcast online.

Who should attend?

The conference is aimed at any person or company connected with the global automotive leather supply chain from raw materials, chemicals and machinery suppliers, leather manufacturers, tier-1 suppliers and automotive OEMs. All presentations will be in English.

Why Milan?

ILM will announce more speakers and topics in the coming weeks to add to those that have already confirmed. ILM has chosen Milan as it is at the centre of the European leather and automotive industries and it is a city which is easy to get to.

The conference is being held the day after the completion of the 100th edition of the Lineapelle trade show as well as Simac Tanning Tech (September 20-22, 2022). Delegates will be able to take advantage of all these events and should book their travel accordingly.

For more information

A delegate registration link will be available soon and anyone interested to attend should contact kate@edifydigitalmedia.com and we will contact them to process payment.

(ILM – 06/07/2022)



ILTA
Since 1950

LOOKING FOR TRACEABLE AND COMPOSTABLE LEATHER?



You can find it in Paris. With all the exhibitions and live events around the world in full swing, it can be hard to navigate your way to the must-visit events. Nera knows where to go. One event you do not want to miss, if you are a leather or fashion professional, is Premiere Vision. It takes place July 5-7 in Paris.

Nera and Spoor join forces at Première Vision Paris

Premiere Vision brings together material suppliers, brands and designers for networking and sourcing materials. There is also a showcase of the latest eco-developments in materials and in leather in specific. The collaboration between Nera, supplier of tanning agent Zeology, and Spoor, offering full traceable hides, is one not to miss in Paris.

Nera and Spoor offer traceability, transparency and sustainability from farm level to tanned leather.

A unique solution to conscious brands co-creating a better sustainable tomorrow in the leather and fashion industry.

A gap to fill between believing and knowing

There is a gap to fill for brands between believing to source responsible leather and to actually knowing to make the responsible decision. Traceability and LCA data on leather will become increasingly important to document sustainable actions. Spoor technology makes it possible to document the conditions under which the animal grew up, a crucial step towards transparency on animal welfare. Add Nera’s solution

Zeology for compostable leather to the equation and you have one of the most conscious solutions to conscious brands.

Visit the booth (4B40-4B43) of Nera and Spoor at the fair, Première Vision Paris, Parc des Exposition, Paris North Villepinte, July 5-7.

Next up: Texworld 2022 New York with Zeology

On July 19-21, Texworld New York City will take place. A place of inspiration for designers, buyers, and industry professionals. On this event Global Footwear Sourcing is a new feature area in partnership with Material Exchange and Footwear Distributors & Retailers Association. Also here, you can find a showcase of Zeology during the exhibition and on Material Exchange’s digital marketplace.

Are you looking for more information about Zeology? Contact Nera

(ILM – 04/07/2022)

IULTCS EUROCONGRESS SCIENTIFIC PROGRAM FINALISED



The scientific program for the upcoming III IULTCS EuroCongress has been finalised and participants can register to attend. The closing date for registrations is September 5, 2022, and attendees can find more details and registration information on the **event website**.

The event will take place from September 18-20, with the scientific content on the 19th and 20th. The scientific program is as follows:

September 19

9:30

- Synthesis, characterization, and functionalization of renewable vegetable oil modified with maleic anhydride – Bresolin B.M. (SSIP)
- Influence of tanning technologies on leather shrinkage – Schröpfer M. (FILK Freiberg Institute)
- Bisphenols, a threat for the leather industry? Strategy for a successful reduction of bisphenols in leather – Ammenn J. (Stahl)
- Oxidative reductive liming – Vantin L. (Chimica Vemar)

11:00

- Invited guest speech – Ivan Kral (UNIDO)
- Environmental sustainability developments of the leather industry – Scholz W. (W₂O Environment)
- New oil tanning process – Cepparrone A. (FGL International)
- Sponsor speech – Erretre/Fratelli Carlessi
- Tanning industrial revolution – Simoni L. (Barnini)
- Biodegradability and compostability of tannery articles and products – Franceschi M. (ARCHA)

14:00

- Development of a tanning technology with tanning agents from *ligustrum vulgare* – Mondschein A. (FILK Freiberg Institute)
- Ecological tanning based on modified carbohydrates – Paganin M. (Corichem)
- Sponsor speech – Revomec
- The revaluation of solid waste from the GOAST tanning – Signoretto M. (Università di Venezia)
- From tanneries solid waste to catalysis – Petricci E. (Università di Siena)

16:00

- Invited guest speech – Daniele Gardini (Poltrona Frau)
- Method of analysis of PFAS in leather and leather products. the new standards, the new regulations – Cannot J. (CTC Groupe)
- Sustainable acrylic resin for leather retanning – Ballus O. (Cromogenia Units)
- Sponsor speech – GSC Group
- Leather and alternative materials: A novel method for biobased carbon quantification by SCAR (saturated-absorption cavity ring-down spectroscopy) technique. – Defeo G. (Ars Tintoria)
- Auxetics (or negative necking) in frame-tensioned leathers – Galiotto G. (Fratelli Carlessi at Erretre)

September 20

9:00

- Unorthodox fast analysis of bisphenol s and f in phenolic syntans – Iannarelli L. (ICAI)
- GSC Group perspective towards implementation of biobased chemicals for a greener leather technology – Pasquale R. (GSC Group)
- New supramolecular eco-friendly syntans for a more sustainable and ethic tanning process – Quaratesi I. (Università di Salerno)
- Sponsor speech – Stahl
- Bio-circular tanning system for the production of 100% recyclable leather sneakers – Poles E. (Silvateam)



- Biodegradable leather: sodium alginate derivatives as re-tanning agents – Badea E. (University of Craiova)

11:00

- Invited guest speech – Speaker from a leather goods and shoes manufacturer will be revealed soon
- Tanning biotechnologies for novel sustainable and circular materials – Florio C. (SSIP)
- VDA 277: Sample handling – Influence of environment conditions of storage from the early stages after finishing process to the sampling for VOC determination. – Frighetto L. (Conceria Pasubio)
- New method to analyse certain bisphenol in leathers – Lio K. (CTC Groupe)
- Retanning chemicals made out of tannery by-products – Rabe V. (TFL Ledertechnik)
- Closed-cycle thermal treatment of tanning sludge to enhance energy value – Vangelista A. (Officine di Cartigliano)

14:00

- IULTCS Commission reports and EuroCongress closing
(ILM - 29/07/2022)

LUGGAGE AND LEATHER GOODS MARKET TO WITNESS THE HIGHEST GROWTH GLOBALLY IN COMING YEARS 2022- 2028



The “Luggage and Leather Goods Market 2022 research by Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges and Investment Opportunities)” has had its size, market, and outlook updated by Coherent Market Intelligence. By the end of 2027, the global market for leather goods and baggage is anticipated to generate revenues of round US\$ 418.5 billion, expanding at a CAGR of 5.2 percent (2019-2027).

The “Luggage and Leather Goods Market” analysis offers a thorough overview of the market in addition to specifics on various product definitions, classifications, and participants in the industry chain structure. While providing the quantitative and qualitative analysis for the global Luggage and Leather Goods market, the competitive environment, growth trends, and significant critical success factors (CSFs) typical to the Luggage and Leather Goods industry are all taken into consideration. The Global Luggage and Leather Goods Market Report 2022 offers a comprehensive study of the growth factors, trends, flows, and sizes of the market. The research

also establishes existing and historical market values in order to forecast potential market management over the anticipated timeframe between 2022 and 2028.

The Luggage and Leather Goods market report offers a thorough analysis of market size at the global, regional, and national levels as well as market size by segmentation, market growth, market share, competitive landscape, sales analysis, and the effects of domestic and international market players, value chain optimization, trade regulations, recent developments, opportunities analysis, and strategic market growth analysis. It also covers product launches, regional market expansion, and technological innovations.

Majir Key Players in the Market :

Knoll, Inc., American Leather, Inc., Aero Leather Clothing Ltd., Samsonite International S.A., VIP Industries Ltd., LVMH Moët Hennessy Louis Vuitton SE, Timberland, Johnston & Murphy, Woodland, and Hermes International SA

Regional Outlook:

The market is analysed based on its global presence in countries like North America (United States, Canada, and Rest of North America), Europe (Germany, France, Spain, United Kingdom, and Rest of Europe), Asia-Pacific (China, Japan, India, Australia, and Rest of APAC), and Rest of the World in order to better understand the market adoption of Luggage and Leather Goods. Due to increased investments in Luggage and Leather Goods, Asia-Pacific will rule the Luggage and Leather Goods

market. Government measures in Japan and Korea that encourage the expansion and development of the IT sectors also help the business.

Method of Research:

The demand for global Luggage and Leather Goods between 2022 and 2028 was analysed using Porter's Five Force Model by the market research team. A complete SWOT analysis is also conducted in order to assist the reader in reaching more accurate conclusions about the demand for Luggage and Leather Goods on a worldwide scale. To collect the data, both primary and secondary sources were used. Additionally, the data analysts conducted a thorough examination of the market using freely available sources such annual reports, SEC filings, and white papers. The approach to analysis is consistent with the objective of contrasting it with a number of indicators in order to provide a comprehensive picture of the market.

Report Includes:

a current, thorough review of the international markets for Luggage and Leather Goods. Trends in the international markets are examined, including data from 2018 and 2021, forecasts for 2022 and 2024, and compound annual growth rates (CAGRs) through 2028. The size of the global Luggage and Leather Goods market is assessed and anticipated, and market share data is broken down by Luggage and Leather Goods type, component, application, end-user industry and region.

Highlights of the industry's market potential for a specific Luggage and Leather Goods, upcoming applications, technological breakthroughs, and tactical innovations Through a thorough analysis of numerous Luggage and Leather Goods specialised applications for new and current sub-parts, COVID-19 has an impact on market advancement and the assessment of practicable technical drivers.

The recent industry structure, the current competitive environment, R&D initiatives, key growth initiatives, and company value share analysis based on segmental sales are all included. Examining the patents issued for Luggage and Leather Goods as well as evaluating recent developments in the market and new innovations in the field.

About Coherent Market Insights:

Coherent Market Insights is a global market intelligence and consulting organization that provides syndicated research reports, customized research reports, and consulting services. We are known for our actionable insights and authentic reports in various domains including aerospace and defense, agriculture, food and beverages, automotive, chemicals and materials, and virtually all domains and an exhaustive list of sub-domains under the sun. We create value for clients through our highly reliable and accurate reports. We are also committed in playing a leading role in offering insights in various sectors post-COVID-19 and continue to deliver measurable, sustainable results for our clients.

(Digitaljournal.com – 04/08/2022)

ALL AFRICAN LEATHER FAIR 2022 TO GO AHEAD



The Ethiopian Leather Industries Association (ELIA) has confirmed that the All African Leather Fair (AALF) will go ahead.

The 13th edition of the AALF will take place from December 1-3, 2022, at the Millennium Hall in Addis Ababa, Ethiopia.

A statement from the organisation said: "A great gathering will happen since with the government new initiation to support the manufacturing sector includes the leather sector under the umbrella of the project."

(ILM - 25/07/2022)



This article was originally published in Vol.- 33 No.- 07 July' 1989 issue of JILTA.

the away the point is from the centre point 'illuminant C' in figure 11 the higher is the % saturation. As per Munsell's convention pure spectral colour should lie in the periphery here too the colours exactly on the spectrum locus is considered to have 100% saturation.

If we plot any colour first in the chromaticity diagram and draw a line from the centre point through that point upto the spectrum locus then the point of interest will represent the dominant wave length of that particular colour. If the distance between the centre point and dominant wave length represents a and the distance between the colour point and centre point be b then for any colour % saturation i.e. % chroma would be $b/a \times 100\%$. Example if the value of b is $\frac{1}{2}$ of a, then saturation is 50%.

Furthermore, if we extend the straight line (joining the colour point, centre and dominant wave length) in the opposite direction until it intersects the spectrum locus at the other side then the new intersect becomes the complimentary colour of the dominating wave length. That means if we want to unsaturate any colour we will have to mix the corresponding complimentary colour which automatically shifts the colour point towards the centre and hence unsaturation.

The triangle formed by joining points corresponding to the wave length 400 n.m. 700 n.m. and the centre point includes the distribution of non-spectral

colours. As the line joining 400 n.m. and 700 n.m. does not include distribution of any wave length the dominating wave length for the non-spectral cannot have any meaning since they are non-spectral so they are identified on the basis of their complimentary wave length as it will lie in the visible spectrum hence the rule is to draw a line from this non-spectral colour point through the centre in the direction of spectrum locus until it intersects the locus. The wave length corresponding to this intersect will be meaningful to designate the colour in question.

We have been so long analysing what informations from the values of x, y co-ordinate can be obtained considering the horizontal plane of the trichromaticity diagram. On the vertical plane lies the lightness or darkness parameter known as luminiscence parameter. The utility of the luminiscence parameter can be exemplified by the following example.

Let us consider two colours A & B has the tristimulus values $X_A = 49.00$, $Y_A = 50.00$ and $Z_A = 59.00$ and $X_B = 5.88$, $Y_B = 6.00$, $Z_B = 7.08$. The exact relationship of either hue or chroma is not readily apparent. However if we convert those figures to trichromaticity co-ordinates we get the values of x, y by solving equation

$x = \frac{X}{X+Y+Z}$ and $y = \frac{Y}{X+Y+Z}$
Surprisingly here we get the

$$x_a = 0.3101 = x_b$$

$$y_b = 0.3163 = y_b$$

that means the position of the two colour in the trichromaticity diagram is same that means their hue and chroma and dominating wave length are same. Then, can we conclude that both will give same response to human eye? Are these two colours really same!

Certainly not, both of them differs in luminiscence as evidenced from their respective Y stimulus: B has Y value (6.00) much less than that of A ($Y_A = 50.00$). So both the colour A & B has same hue, same chroma same dominating wave length but colour B is much darker then colour A (approximately 8.33 times darker).

Now the point is if we want to match the colour B as colour A then from our experience and logic we will add white to raise the value. But by adding white the Y stimulus is raised because we have seen in white there is a disproportionate distribution of luminance of the three primaries. Green takes the lion share as compared to other two hence Y tristimulus value which corresponds to green stimulus is also raised disproportionately over other two.

The chromaticity diagram can therefore be visualised like a map of colour area (like political map of any country). Like any other map it is useful to point exact location in an exact territory and the distance between any two points in the colour map provides many useful information by analyzing relative distance, the direction between point plotted in it.

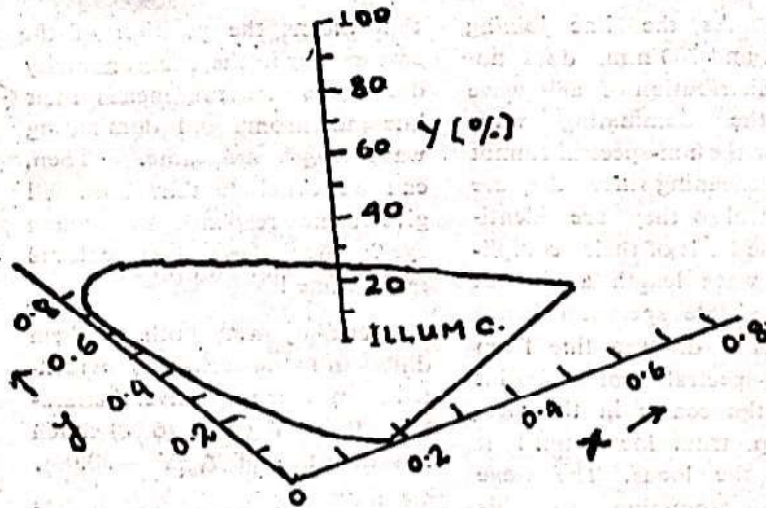


Fig. 12. 3 dimensional trichromaticity diagram showing chroma huc, dominant wave length, value.

If we just look back we will find that figure no. 8 has been derived from figure no. 7 based on Wright's experiments. Like wise figure no. 9 can be converted to figure no. 13.

In contrast to figure no. 7, which was based on Wright's primaries, there are no negative loops at all values of chromaticity co-ordinates for all values of all the x,y and z co-ordinate are positive (reference figure no. 7 vis-a-vis figure no. 13).

No account of luminance is taken in the chromaticity diagram and colour of different luminance are portrayed in the same plane. In order to introduce the concept of luminance we must refer back to figure no. 4. It was already decided that luminance of any colour must be expressed in terms of Y value, it is now necessary that green primary CIE stimulus

and not the monochromatic green light, should have spectral distribution pattern identical to that of photopic luminous efficiency function curve. The value of each photopic luminous efficacy (ref. to table 3 for definition) against each wave length are known as distribution co-efficient (or spectral tristimulus value) and designated as \bar{y} for C.I.E. Y stimulus and similarly \bar{x} and \bar{z} for X and Z stimull respectively. At each wave length the relationship between \bar{x} and \bar{y} is same as between X and Y in (figure no. 13). Figure no. 14

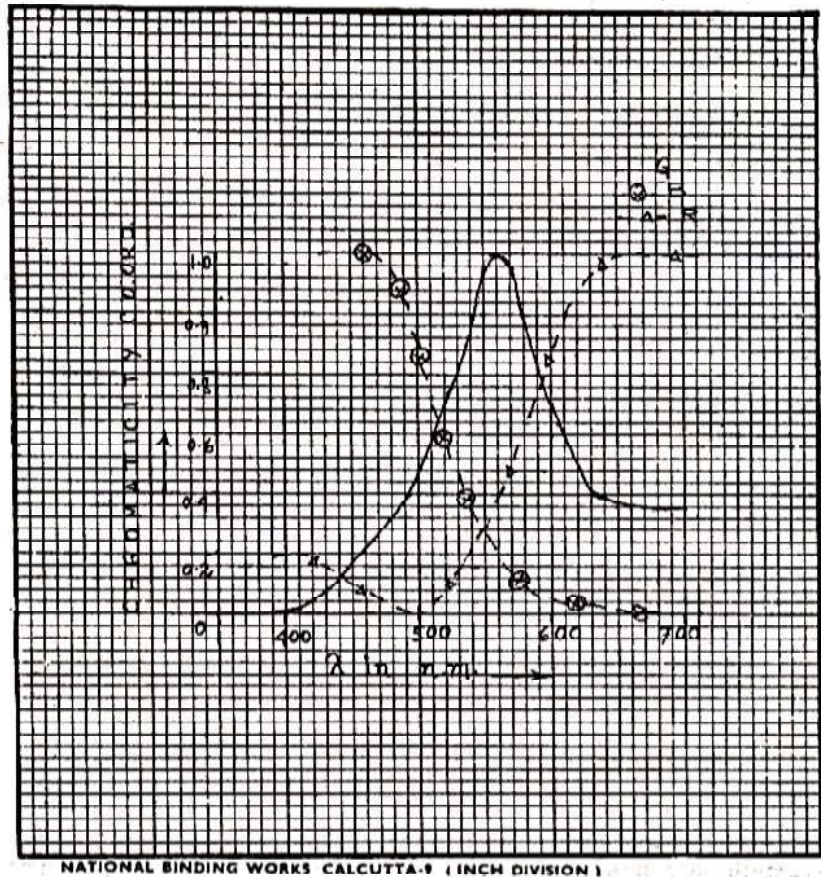


Fig. 13. New chromaticity vs wave length graph.



shown overleaf shows overleaf shows the relationship between the tristimulus distribution co-efficient and wave length.

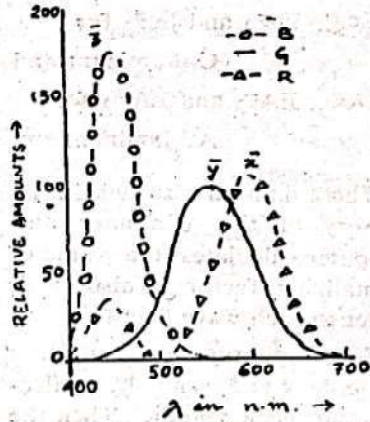


Fig. 14. The Distribution co-efficient vs wave length curve.

This distribution co-efficients are the fundamentals to the C.I.E. system in defining the colour numerically to bring it from subjective array to objective numbers and in assigning values. This defines each primary stimulus that must be blended to produce stimulus equal to that registered by a standard observer when he sees a spectral colour in an equal energy spectrum. Thus the integrated product of the reflectance-illuminant and observer magnitude are the basis of the trichromaticity values.

C.I.E. therefore standardized 4 kinds of illuminant considering the practical experiences and the conventions of manual colour matching principles. The designations of these 4 kinds of illuminant are A, B, C and D_{65} . Each has got different specification. The following table no. 5 specifies the illuminant as per C.I.E. The temperature indicated

is in absolute scale (Kelvin) to which a black body radiator must be heated to radiate the light of matching colour and assumes Plank's radiation law.

Distribution co-efficient weighted for illuminant c are shown. Now multiplying each value of

\bar{x} , \bar{y} and \bar{z} by the value of E_c we get $E_c \bar{x}$, $E_c \bar{y}$ and $E_c \bar{z}$ where E_c relative energies of each primaries with respect to each wave length. Since $E = h \frac{c}{\lambda}$ hence the value of E_c with respect to λ will vary. This has been exemplified in the following figure 15.

TABLE-5
Specification of C.I.E. Illuminants

Designation	Colour temperature in ($^{\circ}$ K)	Colour	Corresponds to
A	2856	Yellow orange	Tungsten filament (horizontal light)
B	4874	Neutral hue	Neon sun light
C	6774	Bluish	Average day light
D_{65}	6500		Day light

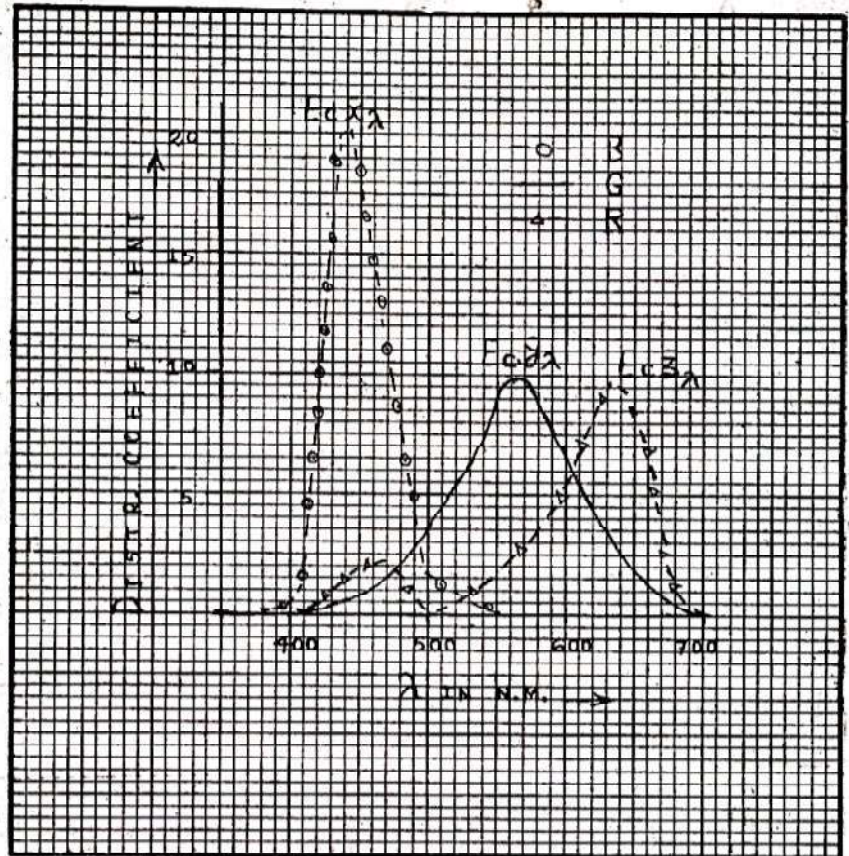


Fig. 5: Product of distribution co-efficient and E_c vs λ designated as $E_c \bar{x}_\lambda$, $E_c \bar{y}_\lambda$ and $E_c \bar{z}_\lambda$



The area under each curves are equal, since they combine to give equal energy stimulus, but area under the weighted distribution curves give C.I.E. co-ordinate being the ratio of 0.310 : 0.316 : 0.374. Similarly for illuminant A and B are 0.448 : 0.407 : 0.145 and 0.348 : 0.352 and 0.300 respectively for D_{65} these ratio becomes 0.313 : 0.329 : 0.358.

The reflectance of a perfect reflector at all wave length is 100%. So Y values at all wave length from different illuminant has been assigned as 100 and with respect to that corresponding X and Z has been determined by multiplying their relative proportion with the normalizing factor k. This means though the illuminant have different original colour (orange, yellow, neutral

Ez_{λ} are provided by the C.I.E. at each wave length.

For convenience they are designated as for example.

$E_{c\bar{x}\lambda}$, $E_{c\bar{y}\lambda}$ and $E_{c\bar{z}\lambda}$ for
C illuminant and
 $E_{A\bar{x}}$, $E_{A\bar{y}\lambda}$ and $E_{A\bar{z}\lambda}$ for
A illuminant etc.

These data are stored in the memory of the computer and computer calculates the value of normalizing factor k also with respect to each wave length.

Spectrophotometer analyzes any colour and scans % reflectance at each length. Then the determination of trichromaticity value can be obtained by determining this value with respect to each wave length and then integrating all of them with the help of formula :-

$$X_c = K \sum_{\lambda=400}^{N=700} E_{c\bar{x}\lambda} R_{\lambda} \Delta\lambda$$

$$Y_c = K \sum_{\lambda=400}^{N=700} E_{c\bar{y}\lambda} R_{\lambda} \Delta\lambda \text{ and}$$

$$Z_c = K \sum_{\lambda=400}^{N=700} E_{c\bar{z}\lambda} R_{\lambda} \Delta\lambda$$

T A B L E—6
Co-ordinates For C.I.E. Illuminants

Illuminants designation	Trichromaticity values		
	X	Y	Z
A	109.8	100.0	35.6
B	99.1	100.0	85.3
C	98.1	100.0	118.1
D_{65}	95.0	100.0	108.9

The interesting point here to note is that all values of Y has been normalised to 100 to keep the luminance scale constant. From this the trichromaticity co-ordinates can be calculated and eventually this should represent corresponding centroid of the spectrum locus i.e., the colour assumed by a perfect diffuser. The nearest approach to the perfect diffuser is a magnesium oxide layer deposit from burning magnesium ribbon.

hue, bluish) yet they have been converted mathematically equivalent to white. Hence the centroid of each spectrum locus is white or the position of the respective illuminant.

Example for normalization :-
Let us suppose 4 types of illuminant has X, Y, and Z values as tabulated in table 7 and Y value normalized to 100.

The data with respect to each illuminant for their $E_{\bar{x}\lambda}$, $E_{\bar{y}\lambda}$ and

T A B L E—7

Example for normalization of y at 100.00

Imaginary illuminants	Trichromaticity values				Normalizing Y as 100		
	X	Y	Z	k	kX	kY	kZ
A ¹	56	25	30	4	224	100	120
B ¹	20	20	10	5	100	100	50
C ¹	5	10	4	10	50	100	40
D ¹	30	40	10	2.5	75	100	25



Where R_λ = reflectance at each wave length and $\Delta\lambda$ = differences in wave length.

Since computer needs to have 16 beats principle. The scanning from 400–700 n.m. is done usually at 20 n.m. interval to obtain 16 beats. Hence in that case $\Delta\lambda$ would be 20.

The example given under will be helpful to understand the principle of calculation. This calculations are done by the computer in few seconds. Let us analyse any colour say 6-071 in the spectrophotometer. First we need to calibrate with respect to

a standard white. Table 8 shows the results. A perfect diffuser is assumed to have reflectance at each wave length as 1.00 hence R_λ becomes 1.00 at each wave length. If we measure with respect to C illuminant. The values of $Ec\bar{x}_\lambda$, $Ec\bar{y}_\lambda$ and $Ec\bar{z}_\lambda$ are stored as supplied by C.I.E. As (vide figure no. 15) the \bar{x}_λ , \bar{y}_λ and \bar{z}_λ represents the spectral distribution co-efficient with regard to red, green and blue light hence the value of X, Y and Z will represent the energies associated with these three primary stimuli present in each colour.

TABLE-8

Calibration with respect to white against 'C' Illuminant
($R = 1.00$ at each wave length)

Wave length in n.m.	$Ec\bar{x}_\lambda$	$Ec\bar{y}_\lambda$	$Ec\bar{z}_\lambda$
380	0.007	0.000	0.033
400	0.168	0.004	0.799
420	2.525	0.076	12.141
440	7.948	0.523	39.910
460	6.734	1.384	38.686
480	2.208	3.225	18.863
500	0.102	6.813	5.749
520	1.150	12.894	1.429
540	5.572	18.289	0.391
560	11.756	19.671	0.076
580	16.828	15.974	0.029
600	17.907	10.628	0.013
620	14.121	6.295	0.002
640	7.376	2.881	0.000
660	2.718	1.006	0.000
680	0.731	0.226	0.000
700	0.161	0.058	0.000
720	0.036	0.013	0.000
740	0.008	0.003	0.000
760	0.002	0.000	0.000
	$X_c = 98.058$	$Y_c = 100$	$Z_c = 118.121$

If the scan is at regular interval of wave lengths then $\Delta\lambda$ can be omitted. The reason is we will ultimately determine trichromaticity co-ordinate. Since it is a proportion the same value of $\Delta\lambda$ will be cancelled automatically.

The trichromaticity co-ordinate is calculated from the trichromaticity value in accordance to the formula :-

$$x = \frac{X}{X+Y+Z}$$

$$y = \frac{Y}{X+Y+Z} \text{ and}$$

$$z = \frac{Z}{X+Y+Z}$$

or $1 - (x+y) = z$

Hence from the above table-8 trichromaticity Co-ordinate for the perfect diffuser during calibration obtained is

$$x_c = \frac{X_c}{X_c + Y_c + Z_c}$$

$$= \frac{98.058}{98.058 + 100.003 + 118.121}$$

$$= 0.3101$$

$$y_c = \frac{Y_c}{X_c + Y_c + Z_c}$$

$$= \frac{100.003}{98.058 + 100.003 + 118.121}$$

$$= 0.3163$$

$$z_c = 1 - (0.3101 + 0.3163)$$

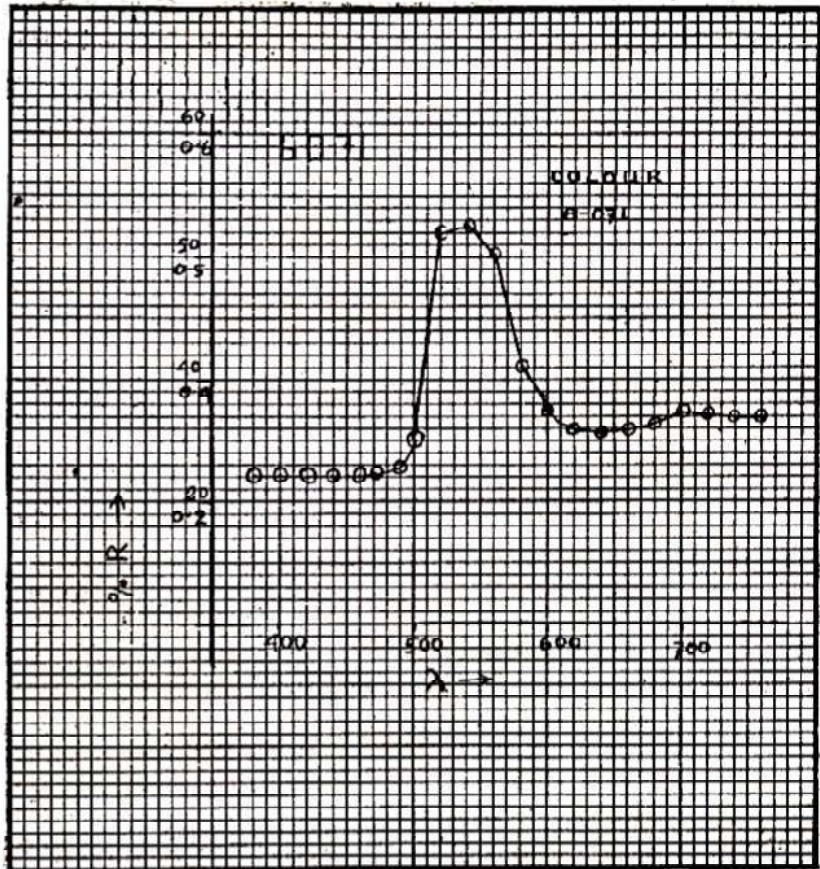
$$= 0.3736$$

From these value of (x, y) it is possible to plot the colour in the trichromaticity diagram. For example as per above calculation the co-ordinate for white light would be (0.3101, 0.3163) in the trichromaticity diagram (as per standard notation in co-ordinate geometry). The value of Y_c will represent the luminous. Here it is 100



as the colour is white and we have normalized the value of Y_c for white as 100 as this is the highest luminous point since white has got the maximum luminance.

Now we shall measure the colour 6-071. The spectrophotometer aga will plot % reflectance vs wave length both digitally and graphically. The figure no. 16 shows the graph % R vs λ of the colour in question. The digital reflectance data has been incorporated in Table-9. Usually the spectrophotometer detects reflectance in terms of per cent against white, as we have considered reflectance of perfect white at all wave length = 1.00, hence in this scale the reflectance of any colour must be fractional. So the % reflectance value has to be divided by 100 to obtained the reflectance value as per this scale.



NATIONAL BINDING WORKS, CALCUTTA-9 (INCH DIVISION)

T A B L E—9
Colour 6-071 Against 'C' Illuminant

Wave length in n.m.	R_λ	$E_c \bar{x}_\lambda R_\lambda$	$E_c \bar{y}_\lambda R_\lambda$	$E_c \bar{z}_\lambda R_\lambda$
380	0.245	0.002	0.000	0.008
400	0.245	0.041	0.001	0.196
420	0.244	0.016	0.108	2.962
440	0.243	0.931	0.127	9.698
460	0.243	1.636	0.336	9.401
480	0.245	0.541	0.790	4.621
500	0.307	0.031	2.091	1.765
520	0.542	0.623	6.989	0.775
540	0.553	3.081	10.114	0.216
560	0.502	5.902	9.875	0.038
580	0.425	7.152	6.789	0.012
600	0.352	6.303	3.741	0.004
620	0.322	4.547	2.027	0.001
640	0.319	2.353	0.919	0.000
660	0.328	0.892	0.330	0.000
680	0.338	0.247	0.090	0.000
700	0.344	0.055	0.020	0.000
720	0.343	0.012	0.004	0.000
740	0.342	0.003	0.001	0.000
760	0.342	0.001	0.000	0.000

Fig. 16. % reflectance vs wave length graph of a coloured sample (coded as 6-071).

Continued from the left side table

$$X_c = 35.99$$

$$Y_c = 44.262$$

$$Z_c = 29.697$$

hence $x_c = 0.3272$

$$y_c = 0.4026$$

$$z_c = 0.2702$$

Derivation of data in above mentioned table.

Please see next page



Let us see for example with respect to 380 n.m. Reflectance at 380 n.m. or R_{380} was sensed by spectrophotometer as % R_{λ} and this was divided by 100 to represent unitary scale since we have assumed for white R_{λ} at all wave length is 1 hence for any colour in any wave length reflectance value must be fractional because white is a perfect diffuser of light as it was assumed here.

Now the value of $E_C \bar{x}_{380}$, $E_C \bar{y}_{380}$, $E_C \bar{z}_{380}$ was obtained from the values corresponding to perfect diffuser with respect to illuminant 'C'. This values were obtained from table no. 8 (1st row) Page No. 269.

$$\text{Now, } E_C \bar{x}_{380} R_{380} = 0.007 \times 0.245 = 0.245$$

$$E_C \bar{y}_{380} R_{380} = 0.000 \times 0.245 = 0.000$$

$$E_C \bar{z}_{380} R_{380} = 0.033 \times 0.245 = 0.008$$

Likewise entire values can be calculated. Since Δ_{λ} here is 20 n.m. and uniform in the scanning both with respect to

white and coloured sample analysis, hence during the calculation of chromaticity co-ordinate x_C , y_C , the cumulative effect of this factor Δ_{λ} will be same in nominator and denominator so while making calculation they will cancel each other. So in this case it was not included here.

A note has to be made here by convention trichromaticity values X, Y and Z are written with capital letter and the trichromaticity co-ordinate x, y and z are written with small letter. We derive trichromaticity co-ordinate from trichromaticity values which expresses ultimately

the amount of red, green and blue components in any colour. By identifying the colour as a point in the trichromaticity

id agram (figure no. 12) we can identify its hue and chroma or excitation purity and the luminance of any colour is expressed by its capital Y value.

As the component $E_C \bar{x}$ changes with respect to the illuminant these values of X, Y, Z will be therefore dependant on the type of illuminant with respect to which it has been observed.

Table-10 shows a complete definition of Munsell's colour as per C. I. E. specification.

Thus the colour concept can be numerically expressed in 3 dimension. Here also those three vital points has been given importance :

- (1) Light, the source of colour by deriving the spectral distribution co-efficient and deriving the values of $E_{x_{\lambda}}$, $E_{y_{\lambda}}$, $E_{z_{\lambda}}$ at each length with respect to each illuminant.

T A B L E—10

Derivation Of Ten Munsell Hues Plotted Per C.I.E. System

Munsell colour designation	X	Y	Z	x	y	Dominant λ (in n.m.)	Excitation purity (%) or chroma
5R $\frac{5}{10}R$	31.39	19.77	10.74	0.5071	0.3194	614.0	53.6
5YR $\frac{5}{10}YR$	37.93	30.05	4.98	0.5199	0.4119	588.5	82.0
5Y $\frac{5}{10}Y$	56.34	59.10	8.02	0.4562	0.4788	576.2	82.8
5GY $\frac{5}{10}GY$	32.84	43.06	9.35	0.3852	0.5051	566.0	69.2
5G $\frac{5}{10}G$	12.09	19.77	16.28	0.2611	0.4107	512.0	20.3
5BG $\frac{5}{10}BG$	14.27	19.77	26.42	0.2360	0.3270	492.7	26.7
5B $\frac{5}{10}B$	16.21	19.77	37.22	0.2215	0.2710	584.5	37.1
5PB $\frac{5}{10}PB$	22.15	19.77	56.94	0.2080	0.2041	476.0	52.7
5P $\frac{5}{10}P$	26.32	19.77	46.42	0.2845	0.2137	561.6c*	36.5
5RP $\frac{5}{10}RP$	29.17	19.77	26.23	0.3880	0.2630	499.4c*	36.0

* Since these two are non spectral colour hence they are designated in terms of their complimentary wave length respectively, (c) after the value denotes complimentary.



(2) The material which reflected, absorbed or scattered light by defining factors such as x, y dominant wave length, % chroma etc.

(3) The eye the perceiver of colour—the very concept of Grey scale which ultimately came from the luminance parameter is based on sensitivity of human eye in different colour, which is the ultimate parameter expressed as Y. This is also called value. Higher the value the lighter is the colour. Difference between red and pink is they have same hue but pink has higher (Y) value than that of red.

Secondly if we look at the distribution of wave lengths on the spectrum locus we can see that, the distribution is not equal. In the left hand side it is more extended than in the right. The highest expansion is in green region and highest contraction is in the red region. The reason being human eye can not differentiate small differences of value or chroma or hue in the green region but significantly slightest differences in any of the above parameters are sensed by human eye in red region. This is ultimately because of the activities of optical nerves are not equally responsive to sense differences in blue, green and red region—there are partialities. Though there are significantly differences in hue, chroma and value between one leaf and

another leaf of the same tree, if we look minutely, but when we see a green paddy field the total looks like a uniform colour. God forbid! Had the colour of the leaves of trees be red we would respond to the colour differences much strongly the X ultimate stimulation and excitement in the nervous system would lead to an adverse effect on brain. This view may be considered as a reason why it is said green is healthier to human eye.

6. C.I.E L, a, b System :

The X, Y, Z system has been redesigned as L, a, b system with a view to quickly understand the interpretation of the meaning of the data obtained. This gives much simpler explanation and hence a quicker psychological reflex. So in applied field C.I.E. L, a, b system is more popular.

Here the colour is expressed in terms of L, a and b values. These values has magnitude and direction in the sense they may be positive or negative. Each has got a special meaning. Now in the case of estimating colour differences between two colours while matching the interpretation with respect to sign gives a quick meaning.

The value of L, a and b are determined from XYZ value so naturally these values are also dependent on the type of illuminant with respect to which X Y Z values are determined.

Figure No. 17 shows on next page the 3 dimensional orientation of L a, b colour space.

The scale of L represents the luminance of any colour—grey value a, b are the horizontal co-ordinates.

- +L represents whiter or lighter
- L represents blackish or darker
- +a represents redder
- a represents greener
- +b represents yellower
- b represents bluish

So if from the trigonometry's concept we imagine 4 quadrants any colour in

- 1st quadrant will have both a and b values positive
- 2nd quadrant will have a negative and b positive
- 3rd quadrant will have a negative and b negative
- 4th quadrant will have a positive but b negative

The formula for obtaining L, a, b values from X, Y, Z values are :

$$L = 116 (Y/Y_N)^{1/3} - 16$$

$$a = 500 (X/X_N)^{1/3} - (Y/Y_N)^{1/3}$$

$$b = 200 (Y/Y_N)^{1/3} - (Z/Z_N)^{1/3}$$

where X, Y, Z are the trichromaticity values of the coloured substance and X_N , Y_N and Z_N are the trichromaticity values of the perfect diffuser (white) or simply from X, Y, Z values of the colourant we also can find out L, a, b values precisely by :

$$L = 10Y^{1/3}$$

$$a = 17.5 (1.02 X - Y)/Y^{1/3}$$

$$b = 7.0 (Y - 0.847 Z)/Y^{1/3}$$

L,a,b. COLOR SOLID.

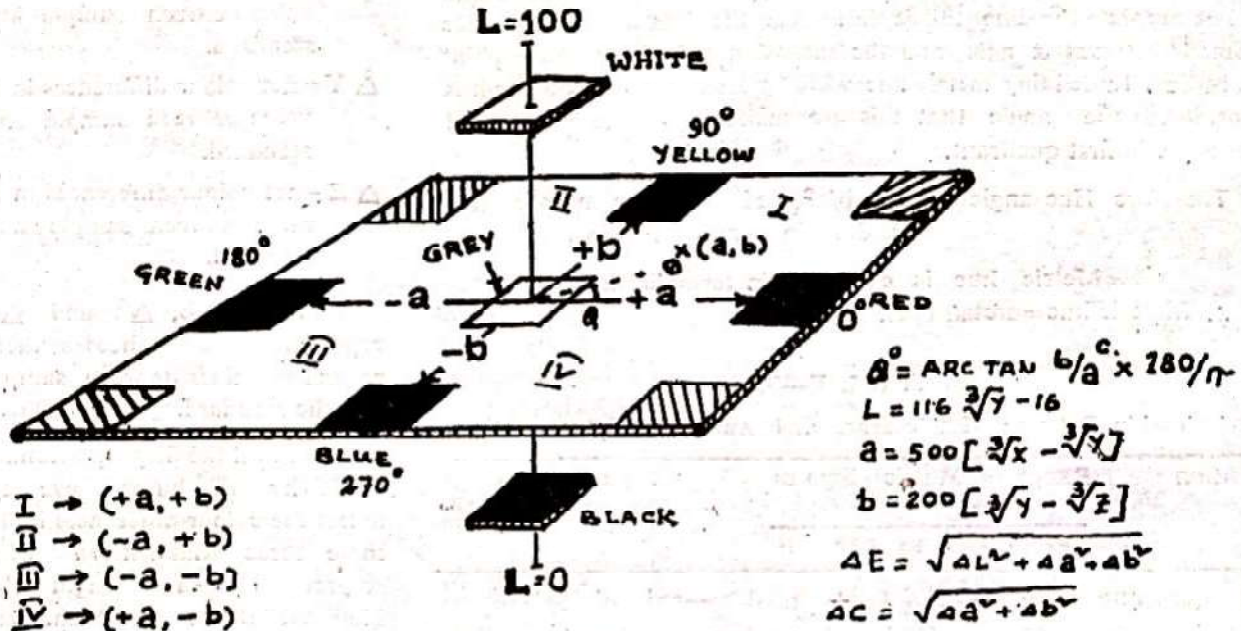


Fig. No. 17—3-D CIE L, a, b colour space.

Example: If we derive the L, a, b values of the colour coded as 6-071 in table 9 then the procedure would be by applying the above formula we get :

Here X = 35.969, Y = 44.262 and Z = 29.697

Hence $L = 10 \times (44.262)^{\frac{1}{3}} = +66.53$

$a = 17.5 \times [(1.02 \times 35.969) - 44.262] / (44.262)^{\frac{1}{3}} = -19.922$

$b = 7.0 \times [44.262 - (0.847) (29.697)] / (44.262)^{\frac{1}{3}} = +20.10$

hence $L = +66.53$, $a = -19.922$, $b = +20.10$. So this colour has a (-ve) and b (+) hence it is yellowish green it has L value +66.53 hence it is lighter in colour. So the colour 6-071 is light yellowish green. This inference was not possible to obtain straight way from table no. 9 unless we plot (x, y) point in trichromaticity diagram and identify its hue and dominant wave length.

The chroma in L, a, b system is measured in terms of the distance by which the point (a, b) is away from the origin of the co-ordinate axis OA^+ and OB^+ . So from geometric consideration chroma is determined as $\sqrt{a^2 + b^2}$ by which we can eliminate the negative factor. If the X axis is represented as a and Y axis as b then if we plot point (a, b) and draw normal from this point

on both the axis. Then the diagonal of the rectangle thus formed will represent the distance from origin or chroma. Since the two arms of this rectangle are a, and b its diagonal is $(a^2 + b^2)^{\frac{1}{2}}$. "Higher the value of chroma higher is the purity or saturation of a colour"—as per Munsell's concept.

Hence for example the above colour 6-071 has got the chroma.

$= [(-19.922)^2 + (20.10)^2]^{\frac{1}{2}} = 28.30$
But for convenience the horizontal axis of the L, a, b has been considered as a rectangle. But actually it is the trichromaticity diagram that represents the true picture. In trichromaticity diagram the spectrum locus forms different arcs with the centroid



because the curvature is not uniform at each point at the locus.

Let us consider a point (a, b) and join this with the origin and extrapolate the line till it intersects the locus. Arc is thus formed between x axis and the extension of origin and point (a, b) line. In defining metric hue which gives a sense of colour it is considered the angle that this arc makes with the centre and x axis i.e. in first quadrant.

Therefore Hue angle = $\arctan b/a^c$ [(radian), if the measurement is done in terms of radian,]

Metric hue is expressed in terms of degree.

$$\therefore \text{Metric hue} = \arctan b/a \times 180/\pi$$

T A B L E—XI

Relationship Between Metric Hue, a, b And Their Interpretation

Position	Range of Metric Hue		Sign of a b		Remarks
	From	to	a	b	
1st quadrant	0°	90°	+	+	hue—red and / yellow
2nd quadrant	90°	180°	-	+	hue—green and or yellow
3rd quadrant	180°	270°	-	-	hue green and or blue
4th quadrant	270°	360°	+	-	hue red and or blue

The above colour 6-071 therefore has the metric hue

$$= \left(\tan^{-1} \frac{20.10}{-19.922} \right) \frac{180}{3.14286} \quad (\pi = 3.14286 \text{ approx})$$

$$= (\tan^{-1} - 1.00893) \times 57.27 \quad 1.00893 \text{ may be assumed as } 1.$$

$$= -0.7898456 \times 57.27 = -45.334463^\circ$$

Since the co-ordinate of 6-071 has a (-) and b (+) so it must be in 2nd quadrant, and in 2nd quadrant the value of tan is negative.

$$\therefore \text{Metric hue} = 180.00 - 45.334463$$

$$= 134.66^\circ$$

Now when the question of colour difference arises it is the differences in magnitude only that is considered and sign is eliminated. The differences in colour is designated as ΔE .

ΔE value as per C.I.E. X, Y, Z System :

$$\Delta E = [(\Delta X)^2 + (\Delta Y)^2 + (\Delta Z)^2]^{\frac{1}{2}}$$

and as per C.I.E. Lab system :

$$\Delta E = [(\Delta L)^2 + (\Delta a)^2 + (\Delta b)^2]^{\frac{1}{2}}$$

ΔE = net colour difference between sample and standard.

ΔX = net colour differences in X value between sample and standard.

ΔY = net colour differences in Y value between sample and standard.

ΔZ = net colour differences in Z value between sample and standard.

Similarly ΔL , Δa and Δb represents the differences of their respective values between sample and the standard.

Based on the disproportionate sensitivity of human eye to detect the colour differences in all these three dimension with respect of wave length the National Bureau of Standards (NBS) has prescribed the permissible colour differences with respect to each colour in terms of ΔE . However the agreement between any buyer and seller in terms of ΔE value can over rule this NBS standards for practical point of view.

Δa and or Δb values in the range of two decimal figure and ΔY or ΔL value in the range of one decimal figure remains in general undetectable by human eye but detectable by the spectrophotometers. Though theoretically exact colour match is possible but practically any colourists knows that, exact colour match can never be achieved because of the simple reason—there is nothing available on earth as yet as pure white or pure black body or any colourants having pure spectral



hue. Furthermore chances of photo degradation, particle size, shape (as per Mie's theory) the differences in refractive index (Lorentz-Lorentz's expression) and oscillatory field strength (P.P.P.M.O. theory), Molar extinction co-efficient (Beer-Lambert's Law), all contributes to the richness and the colouring properties of the colourants.

In modern spectrophotometer compled with micro processor with video screens, displays the colour differences in the following way :

sample, if it is negative the trial darker.

The next quantity displayed is ther edness-greenness differences between the standard and the trial. Δa^* (or displayed as DA^*) obtained by substracting a value of the standard from that of the trial on a similarly calculated FMC-2 equation redness-greenness chromaticity difference (D.C.RG) $\Delta Cr-g$. If displayed quantity is positive, the trial is redder than the standard If it is negative, the trial is greener than the sample.

- blueness difference between the standard and the trial Δb^* (DB^*) or $\Delta Cy-b$ ($DGYB$), when displayed quantity is positive, the trial is yellower than the standard and when it is negative the trial is bluer than the standard.

The final line of display in the colour difference data is the total colour difference ΔE (DE), the square root of the square of those three component differences just discussed. These values

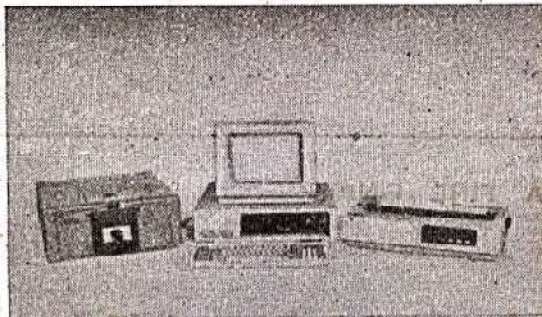


Fig. 18 : Complete set of instruments showing spectrophotometer, personal computer, VDU display, printer.

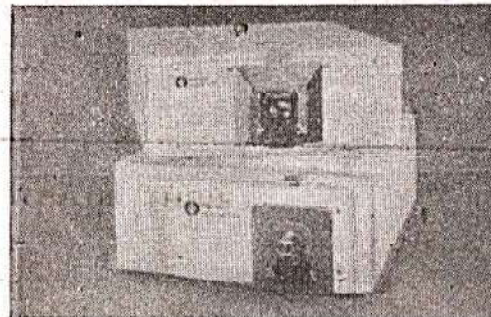


Fig. 19 : Spectrometer showing knob attached to sample holding attachment.

Below the calorimetric data for the standard and the trial the colour differences between them are displayed along with its component, for all the three coordinate L, a and b. The first line of this part of the display is the difference of lightness (luminance) between the sample and the trial (usually displayed as DL^*) obtained by substracting the value of L (CIE, L, a, b) for the standard from that of the trial. If this quantity is positive (+ve) the trial is lighter than the

The third line of colour difference data is the yellowness

are equated with the F.M.C. 2 equations by the microprocessor in seconds.

FMC-2 Equation

$$DB \text{ or } \Delta C y-b \text{ or } \Delta b = [S (P \Delta QP + \Delta Q) b D^a - S/b] K_1$$

$$\Delta L \text{ or } DL = [0.279 (P \Delta P + Q \Delta Q) a D] K_2$$

$$DA \text{ or } \Delta Cr-g \text{ or } \Delta a = [(Q \Delta P - P \Delta Q) / a D] K_1$$

$$\text{where } P = 0.724 X + 0.382 Y - 0.098 Z$$

$$Q = -0.48X + 1.37 Y + 0.1276 Z$$

$$S = 0.686 Z$$

$$D = ((P^2 + Q^2)^{\frac{1}{2}} \text{ or } \sqrt{(P^2 + Q^2)})$$

$$a^2 = 17.3 \times 10^{-6} D^2 / [1 + 2.73 P^2 Q^2 / (P^4 + Q^4)]$$

$$b^2 = 3.098 \times 10^{-4} (S^2 + 0.2015 Y^2)$$

and $\Delta P = P_1 - P_2$

$$\Delta Q = Q_1 - Q_2$$

$$\Delta S = S_1 - S_2$$

$$\Delta C = [(\Delta Cy - b)^2 + (\Delta Cr - g)^2]^{\frac{1}{2}}$$

$$\Delta E = [(\Delta C)^2 + (\Delta L)^2]^{\frac{1}{2}} = [(\Delta Cy - b)^2 + (\Delta Cr - g)^2 + (\Delta L)^2]^{\frac{1}{2}}$$

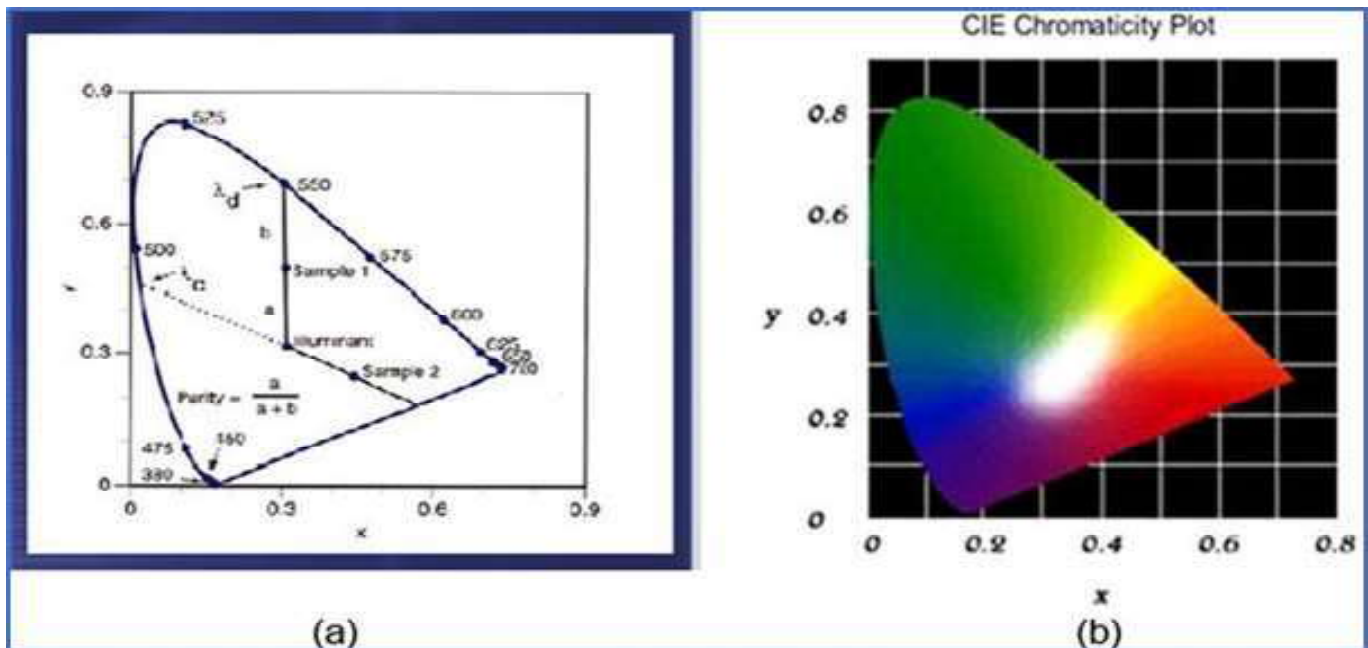
$$K_1 = 0.55669 + Y \{0.049434 + Y [-0.82575 \times 10^{-3} + Y (0.79172 \times 10^{-5} - 0.30087 \times 10^{-7} Y)]\}$$

$$K_2 = 0.17548 + Y \{0.027556 + Y [-0.57262 \times 10^{-3} + Y (0.63893 \times 10^{-5} - 0.26731 \times 10^{-7} Y)]\}$$

$$K_1 = 1.000 \text{ when } Y = 10.69$$

$$K_2 = 0.922 \text{ when } Y = 100$$

To be Continued in the next issue



Basis for Instrumental Colour Measurement and Matching

By

BUDDHADEB CHATTOPADHYAY
College of Leather Technology, Calcutta

and

RANA LAL MUKHERJEE
I. C. I. India Ltd. Rishra, Hooghly



ILTA
Since 1950

ECGC LAUNCHES NEW SCHEME TO PROVIDE UP TO 90% EXPORT CREDIT RISK INSURANCE COVER FOR SMALL EXPORTERS



Trade, import and export for MSMEs : Under the scheme, manufacturer-exporters will be able to secure fund-based export credit working capital limit up to Rs 20 crore (total packaging credit and post-shipment limit per exporter or exporter-group) excluding gems, jewellery and diamond sector and merchant exporters or traders.

Export credit provider Export Credit Guarantee Corporation of India (ECGC) has launched a new scheme to insure up to 90 per cent of the credit risk in export finance, supporting small exporters by encouraging banks to provide more credit for export amid global economic uncertainty. The risk cover, provided by banks under the Export Credit Insurance for Banks Whole Turnover Packaging Credit and Post Shipment (ECIB- WTPC & PS), will also enable small exporters to explore new markets and new buyers, and diversify their existing product portfolio competitively, ECGC said.

“We expect the cover to play a game-changing role,” said ECGC Chairman M Senthilnathan at a press conference on Tuesday. He added, “By giving 90 per cent cover to banks, we expect more small companies to get export credit from banks, benefiting these industries greatly. We expect banks to provide more concessions. The net effect will be the benefit to exporters, involving a reduction in interest rate.”

Under the scheme, manufacturer-exporters will be able to secure fund-based export credit working capital limit up to Rs 20 crore (total packaging credit and post-shipment limit per exporter or exporter-group) excluding gems, jewellery and diamond sector and merchant exporters or traders. The working capital limit in

the form of fund-based is referred to cash credit, packaging credit, short-term loans, export and import financing, etc., from banks.

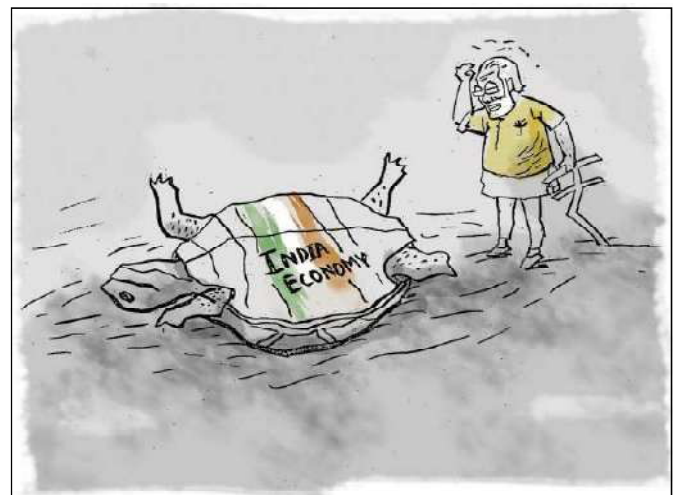
According to ECGC, the credit support extended for exports was Rs 6.18 lakh crore in FY22 with over 6,700 exporters benefitting from the direct cover issued while more than 9,000 exporters benefitted under the Export Credit Insurance for Banks (ECIB) as of March 31, 2022. Around 96 per cent of these beneficiaries were small exporters.

Meanwhile, MSMEs’ share in the country’s annual merchandise exports had declined despite India registering its highest ever exports worth \$421.8 billion in FY22. According to the data on the value of MSME exports and its share in overall exports shared recently by the Minister of State for MSMEs Bhanu Pratap Singh Verma in a written reply to a question in Rajya Sabha, MSME exports’ share dipped to 45.04 per cent in FY22 in comparison to 49.75 per cent during FY20 and 49.35 per cent during FY21.

However, overall MSME exports had surged 21.8 per cent from \$155.9 billion in FY20 and 31.9 per cent from \$143.9 billion in FY21 to \$190 billion in FY22.

(Financial Express – 27/07/2022)

IMF SLASHES INDIA GROWTH PROJECTION



The International Monetary Fund (IMF) on Tuesday slashed India’s growth forecast for 2022-23 (FY23) by 80 basis points to 7.4 per cent, citing less favourable external conditions and rapid policy tightening by the central bank. In its update to the April World Economic Outlook, the IMF said that though a global

recession in 2022 was ruled out with a growth estimate of 3.2 per cent, the balance of risks was squarely to the downside, driven by a wide range of factors that could adversely affect the global economic performance.

“The risk of recession is particularly prominent in 2023, when in several economies’ growth is expected to bottom out, household savings accumulated during the pandemic will have declined, and even small shocks could cause economies to stall. “For example, according to the latest forecasts, the United States will have real GDP growth of only 0.6 per cent in the fourth quarter of 2023 on a year-over-year basis, which will make it increasingly challenging to avoid a recession,” it said.

Pierre-Olivier Gourinchas, chief economist of the IMF, said that in a plausible alternative scenario where risks materialise and inflation rises further, global growth could decline to about 2.6 per cent in 2022. “The risks to the outlook are overwhelmingly tilted to the downside.

“The war in Ukraine could lead to a sudden stop of European gas imports from Russia; inflation could be harder to bring down than anticipated either if labour markets are tighter than expected or inflation expectations unanchor; tighter global financial conditions could induce debt distress in emerging market and developing economies; renewed Covid-19 outbreaks and lockdowns as well as a further escalation of the property sector crisis might further suppress Chinese growth; and geopolitical fragmentation could impede global trade and cooperation,” he added.

The downward revision of India’s growth forecast by the IMF came days after the Asian Development Bank pared down its growth projection for India to 7.2 per cent for FY23, from 7.5 per cent, citing higher-than-anticipated inflation since April and subsequent monetary tightening by the Reserve Bank of India (RBI).

India’s inflation remained above the RBI’s upper tolerance limit for a sixth straight month in June. On June 8, the six-member Monetary Policy Committee (MPC) of the RBI raised the repo rate by 50 basis points following an off-cycle rate hike of 40 basis points in May, making it a 90 bps rate hike in just over a month. Analysts expect another rate hike in the MPC meeting on August 5. The IMF said that in China, further lockdowns and the deepening real estate crisis had led the growth forecast to be revised down by 1.1 percentage points to 3.3 per cent for 2022, with major global spill overs. “Downgrades for China and

the United States, as well as for India, are driving the downward revisions to global growth during 2022–23, which reflect the materialization of downside risks highlighted in the April 2022 World Economic Outlook,” it added.

The multilateral lender said global trade growth in 2022 and 2023 would likely slow to 4.1 per cent in 2022 from 10.1 per cent in 2021, reflecting the decline in global demand and supply chain problems. “The dollar’s appreciation in 2022 — by about 5 per cent in nominal effective terms as of June compared with December 2021 — is also likely to have slowed world trade growth, considering the dollar’s dominant role in trade invoicing as well as negative financial balance sheet effects on demand and imports in countries with dollar-denominated liabilities,” it added.

As advanced economy central banks raise interest rates to fight inflation, the IMF said widespread capital flight from emerging markets and developing economies could amplify this risk. On policy priorities for economies, the IMF said that at this juncture, focus should be to bring inflation under control, as price stability was a precondition for durable growth in economic well-being and financial stability.

“Economies in which underlying inflation and inflation expectations have risen persistently and significantly above target levels need to take decisive action to tighten monetary policy, with central banks shrinking their balance sheets and raising real interest rates. “In the near term, such policies reduce inflation at the cost of lower real activity, higher unemployment, and lower wages,” it added.

(Rediff.com – 27/07/2022)

GLOBAL ECONOMY IN GRIPS OF SERIOUS SLOWDOWN, INFLATION SURGE TO ENDURE





ILTA
Since 1950

The global economy is in the grips of a serious slowdown, with some key economies at high risk of recession and only sparse meaningful cooling in inflation over the next year, according to Reuters polls of economists.

Most central banks are only part-way through a still-urgent cycle of interest rate rises as many policymakers make up for a collective error in judgment last year thinking supply chain-related inflation pressures would not last. That carries with it another risk - central banks moving too quickly without taking time to assess damage from the fastest interest rate rises in more than a generation following over a decade of near-zero rates.

Despite their aggressive response - in some cases, the most in several decades - inflation has yet to ease in most of the near-50 economies covered in the June 27-July 25 Reuters surveys of more than 500 forecasters around the world.

The U.S. Federal Reserve, due to hike rates by another 75 basis points later on Wednesday, is a case in point. Inflation there, currently at a four-decade high of 9.1%, is not expected to cool to the Fed's 2% target until at least 2024. Soaring inflation has turned into a serious cost of living crisis in much of the world, pushing up recession risks.

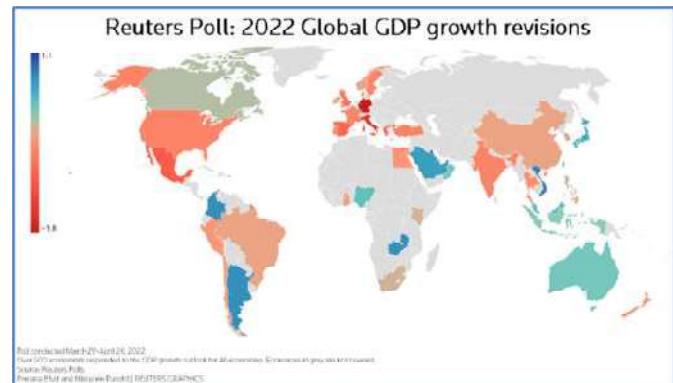
There is already a median 40% chance of recession happening in the world's largest economy in the coming year, up sharply from three months ago, and those chances have risen for the euro zone and Britain too.

"Recessionary dynamics are increasingly evident in our forecast. Notably, we now see several major economies - including the United States and the euro area - slipping into recession. Even so, the timing of these downturns varies, and they are expected to be relatively mild," noted Nathan Sheets, chief global economist at Citi.

"By any metric, the global economy is slowing and prospects are deteriorating. Global recession is, indisputably, a clear and present danger." Global growth is forecast to slow to 3.0% this year followed by 2.8% next, both downgraded from 3.5% and 3.4% in the last quarterly poll in April. That compares with the International Monetary Fund's latest forecasts of 3.2% and 2.9%.

Of the 48 economies covered, 77% of growth forecasts were downgraded for next year with only 13% left unchanged and 10% upgraded.

Reuters Poll - 2023 GDP growth revisions



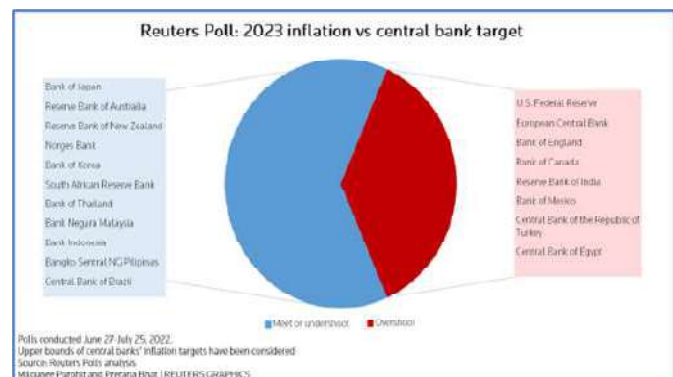
Similarly, inflation forecasts for nearly 90% of the 48 economies were upgraded for next year and over 45% for 2024. That means no quick respite from a cost-of-living crisis pinching households. Indeed, the vast majority of respondents said it would be at least next year before the crisis eases significantly (86%) with more than a third (39%) saying over a year.

Among the top 19 global central banks covered, a slight majority, 11, will see inflation returning to target next year. The remaining eight will not, including some of the biggest ones like the Fed, the European Central Bank, the Bank of England and the Reserve Bank of India.

Reuters Poll - Global monetary policy and inflation outlook,

Emerging economy central banks covered by the polls are further through their expected hiking cycle, about three-quarters of the way, on average. This is skewed higher in part by the early and aggressive rate campaign by Brazil's central bank, one of the first out of the gates.

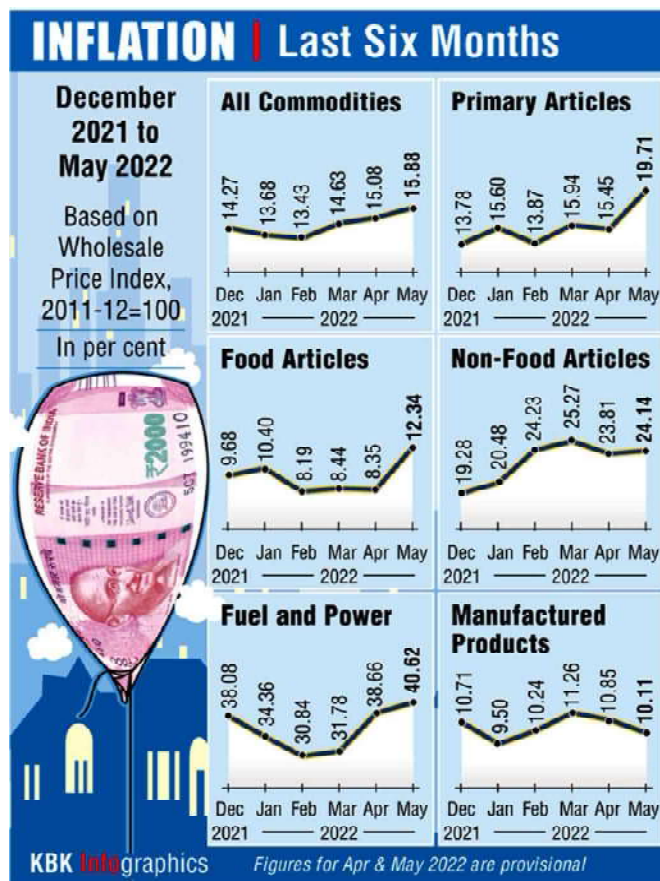
Developed ones, by contrast, are only on average about half-way through, held back in part by the European Central Bank, which only just began raising rates. That means more rate rises still lie ahead.



“We are particularly concerned about two developments. First, the shift to aggressive hikes at many central banks. This is an inevitable outcome of moving late. However, it greatly increases the risk of overkill, as there is not time to reassess the impact of the hikes,” noted Ethan Harris, global economist at Bank of America Securities. “Second, we worry about feedback effects across regions. In particular, recessions in the U.S. tend to impact global confidence and growth even more than warranted by the size of the U.S. economy. Stay tuned.”

(Business Standard – 27/07/2022)

‘A VERY LONG TIME SINCE INDIA EXPERIENCED SUCH HIGH INFLATION’ – (An Interview with Mr. **Aditya Narain**, Head of Research at Edelweiss Financial Services, with Mr. **Samie Modak**, *Business Standard*)



“Inflation trajectory, domestically as also globally, is what will shape the economy, and therefore the market, over the next couple of quarters.” “That WPI is running at almost twice of CPI suggests that either there is a material risk to corporate profitability, or if passed through, then demand,” says Aditya Narain.

What are the key headwinds for the market at this juncture?

Very simplistically inflation — and its impact on demand and monetary policy and fiscal policy responses. It’s been a very long time since India experienced such broad-based and high inflation, and the demand impacts are a little unknown. That WPI is running at almost twice of CPI suggests that either there is a material risk to corporate profitability, or if passed through, then demand.

The policy responses also hurt the market, but that’s an offshoot of inflation, rather than an independent cause. Inflation trajectory, domestically as also globally, is what will shape the economy, and therefore the market, over the next couple of quarters.

Do you expect FPI outflows to stem going ahead?

The law of averages and mean reversals suggest it should: The current outflow has been more pronounced and consistent, than ever before. That said, I would believe the lead element would be a global driver, rather than anything domestically, as the underlying economic trajectory is unlikely to swing materially - particularly on the upside. India does not offer any real support from valuations either, though its economic consistency could well be more pronounced than most other dominant markets.



How will inflationary pressures impact markets, earnings?

We already spoke on the markets; where the risks tend to the downside on account of inflation and its distortions.



Interestingly, inflation has not really had a material impact in the quarter gone by. We saw aggregate earnings cuts relatively limited at the 2-4 per cent levels so far.

We do though believe it could be more meaningful in the current quarter; where a fuller impact of demand and some lingering costs might well start flowing through. We also believe some of the more recent developments on metals prices domestically, could further swing aggregate earnings to the lower side. So there are downside risks, which are possibly not fully apparent yet.

How do valuations look at the moment? Does the YTD fall in valuations provide any comfort?

Valuations are clearly more reasonable than what they have been for a while, but at 17-18 times one-year forward, it remains a relatively expensive market. And with earnings risk, you can't say valuations are compelling. That said, there is some comfort, and valuations are no longer a reason in themselves to be negative.

The Street has turned bearish on IT stocks due to worries around slowdown in growth. What is your stance on IT?

We continue to like the bottom-up demand outlook, which we believe will sustain for a while, and earnings should continue to be largely as anticipated, with supply pressures possibly peaking. That said, the valuation framework is a function of the global rate outlook, and expectations on the slowing of the US economy.

That could cause some reverberations, and that leaves us a slight underweight at the portfolio level. The near-term outlook on the IT sector should also be viewed on the sector's overall performance over the last 2-3 years. That's been huge, and to some extent some of the sector's weakness and levelling off in the recent past, should be seen in a longer-term cycle, which remains robust.

Which are the sectors/themes you are most bullish and bearish on?

We are running a low beta, low demand risk bias in our overall market positioning. That keeps us overweight on auto, energy, banking and insurance and underweight cyclicals, industrials, metals and real estate.

What is your view on the banking pack?

We like the banking space. We believe the lack of asset risks, some uptick on lending - which is concentrated with a few players — and the benefits of the early part of the rate cycle should all be supportive. In addition, there's a certain valuation support. We like the leading private banks, as also the insurance space, where between valuation support, a bounce-back in growth, and the waning of sectoral stock supply concerns, there are upsides for this space at absolute and relative levels.

(Rediff.com – 20/06/2022)

INDIA'S FISCAL DEFICIT TOUCHES 21.2% OF ANNUAL TARGET IN Q1: GOVT DATA



The central government's fiscal deficit touched 21.2 per cent of the annual target in the June quarter as against 18.2 per cent in the year-ago period, according to official data. The fiscal deficit is the difference between total expenditure and revenue of the government. It indicates the total borrowing that are needed by the government.

In actual terms, the fiscal deficit was at Rs 3.51 trillion at the end of the first quarter of 2022-23, data from the Controller General of Accounts (CGA) showed on Friday. The country's fiscal deficit is projected at 6.4 per cent of the GDP for this fiscal ending March 2023 as against 6.71 per cent for the previous year.

As per the monthly account of the Union government up to June 2022 released by CGA, the receipts stood at Rs 5.96 trillion or 26.1 per cent of the corresponding Budget Estimates (BE) 2022-23 of total receipts. In the year-ago period, the receipts stood at 27.7 per cent of BE 2021-22.

In the latest June quarter, the total expenditure incurred by the central government was at Rs 9.47 trillion or 24 per cent of corresponding BE 2022-23. It was at 23.6 per cent of BE 201-22 in the corresponding period. For 2022-23, the fiscal deficit of the government is estimated to be Rs 16.6 trillion.

(Business Standard – 29/07/2022)

TRADE DEFICIT SOARS PAST \$31 BILLION IN JULY' 22



Goods exports dip slightly even as imports surge 43.6%. India's merchandise trade deficit widened sharply to a record \$31.02 billion in July, as per preliminary trade estimates that peg imports during the month at \$66.26 billion, or 43.6% higher than a year earlier.

Goods exports declined 0.8% year-on-year to \$35.24 billion and were 12.8% lower than June's exports. Imports were flat on a month-on-month basis from July. July's trade deficit, which is almost thrice the \$10.63 billion deficit a year earlier, takes India's merchandise trade deficit for the first four months of 2022-23 past \$100 billion. The trade deficit stood at \$42.07 billion in April to July 2021. This is the third month in a row that the monthly trade deficit had breached previous records – May had clocked a deficit of \$24.3 billion, followed by \$26.2 billion in June.

The Commerce and Industry Ministry attributed the decrease in exports largely to a 7.07% fall in petroleum products, followed by a 28.3% dip in cotton yarn and handloom products, a 94.3% dip in iron ore and a 2.5% fall in engineering goods. While coal and petroleum products continued to drive up imports, like they did in June, silver imports shot up exponentially in July.

Petroleum imports rose 70.4%, while coal imports jumped 164.4% to cross \$5.1 billion from just a little less than \$2 billion a year earlier. Silver imports were up 9,331.75%, and electronics goods also escalated 27.8%, the Ministry said. Gold imports, however, dropped sharply, both on a year-on-year and sequential bases. Only \$2.37 billion worth of the yellow metal was imported in July, 43.6% lower than in July 2021 and 12.2% below June 2022 levels.

The sharp uptick in the trade deficit was unexpected and did not augur well for the current account deficit (CAD) in the second quarter, said ICRA chief economist Aditi Nayar. The CAD is likely to have crossed \$30 billion in the first quarter of 2022-23, equivalent to about 80% of the full-year deficit last year.

“Lower commodity prices should temper the trade deficit going ahead, although the strength of merchandise and services exports in the face of the global slowdown fears remains crucial,” Ms. Nayar said, expressing concern that imports were almost double the exports in July. “The \$20 billion increase in imports year-on-year was led by petroleum products and coal, negating the relief offered by a decline in gold imports,” she noted.

EPC India chairman Mahesh Desai said the drop in engineering goods reflects weakening demand from U.S. and Europe amid recession concerns. “There has already been subdued demand from China with shipments falling in recent months. All in all, the situation remains delicate in the wake of prevailing geopolitical and economic situations,” he said, adding that any gains from falling commodity prices could be negated by a drop in demand.

(The Hindu – 02/08/2022)

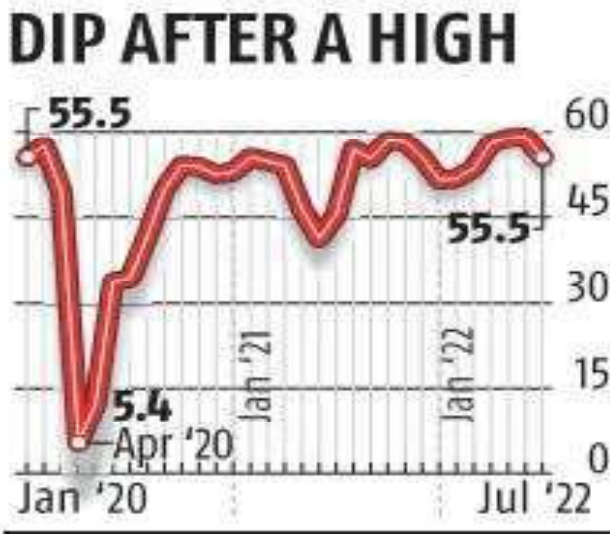
INDIA'S SERVICES PMI AT 4-MONTH LOW OF 55.5 IN JULY AMID HIGH INFLATION



India's services sector momentum hit a four-month low as the seasonally adjusted S&P Global India Services PMI Business Activity Index fell from 59.2 in June to 55.5 in July, due to curtailment of demand by competitive pressures, elevated inflation and unfavourable weather, data released on Wednesday said.

The print in June was the highest in 11 years. PMI Services captures sentiment in the services sector. For the 12th straight month, the services sector witnessed an expansion in output. In Purchasing Managers' Index (PMI) parlance, a print above 50 means expansion while a score below 50 denotes contraction. "The recovery of the Indian service sector lost momentum during July as weaker sales growth and inflationary pressures restricted the latest upturn in business activity. While marketing efforts underpinned another rise in new work intakes, competitive pressures and unfavourable weather dampened demand," said Pollyanna De Lima, Economics Associate at S&P Global Market Intelligence, said in a statement.

The domestic market remained the key source of sales growth as international demand for Indian services worsened further, the survey said.



Meanwhile, business sentiment in the service economy was subdued in July as only 5 per cent of companies forecast output growth in the year ahead, while a vast majority of firms (94 per cent) predict no change in business activity from present levels. On the prices front, services companies reported a further increase in their average expenses during July, with food, fuel, materials, staff, retail and transportation cited as the key sources of inflationary pressures. Input costs rose sharply, though at the slowest pace in five months.

"The subtle easing in cost inflationary pressures to a five-month low was also welcomed by services firms struggling to preserve margins and contributed to a softer rise in prices charged. Yet, survey participants again reported considerable strain from food, fuel, input, labour, retail and transportation costs," Lima said.

On the jobs front, July data showed a negligible increase in service sector employment across India. The rate of job creation was fractional and broadly similar to June. The vast majority of firms left payroll numbers unchanged amid a lack of need to raise workforces.

Meanwhile, the S&P Global India Composite PMI Output Index — which measures combined services and manufacturing output — fell from 58.2 in June to 56.6, highlighting the slowest increase since March. "New business growth picked up in the manufacturing industry whilst slowing in the service economy. At the composite level, sales increased sharply but at the weakest pace in four months," the survey said.

According to official data, the retail inflation based on the Consumer Price Index (CPI), which the Reserve Bank of India (RBI) factors in while arriving at its monetary policy, has been above 6 per cent since January 2022. It was at 7.01 per cent in June. Experts believe the RBI may go in for its third consecutive policy rate hike by at least 35 basis points to check high retail inflation. The RBI's rate-setting panel — the Monetary Policy Committee — will meet for three days from August 3 to deliberate on the prevailing economic situation and announce its bi-monthly review on Friday.

(Business Standard – 03/08/2022)

BANK CREDIT TO MICRO, SMALL ENTERPRISES JUMP 23% IN JUNE AGAINST 0.6% CONTRACTION YEAR AGO: RBI DATA



Bank credit to micro and small enterprises (MSEs) continued to expand year-on-year (YoY), registering 23.7 per cent growth in June 2022 against a contraction of 0.6 per cent in June 2021, showed latest data by the Reserve Bank of India (RBI) on sectoral deployment of bank credit.

The gross bank credit deployed to MSEs in June stood at Rs 14.29 lakh crore vis-a-vis Rs 11.55 lakh crore deployed in June last year and Rs 11.62 lakh crore in June 2020. In May, the credit growth stood at 27 per cent with Rs 14.23 lakh crore deployed to MSEs, up from Rs 11.20 lakh crore in May 2021. Likewise, a 19.7 per cent jump was recorded in April with Rs 14.08 lakh crore deployed to MSEs in comparison to Rs 11.77 lakh crore in April 2021.

Banks reported healthy YoY credit growth of 60 per cent to medium enterprises as well with Rs 3.63 lakh crore deployed in June this year from Rs 2.26 lakh crore in June 2021. The growth was higher at 64.8 per cent in May 2022 with Rs 3.57 lakh crore deployed in comparison to Rs 2.16 lakh crore during the year-ago period.

Overall bank credit deployed to the entire MSME sector in June was Rs 17.93 lakh crore, marginally up from Rs 17.81 lakh crore deployed in May and Rs 17.63 lakh crore in April. The share of bank credit to MSMEs in India's gross bank credit of Rs 121.49 lakh crore in June 2022 stood at 14.76 per cent, slightly down from 14.80 per cent in May.

The aggregate credit to MSMEs has been on a revival path since December last year without any significant impact of the third wave of the pandemic after recording negative YoY growth from September to November.

"The upsurge of domestic demand and pick up in ancillary industries and service units has increased funding requirement of this (MSME) sector, which provides employment to a large section of the population," RBI had noted in its latest Financial Stability Report launched in June this year.

The Emergency Credit Line Guarantee Scheme (ECLGS) has played a key role in reviving the MSME sector with loans amounting to Rs 3.32 lakh crore sanctioned till April 30, 2022, of which an amount of Rs 2.54 lakh crore was disbursed, the report had said.

However, the central bank had also noted that the restructured MSME portfolio (worth Rs 46,186 crore) constituting 2.5 per cent of total advances under the May 2021 Resolution Framework 2.0 scheme has the potential to 'create stress' in the sector even though the bad assets in the sector had moderated from 11.3 per cent in September 2021 to 9.3 per cent in March 2022.

(Financial Express – 01/08/2022)



-: JILTA :-

Owner: Indian Leather Technologists' Association, **Publisher & Printer:** 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

ILTA PUBLICATION

Now available



Title of the Book
Treatise on Fatliquors and
Fatliquoring of Leather

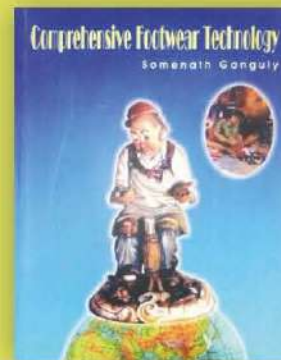
Author
Dr. Samir Dasgupta

Price per copy*
₹1500.00 / \$ 60.00

Title of the Book
Comprehensive
Footwear Technology

Author
Mr. Somenath Ganguly

Price per copy*
₹ 500.00 / \$ 50.00



Title of the Book
An Introduction to the
Principles of Leather
Manufacture

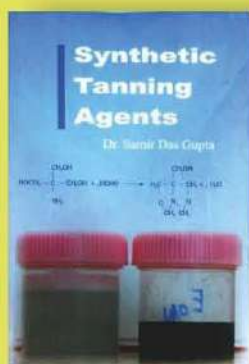
Author
Prof. S. S. Dutta

Price per copy*
₹ 800.00 / \$ 50.00

Title of the Book
Analytical Chemistry of
Leather Manufacture

Author
Mr. P. K. Sarkar

Price per copy*
₹300.00 / \$ 10.00



Title of the Book
Synthetic Tanning
Agents

Author
Dr. Samir Dasgupta

Price per copy*
₹ 900.00 / \$ 30.00

Title of the Book
Hand- Book of Tanning

Author
Prof. B. M. Das

Price per copy*
₹ 750.00 / \$ 25.00



*Packing and forwarding charge extra

Send your enquiries to :

Indian Leather Technologists' Association

'Sanjoy Bhavan', 3rd Floor, 44, Shanti Pally, Kolkata- 700 107, WB, India

Phone : 91-33-2441-3429 / 3459 * WhatsApp +91 94325 53949

E-mail : admin@ltaonleather.org; mailtolta@rediffmail.com

Website : www.ltaonleather.org

History and Activities of Indian Leather Technologists' Association

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

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

- ◆ To bring all concerned with the broad spectrum of the leather industry under one umbrella.
- ◆ To organize seminar, symposium, workshop in order to create information, knowledge and latest development for the benefit of all concerned. To offer a common platform for all to interact with each other in order to understand each other's problems and prospects.
- ◆ To publish monthly journal as a supplement to those above objectives. The monthly journal of ILTA is known as Journal of Indian Leather Technologists' Association and is the most widely circulated technical journal concerning leather technology.
- ◆ To publish text books for the benefit of students at various levels of study, for the researchers and industry.
- ◆ To have interface between urban and rural sector.
- ◆ To assist Planning Commission, various Government Institutions, Ministry and autonomous bodies to formulate appropriate policies acceptable and adoptable to the industry.
- ◆ To organize practical training and to provide skilled manpower and to motivate good students for study.
- ◆ To conduct activities related to the growth of the export of leather and leather goods from India.
- ◆ As the part of many social activities ILTA has donated Rs. 1 lac to Central General of Nepal towards relief of earthquake affected of Nepal on 16th Sept, 2015.

INTERNATIONAL & NATIONAL SEMINAR

- ◆ ILTA is the Member Society of International Union of Leather Technologists & Chemists Societies (IULTCS), a 115 years old organization and for the first time the IULTCS Congress was organized in January 1999 outside the developed countries in India jointly by ILTA and CLRI.
- ◆ 2017 IULTCS Congress is scheduled to be held in India again.
- ◆ 8th Asian International Conference on Leather Science & Technology (AICLST) was organized by ILTA in 2010 during its Diamond Jubilee Celebration year.

SEMINAR & SYMPOSIUM

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

- ◆ Prof. B. M. Das Memorial Lecture every year during the Foundation Day Celebrations on 14th August every year.
- ◆ Sanjoy Sen Memorial Lecture on 14th January every year, the birthday of our late President for several decades.
- ◆ Prof. Moni Banerjee Memorial Lecture on 16th March every year, the birthday of this iconic personality.
- ◆ Seminar on the occasion of India International Leather Fair (IILF) at Chennai in February every year.

It has also organized :

- ◆ Prof. V. Nayudumma Memorial Lecture.
- ◆ Series of Lectures during "Programme on Implementing Emerging & Sustainable Technologies (PIEST)".
- ◆ Seminars in occasion of India International Leather Fair, 2014 and 2015 at Chennai etc. Many reputed scientists, industrialists and educationists have delivered these prestigious lectures. Foreign dignitaries during their visits to India have addressed the members of ILTA at various times.

PUBLICATION

ILTA have published the following books:

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

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



AWARDS OF EXCELLENCE

- ◆ ILTA awards Prof. B. M. Das Memorial, Sanjoy Sen Memorial, J. M. Dey Memorial and Moni Banerjee Memorial Medals to the top rankers at the University / Technical Institute graduates and post graduate levels to encourage the brilliant to evolve with the Industry.
- ◆ J. Srinis. Roy Memorial Award for the author of the best contribution for the entire year published in the monthly journal of the Indian Leather Technologists' Association (ILTA).

LEXPOs

To promote and provide marketing facilities, to keep pace with the latest design and technology, to have better interaction with the domestic buyers, ILTA has been organizing LEXPO fairs at Kolkata from 1977, Siliguri from 1992 and Durgapur from 2010. To help the tiny cottage and small-scale sectors industries in marketing, LEXPO fairs give the exposure for their products. Apart from Kolkata, Siliguri & Durgapur, ILTA has organized LEXPO at Bhubaneswar, Gangtok, Guwahati, Jorhat and Ranchi.

MEMBERS

The Association's present (as on 31.03.2016) strength of members is more than 600 from all over India and abroad. Primarily the members are leather technologists passed out from Govt. College of Engineering & Leather Technology, Anna University, Chennai, Harcourt Butler Technological Institute, Kanpur, B. R. Ambedkar National Institute of Technology, Jalandhar and Scientists from Central Leather Research Institute.

ESTABLISHMENTS

In order to strengthen its activities, ILTA have constructed its own six storied building at 44, Shanti Pally, Kasba, Kolkata – 700 107 and have named it "Sanjoy Bhavan".

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



ILTA
Since 1950

Indian Leather Technologists' Association

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

'Sanjoy Bhavan', 3rd Floor, 44, Shanti Pally, Kolkata- 700 107, WB, India

Phone : 91-33-2441-3429 / 3459 ✳ WhatsApp +91 94325 53949

E-mail : admin@iltaonleather.org; mailtoilta@rediffmail.com

Website : www.iltaonleather.org