

The Leather Post

CSIR-Central Leather Research Institute

News you can use

SUSTAINABILITY



29-30 January 2019
Triple Helix Auditorium, CSIR-CLRI, Chennai

GEN

*Next-Gen Technologies for
Leather Sector:*

*Approaches
towards
Industry* **4.0**

**52nd LEATHER RESEARCH-INDUSTRY
GET-TOGETHER (LERIG)**

**INDUSTRY
4.0**

**ENERGY
FROM
SOLES**

**GREENING
THE
LEATHER**

**INNOVATION
TALKS**

**WATER
MANAGEMENT &
COMPLIANCE**

**Special focus on Infrastructure
upgradation & development on
CSIR-CLRI campus**



Dr B Chandrasekaran
Director, CSIR-CLRI

Dear Doyens and Members of the Indian Leather Fraternity; Colleagues from CSIR; Mentors, Teachers and Friends! It gives us great pleasure in sending you our December 2018 edition of The LEATHER POST.

As we draw curtains on Year 2018, it's time to reflect on how we have progressed. While the Industry's growth has been mixed, the Institute has remained steadfast in its support to the sector in every sphere. With greater optimism, let us together look ahead for a brighter and more sustainable Leather Industry in the Year 2019.

Come January 2019 and we will be engaged with the prestigious LEATHER WEEK of India. LERIG 2019 is being announced through this edition of The LEATHER POST. The theme of LERIG 2019 is Next-Gen Technologies for Leather Sector: Approaches towards Industry 4.0 and is slated for 29-30 January 2019 at the Triple Helix Auditorium, CSIR-CLRI, Chennai. I invite one and all in the fraternity to join us in making LERIG 2019 fruitful and meaningful.

We will strive to make this magazine informative and interesting and welcome your feedback for improvement.

24th December 2018

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Announcing 52nd LERIG 2019



GEN

**Next-Gen Technologies for
Leather Sector:**

**Approaches
towards
Industry 4.0**

**52nd LEATHER RESEARCH-INDUSTRY
GET-TOGETHER (LERIG)**

**“Next-Gen Technologies for Leather Sector”
Focus on Futuristic Manufacturing, Energy
Management, Water Management & Compliance**

29-30 January 2019
Triple Helix Auditorium,
CSIR-CLRI, Chennai

Registration Fees:

Delegates	: Rs. 3000
ILTA/ALFA Members	: Rs. 2000
Staff of CSIR-CLRI	: Rs. 1500
Students	: Rs. 1000

E-Payment Details:

LERIG TRUST

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SBI (13361) - SME Branch, Adyar, Chennai

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CSIR-Central Leather Research Institute organizes the annual Leather Research-Industry Get-Together (LERIG) every year to coincide with LEATHERWEEK. At LERIG, deliberations on technologies and trends & policy related support for leather, leather products and allied sectors is held.

The Government of India has sanctioned Rs 2600/- crores for the Leather Sector with major contributions towards modernization and infrastructure upgradation.

Keeping with the trend, this institute along with the stakeholders have proposed “Next Gen Technologies for Leather Sector: Approaches towards Industry 4.0” as the theme for 53rd LERIG 2019. LERIG 2019 will be held between 29 & 30th Jan 2019 at Triple Helix Auditorium, CLRI.

The first day of LERIG 2019 (Tuesday, 29th January 2019) will be a half-day session and will have Nayudumma Lecture commencing in the afternoon. This will be followed by inauguration of LERIG 2019 in the early evening. On the following day (Wednesday, 30th January 2019), three sessions will focus on Futuristic Manufacturing, Energy Management, Water management & Compliance. This will be followed by panel discussion focusing on Leather sector for future.

We will endeavor to make LERIG 2019 concise and focused and at the same time, fruitful and meaningful to the Industry.

Preamble and opening remarks on

INFRASTRUCTURE DEVELOPMENT & UPGRADATION

in the Institute

Dr.B.Chandrasekaran, Director, CSIR-CLRI

Infrastructure is the basic requirement of development. It does not directly produce goods and services but facilitates production in primary, secondary and tertiary activities by creating positive environment for work. It is an admitted fact that the level of productivity directly depends on the development of infrastructure.

There is revolutionary progress in science and technology. Alongside, it was necessary to upgrade the infrastructure in the Institute. This was one of my main agenda since I took charge as Director of CLRI almost 30 months back.

New buildings, renovation, refurbishment, new equipment and modernization, including new canals and drains are the examples of infrastructure undertaken. These are also called social overhead capital. These do not directly produce goods and services but induce productivity as said by me earlier.

Some of the infrastructure development and upgradation completed in the Institute are:

- Chemical Lab
- NMR Lab
- Advance Materials Lab
- CARE Department
- CATERS
- Bio Materials Lab
- Bio-tech Lab
- KRC
- KG School

There is more in the pipeline. Work has started and is expected to be completed soon. These include: Design Innovation Centre at SPDC, Leather Certification Room in the Tannery, New Entrance gate from Kotturpuram Road, new boundary wall at the northern side of the Institute, Triple Helix Auditorium, BM Das, CLRI Dispensary, Park and the residential apartments.



Inorganic and Physical Chemistry Laboratory



Recognizing the importance of basic research, the Chemical Laboratory was one of the first laboratories to commence activities when the institute was established. Since then, the laboratory has served as the backbone of chemistry research at the institute. Through the years, the laboratory came to be globally reckoned for its contributions to chromium chemistry, understanding of the metal – protein, metal – DNA interactions through both experimental and theoretical routes and translating this understanding into applied research leading to development of newer tanning agents, leather auxiliaries and process technologies.



The present Inorganic and Physical Chemistry Laboratory, which has under its wing Chemical Laboratory and NMR Laboratory has been renovated recently with many state of the art facilities with thrust on the latest safety features a chemistry lab should possess.

List of safety aspects ensured include:

- An eye shower, body shower, hand dryer has been installed near wash sinks
- UPS batteries have been housed outside the lab
- Nitrogen and compressed air line has been drawn from outside of the lab
- Spot extractors have been installed at every work bench to handle volatile organics
- A poster depicting “Good Lab Practices” has been displayed right at the entrance of instrument room to ensure that it never misses the eyes of any student entering the room



State of the art facilities added include:

- Air curtain has been installed at the entrance of instrument room to prevent dust from entering the room
- Devices which measure room temperature and humidity have been installed to ensure that room temperature conditions for experiments are known at the time of experiment to validate and reproduce the results
- In order to facilitate ease of working, calculators and tissue roll hangers have been fixed nearer to weighing balances
- Wall mounting storage facilities have been created to gain more working space
- Details of every instrument including their working principal and applications have been displayed right next to every instrument to ensure that not only lab students but also visiting students will learn and benefit
- Latest addition to the sophisticated instruments is the Rheometer, which enables one to study the rheological properties of various materials



Whilst adding the state of art facilities, the laboratory also refurbished the old work benches and old antique cupboards and they are being put to use effectively.

Standing true to the motto of CLRI, Inorganic and Physical Chemistry Laboratory has been doing better today than yesterday forever through continual improvement. This is reflected in the various awards, which the lab has bagged recently for its technologies and also in the quality of research publications.

New Infrastructure at NMR Lab, IPCL

As a part of modernization, the reception room at NMR, Inorganic & Physical Chemistry Lab was renovated. The NMR activities at CSIR-CLRI entered into a new dimension, with the addition of advanced NMR facility composed of NMR micro-imaging, diffusion and Rheo-NMR.





NMR micro imaging and self-diffusion techniques empower to image the solvent/tanning agent penetration in leather medium and diffusion processes in soft materials. Rheo-NMR will correlate molecular length scale insights with the mechanical length scale and will be an important tool in elucidating the fascinating rheological behaviour of a wide range of complex fluids. In this regard, the upgradation of the existing Bruker-AV-III HD 400 MHz solid-state NMR spectrometer with new NMR accessories was initiated and installed Micro imaging and Rheo NMR, while diffusion setup will be installed very soon.

Advanced Materials Laboratory (AML)

Advanced Materials Laboratory, formerly known as Biophysics Laboratory, is a multi-disciplinary group investigating fundamental and applied research on advanced materials at nano and micro scale. AML was established in 2016 under Biological Sciences cluster. The core objective of the division is to conduct research on advanced materials for and from leather. Leather processing is primarily associated with purification of a multi-component material, skin, to obtain a single protein, collagen. Solid co-products from the tanning industry are unavoidable. Protein-based solid wastes acquired much attention due to their high value. Although several methods have been developed for utilizing protein based wastes, development of high value products has remained a challenging issue. Our group has been actively working on the development of new and advanced materials such as biomaterials, nanomaterials and bio/nano composites especially from bio-wastes generated from leather industry for a variety of applications through greener, simpler and sustainable approaches. Derived materials from bio-wastes are demonstrated in energy, environment, biomedicine, lifestyle and electronic applications.



Natural leather does not find applications in smart or advanced products such as electronic devices, sensors, electromagnetic interference shielding (EMI) and adhesive-free wall covering applications. This is due to the fact that leather lacks certain functional properties such as electrical conductivity, magnetism, etc. Attempts are being made to impart functional properties to leather. Smart leathers with additional functionality such as electrical conductivity and magnetism have been prepared for smart product applications. Molecular interactions that drive biological processes especially at interfaces, understanding the structure, dynamics and function of biomolecules, single crystal XRD of biomolecules, solution dynamics of biomolecules, bio-toxicity of new materials and metal complexes at genetic level and new metal complex based materials for bio-imaging are some of the other research areas being addressed by the laboratory.

Renovation of the laboratory was started on Dec 2016 and completed on July 2017. New laboratory work benches with reagent racks were installed. Old electrical lines were also replaced with contemporary systems for smooth functioning

Centre for Academic and Research Excellence (CARE)

To strengthen the academic programmes and to nurture excellence in leather research, the “Centre for Academic and Research Excellence (CARE)” had been created and this department functions as the nodal department for higher learning and research programmes of CSIR-CLRI. **Centre for Academic and Research Excellence (CARE)** of CSIR-CLRI was inaugurated on 24th April 2017 by Dr Girish Sahni, Director General, CSIR and Secretary, DSIR. CARE had been established to ensure quality education in leather and leather products manufacture by attracting young talents to pursue cutting edge research in CLRI and thereby achieving International excellence in leather education. In addition, it is the Core Department running the Department of Leather Technology (Anna University). This Department supported the growth of Indian Leather sector by providing tertiary level manpower for the sector through the B.Tech and M.Tech programmes



CARE conducts Undergraduate and Post Graduate Courses in collaboration with Anna University in Leather Technology leading to B. Tech., and M. Tech and Post Graduate Course in Footwear Science & Engineering leading to M.Tech. It is also a centre of higher learning and research leading to doctoral programmes of various Universities (AcSIR, Anna University, University of Madras, etc.), in the disciplines of Biological, Chemical Engineering, Information, Leather and Physical Sciences.

International exchange programmes for foreign scholars from developing countries (Ethiopia, Cameroon, Kenya, Sudan, Tanzania etc.) are established, to pursue research in emerging areas of leather science and technology leading to Post Graduate and PhD degrees.

Three classrooms with state of art facility and office space have been created for CARE and further it is planned to establish additional class rooms, leather lab and a mini hall.

CARE: PHOTO- GALLERY



Academic Programmes at

CARE

Sl. No.	TITLE	LEVEL	DURATION
1	B.Tech (Leather Technology)*	10+2 (School Higher Secondary course) MPC ** (Academic Stream) ***	4 Years
2	B.Tech. (Leather Technology) (Part Time)*	Diploma in Leather Technology	3½ years (7 Semesters)
3	M.Tech.(Leather Technology)*	B.E. / B.Tech 1. Leather Technology 2. Bio- Technology M.Sc 3. Chemistry 4. Applied Chemistry 5. Environmental Chemistry 6. Bio- Technology	(2 years (4 Semesters)
4	M.Tech (Footwear Science & Engineering)*	B. E. / B.Tech. 1. Leather Tech. 2. Mechanical Engg. 3. Industrial Engg. 4. Production Engg./Tech.	2 years (4 Semesters)
5	Ph.D in Leather Technology Ph.D in Footwear Science & Engineering Ph.D in Different streams of Science & Chemical Engineering (AcSIR, Anna Univ. University of Madras & Other Universities)	Master's Degree in the concerned discipline# A Pass in NET, JRF or GATE# conducted by UGC and CSIR	Min: 2 years Max: 6 years Min: 2 or 3 years Max: 6 years
6	International Exchange Programmes	TWAS-CSIR Postgraduate Fellowship Programme The Centre for Science and Technology of the Non-aligned and Other Developing Countries (NAM S&T Centre)	Min: 3 months Max: 2 years
7	Twinning Programme for Leather Industry Development Institute (LIDI), Ethiopia under the leadership of CSIR-CLRI	Sandwich M.Sc., Programme in Leather Technology with Addis Ababa Institute of Technology (AAiT), Ethiopia PhD	1 year Min: 3 years Max: 4 years

* In collaboration with Anna University, Chennai

** MPC - Mathematics, Physics, Chemistry

*** Admission by Anna University, Chennai

Course Fee to be paid to Anna University, Chennai.

As per the Regulations of concerned universities



Centre for Analysis, Testing, Evaluation and Reporting Services (CATERS)



Genesis

In June 2016, the Director CSIR-CLRI keeping in tune with the changing scenario in quality compliance systems worldwide announced the setting up of a new core area in the institute called Centre for Analysis, Testing, Evaluation and Reporting Services (CATERS). The department was formed by integrating the Footwear Testing Laboratory of Shoe Design and Development Centre and the Expertise Centre for Eco testing Laboratories. Through this process it was ensured that the CATERS will be the single window for all testing and evaluation services that the institute would offer to the industry and academy. In January 2018, the Central Sophisticated Instrumentation Facility (CSIF) was also merged with CATERS, making it the home for almost all the sophisticated instruments in the institute. Thus, the institute is able to ensure optimal use of facility, integrated approach to maintenance and calibration, dedicated manpower to perform measurements etc.

Facilities at CATERS

CATERS is made up of 5 laboratories

- Footwear Testing Laboratory
- Material Characterization Laboratory
- Analytical Laboratory
- Elemental Analysis Laboratory
- Purity and Eco-sensitive Chemical Analysis Laboratory

The facilities that exist with each laboratory, and the IS and ISO test methods that the laboratory can perform is available in our website – testing.clri.org

Improving Test Capabilities and Accuracy

Instruments play a major role in improving the accuracy of testing. The departmental infrastructure has been improved significantly to ensure that the test reports from CATERS are accurate. The department has also carried out Interlaboratory Comparisons for about 30 common measurements against five recognized

laboratories in both government and private sectors. In terms of new equipment, the department has acquired the following facilities:

- Digitalized Rockwell Hardness “C” Scale – for accurate measurement of the hardness of steel shank
- Abrasion Resistance Measurement – For soling material
- Water absorption and desorption – For understanding water absorption and desorption capabilities of insole material
- Resistance of elastic to repeated extension – To understand quality of elastic used in products including non-lace-up shoes
- Digital lastometer – To determine grain crack and distension at grain crack
- Zip fatigue resistance – To understand the fatigue resistance properties of slide fasteners in all kinds of products
- Density measurement kit
- Color assessment cabinet for Artificial day light

- Washability tester for textile and non leather products
- Testing facilities for safety footwear to test as per ISO, EN and IS Standards
 - Heat insulation – Test capability: 150oC
 - Cold insulation –Test capability: -17oC
 - High voltage electrical insulation – Test capability: 18 kV
- Testing facilities for safety gloves to test as per ISO and IS standards
 - Blade cut resistance of leather
- Facilities for determination of volatile organic matter in leather and non-leather material
- Full range of instrumentation facilities with automated sample holders to understand material properties through Differential Scanning Calorimetry and Thermogravimetric Analyzer.
- Trace metal analysis in any material through ICP-OES

Accredited Services

By February 2018, both the chemical and physical testing programs have been brought under the competency checks of SATRA, UK. A new Quality Manual is in place and the same is supplemented by a

Quality Standards

The Director CSIR-CLRI, Dr B Chandrasekaran is currently the chairman of CHD17 of the Bureau of Indian Standards (BIS), while Dr BN Das, Chief Scientist is the chairman of CHD19. The CATERS serves as the nodal point for the review and revision of national and international standards relating to leather and footwear. It also serves as an advisory body for the industry whenever new standards are in place or existing standards are amended. The department now holds a significant collection of IS, ISO, SATRA and EN standards in its library.



Guaranteeing Quality even For Bulk Procurement

Starting from statistical sampling through methods prescribed under Indian Standards, CATERS has today established procedures for evaluation of products such as shoes, ladies chappal, Velcro sandal etc. at two stages, viz., pre-dispatch and post-dispatch, thus ensuring that the products delivered are of the prescribed specifications. The department today has the capability to test over 100 pairs of shoes/chappal (subject to specification conditions) in about 10-15 days, thus ensuring that the procurement agencies obtain the products for mass consumption in time. In this effort, the CATERS works in tandem with the officers of CLRI-SPDC for carrying out the pre-dispatch

strong quality procedures document, quality forms and appropriate quality record maintenance programs. By March 2019, the department seeks to be accredited by National Accreditation Board Limited (NABL) as per ISO 17025:2017. The calibration services that the institute offers to the footwear and leather industry in India is traceable to the national standards provided directly by CSIR-National Physical Laboratory (CSIR-NPL).

The tests for which the CATERS has been accredited by SATRA is available in our website.



factory level inspections. At the present moment, two State Governments and about 3 Navaratna's are utilizing our services.

Calibration Services

CSIR-CLRI has its calibration devices calibrated by the national standard of India – CSIR-National Physical Laboratory. With the support of experienced staff drawn from the department and CLRI-SPDC the department calibrates the test equipment available at factory sites. Over 25 leather manufacturing, footwear producing and goods manufacturing units make use of this offsite service from CATERS.

Academic and Industrial Research Services

CATERS is today a boon for the academic researchers of the institute and all over India as they can look towards the department for meeting their characterization needs. The officers of the department work with the students/researchers to develop the protocols and carry out measurements for them. In a similar manner, the R&D in industry also constantly makes use of our facilities in their product development related characterization employing their own protocols but utilizing our instruments on a time share basis. In a year, the department caters to the need of over 1000 students and 3-4 industries. The testing / instrument support services at CSIR-CLRI are now accessible through iSTEM, CSIR e-portal and testing.clri.org.



Enabling Statutory Compliance

CATERS is now in a position to adopt and receive samples for all chemicals listed under REACH norms. The department can assist industries with their testing needs based on needs of various agencies including in some cases those by multinational automobile manufacturers.



Setting Highest Level of Ethics in Testing Services

The department is committed to protect confidentiality of its customers. The quality manual of the department commits the services of the department to impartiality and also to employ the highest level of ethical standards in testing, evaluation and reporting services.

The Management Committee of CATERS headed by the Director CSIR-CLRI ensures all the customers of CATERS the highest standards of testing and authenticity in its reports. Keeping with the motto of the institute, the CATERS through appropriate infrastructure, trained manpower and competent service would provide to its customer's better services today than yesterday for ever

Infrastructure created in Bio Materials Lab (BML)

The renovation of 5000 sq ft of laboratory space has been completed. The new arrangement has a common wet lab area of about 2500 sq ft, three nos tissue culture rooms, microbiology room, three instrumentation rooms, and scientists sitting place.

Biomaterials Department was established with an aim to understand the patho-physiology of scarring. Various biological markers with reference to their expression in abnormal wounds are being identified. On the other hand, biomaterial based drug delivery systems for enhanced wound healing has been of major interest which includes collagen based wound dressings. Cytotoxicity and angiogenic assays are focused for understanding the application of biomaterials.

Research activities in our Department are oriented towards

- Development of electrospun nanofibers encapsulating biomolecules for tissue regeneration.
- Alternate methods of siRNA delivery for wound healing.
- Nanoparticle synthesis and their biological applications.
- Understanding molecular mechanisms of angiogenic imbalance.
- Collagen stabilization with natural and synthetic molecules for leather application.





Department of Biochemistry and Biotechnology

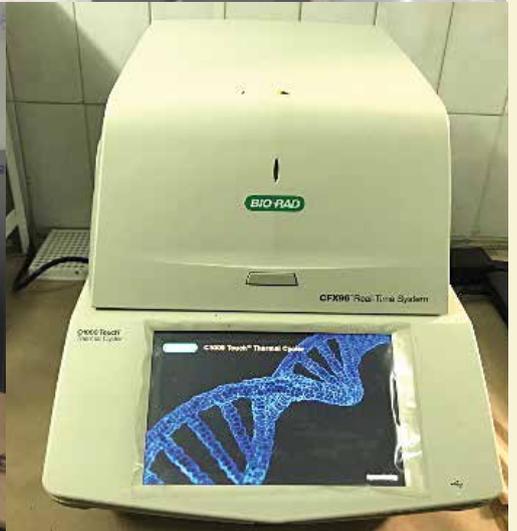
Infrastructure Upgradation / New Facilities

The Department of Biotechnology was modernized in the last two years with necessary facilities for Bioprocessing and Molecular Biology research. It facilitates effective production and upscaling of enzymes for pre-tanning operations, downstream processing of proteins and bioprocessing of solid wastes for value added products. The lab was equipped with Molecular Biology aspects to create superbug for biosynthesis of multiple enzymes, synthetic biology approach for strain improvement as well as to explore recombinant biomaterial and tissue engineering. In addition, the Department created Infrastructure for production of Keratin hydrolysate at pilot scale level under the Facility Creation Project (FCP).

Infrastructure Developed under Facility Creation Project



Facilities of Biochemistry and Biotechnology Department



Knowledge Resource Centre (Library)

Knowledge Resource Centre (Library) of CSIR-Central Leather Research Institute, Chennai has a premium collection in Print-version of over 13,700 Books and 25,000 bound volumes of Journals, Abstracting & Indexing Databases, M. Tech & Ph. D Dissertations, Reports, etc., The core of its collections provides the best information resources in Leather, Footwear and allied areas in addition to the Biological, Chemical and Engineering disciplines.



Knowledge Resource Centre is a hub for access to some of the best collections of **electronic resources**, including e-journals and e-databases from renowned publishers.

The First and Second Floor of the Library having a carpet area of 3730 sq.ft and 3033 sq.ft, respectively was renovated and modernised in October 2017 into a knowledge space which is wi-fi enabled and has dedicated computer terminals with internet connection for accessing open access and paid e-resources. The following e-resources (Databases & Journals) are available for online access at CSIR-Central Leather Research Institute.

DATABASES

- Web of Science
- Chemical Abstracts/ SciFinder (password protected)
- ASTM SEDL Standards
- Q-Pat (password protected)

ENGLISH LANGUAGE ENHANCEMENT & PLAGIARISM-DETECTION SOFTWARE

- Grammarly (password protected)

E-JOURNALS

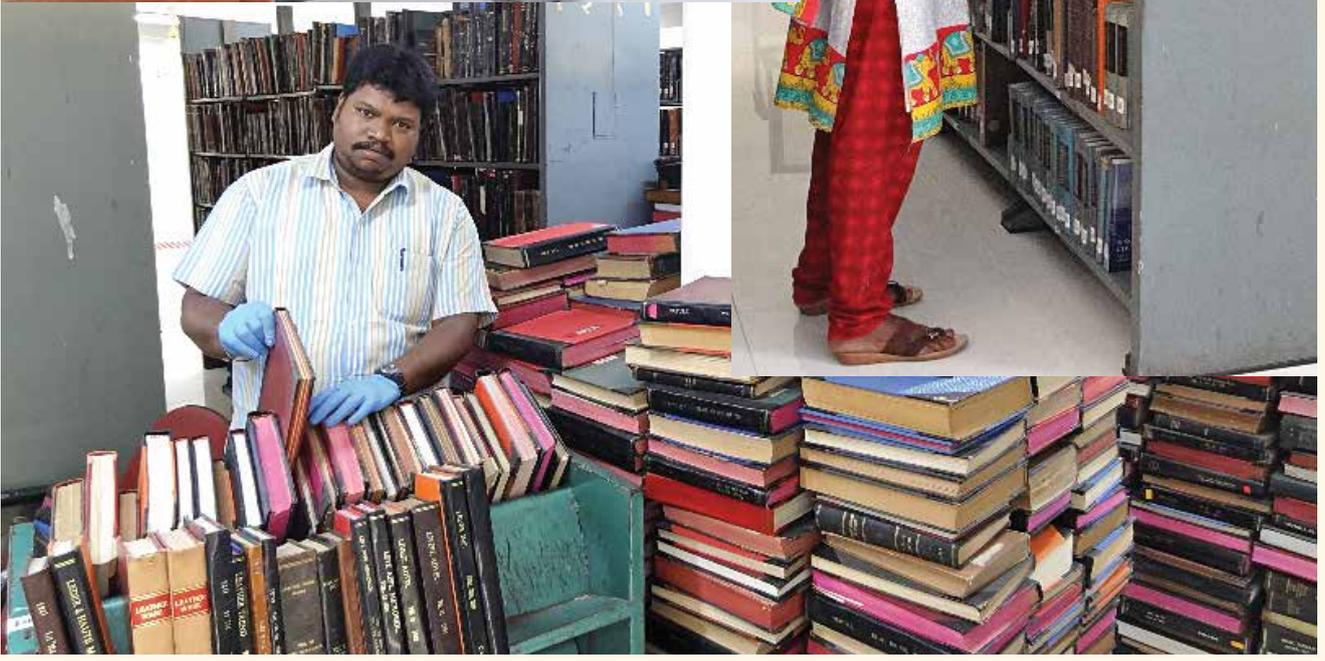
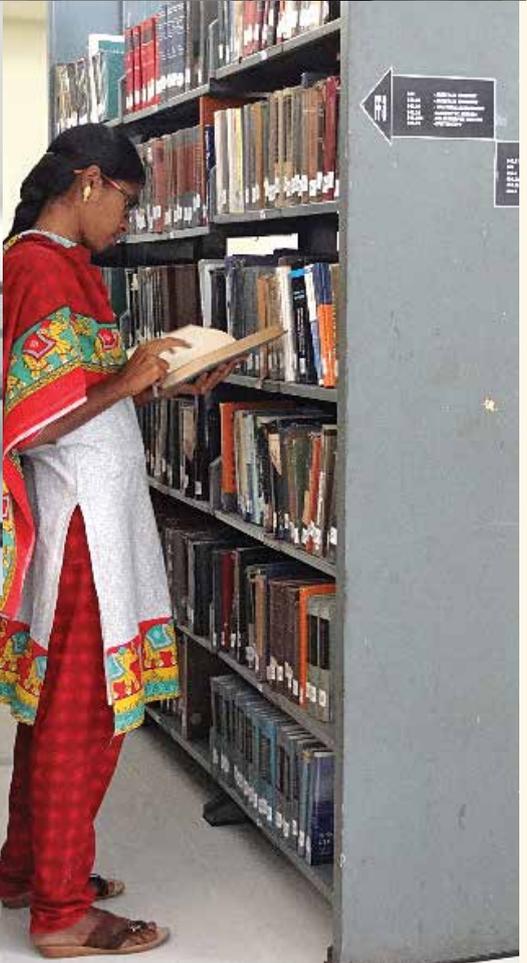
- American Chemical Society- ACS Journals
- Springer Journals (Biomedical and Life

Sciences & Chemistry and Materials Science)

- Wiley & Blackwell
- Taylor & Francis
- Royal Society of Chemistry
- Oxford University Press
- Emerald Group
- Nature Publishing Group

CSIR-CLRI Library has adopted Koha Library Software, the world's first free and open source library system for its integrated library management practices.

The Online Public Access Catalogue (OPAC) can be accessed from across the globe to get the details of books and journals available in the Library at krc@clri.res.in.



CLRI Nursery and Primary School

To cater to the educational needs of wards of CSIR-CLRI employees, CLRI Kinder Garden School was started way back in 1970s by then visionary leaders of CLRI. Today, it serves not only to CSIR staff but also to the larger society by providing education to many children living in the nearby areas. The CLRI Nursery and Primary school has been duly registered under the Tamil Nadu state government.



Recently, the school underwent major facelift and complete renovation to give the best of environments for the little ones in terms of flooring, walls, painting and other state of the art facilities. New play equipments has been added in the playground and a world class “Creativity room” has been made to encourage tiny tots to kindle their creative potentials. To ensure that kids cultivate the habit of sharing, a large dining area has been created to enable all the kids to enjoy their meals together.



ACKNOWLEDGEMENT

In 2017 after the Dr B Chandrasekaran, Director, CSIR-CLRI's involvement school was renovated. Cement flooring changed into tiles not allowing the snakes to enter. Electric wiring and safety EB box was fixed. There is a room with roof where students can sit and enjoy their lunch and a place to wash their hands. Boys and Girls are happily using their new rest rooms. Extra gate was constructed in the backside of the school in emergency. Students are having their fun in the playground with new equipment's. New activity room help the teachers to be innovative. Wall paintings are attracting all the parents.

New PC systems is making the accountant work very easy and comfortable. Staff and students thank the directors for all these changes in our school.

*For CLRI Nursery & Primary School
Ms. Christin Vasant, Headmistress*

UPCOMING PROJECTS



Design Innovation Centre, SPDC



Leather Certification Room, Tannery



New Gate on Kotturpuram Road



Boundary Wall on Northern side



Triple Helix Auditorium



Skill Development Training Centre



Rain water harvesting



Canals



***Student Scientist
Interaction Program
as a part of JIGYASA held at
CSIR-CLRI from 27-29th November, 2018***



Report by Dr T Narasimhaswamy, Senior Principal Scientist, CSIR-CLRI

Student Scientist Interaction program with mini research projects as main theme was organized for students of Kendriya Vidyalaya (KV) for 3 days from 27th – 29th November, 2018 at CSIR-CLRI, Chennai as part of Jigyasa activities. As many as 80 students and 8 teachers from KV – Coimbatore, KV –Arakkonam, KV –Karaikudi, KV –AFS-Sulur, KV –Thakkolam, KV –IIT, KV –CLRI and KV –Island Grounds participated in the program. The program was inaugurated by Dr. B. Chandrasekaran, Director, CSIR-CLRI. In the inaugural address, he explained the objectives of Jigyasa and motivated the students towards science and technology and said that the CSIR has brought Jigyasa in to project mode. He emphasized that students who participated in previous JIGYASA programs performed well in their science exams comparatively and hence implored students to make use of the opportunity given to them. The chief guest of the event, Mr. R. Senthil Kumar, Assistant Commissioner, Kendriya Vidyalaya Sangathan, Chennai appreciated the contributions and innovations of CSIR in various disciplines and enthused students to pursue creative research.

The inauguration was followed by special lecture by Prof. R. Shankar, Institute of Mathematical Science where he gave a brief introduction on Climate change. The students were elated during the interactive question-answer session on theoretical physics, space research and earth science. The questions raised by students included

- Causes of forces between nuclei and particle collisions
- Explanation about graviton and quarks
- Why moving particle creates magnetic field
- Reasons for shocks in body on contact with electrical energy.

This was followed by a lecture on good laboratory practice by Dr. S. N. Jaisankar, CSIR-CLRI about the safety precautions to be taken while working in the laboratory. Later on the students were grouped into 13 batches for mini research projects under the guidance of Scientists from various labs of the Institute. The second day program (28th November 2018) began with the special lecture by Prof. Mangalagowri, Centre for Stem Cell Research and Regenerative Medicine, Madras Veterinary College, Chennai. She gave an excellent presentation on stem cells and the students were delighted by noticing the bone marrow cells through Foldscope. Later, the students continued their project work in their assigned topics. On Day 3 (29th November 2018), the session commenced with a special lecture by Prof. Anbuaran, Department of Chemistry, IIT (M), Chennai. He emphasized the role of organic chemistry in everyday life that captivated the attention of the students, which was followed by long interactive session with the speaker. This followed the mini research project in their respective labs.

In the afternoon session, the students were given an opportunity to present their work in a interactive mode with a team scientists comprising of Dr. M.Sugunalakshmi, Dr. Purna Sai and Dr. M.Suriya Narayanan. The evaluation committee was happy to see the the ardent dedication in explaining salient features of their work. This followed, the valedictory function which was graced by Dr. C. Muralidharan, Chief Scientist, CSIR-CLRI, Prof. K. Kumanan, Dean, Madras Veterinary College, Chennai and Dr. M. Manickasamy, Principal, KV-IIT, Chennai. In the feedback session, the students and teachers expressed that the program was well organized and felt that the Jigyasa has motivated them to pursue research in science. All the students were given participation certificates. The distinguished guests encouraged the students to focus on science research which is much needed in the current scenario as Indian government is one of the best funding hubs in the field of research. The program concluded with the vote of thanks by Dr. S. N. Jaisankar, CSIR-CLRI.



Report of participation of ISO / TC 94 SC3 plenary and WG1, WG2 &G3 with related CEN TC meeting

Dongguan, China, 27 to 29th November 2018

Report by Dr B N Das, Chief Scientist, CSIR-CLRI

Introduction and Venue:

ISO/TC 94SC 3 Plenary and working groups meeting was held Hotel TANGALA, in Dongguan City 27th to 29th November 2018. The meeting hosted by the Standardization Administration Committee (SAC) of the People Republic of China (P.R.C), along with local office CTC, France.

SAC is strongly involved in the development of leather product standards. It has several Technical committees (TC) that are developing standards and specifications in the area of footwear. BIS may study SAC activity. All these TC meeting are meet regularly (three /four meetings in a year). SAC staffs are technically qualified and their activity is very focused. We were informed during meeting that CHINA TC 305 and TC 102 already published separately "slip resistance "methods. One is simple adaptation of ISO method and other method also measure "Static Co efficient" and maximum load is 400 N with variable speeds 0.1 to 0.5 m/s. There is arbitrariness in selection of tiles. Till dates, these tests are not mandatory in any kind of products, except snow boots.

This TC meeting was organized by SAC committee of PPE. Meeting was formally inaugurated by lady Dy Director, Ministry of Emergency Management, Gove of PRC. This is the ministry which controls SAC Chinse PPE activity was started 1988 and acts mirror committee of ISO TC 94 /SC3. After highlighting Chinse standards activity, she assured that Chinse will be more aggressive for formulation of International standards especially in PPE. She was present all the three days. Head of SAC was also present last two days of the meeting

Delegates:

Delegates from National Standards Bodies such as India, Spain, Austria, UK, Italy, Germany and China were attending these three-day meetings. Since theses working groups are also harmonized with CEN activities, members of such mirror committees were attended the working groups meeting in large numbers. Other than national bodies, material manufactures for safety shoes (example Textan, Italy; Socks manufactures from France etc.) participated in various working groups meeting.

A large number of delegates from PRC China from various technical intuitions including CTC, Shanghai and Dongguan/ Hong Kong, safety shoe manufacturer, were participated as members and observers.

Indian delegation:

India was represented by Dr B N Das & Mr. J Basak. We actively participated all the meetings and expressed Indian concern especially ISO 18454 Footwear standard atmospheres for conditioning and testing of footwear and components of footwear Important outcome:

Decision of WG 3

Members agreed to revise exiting Slip resistance testing methods (ISO/DIS 13287). The following points were deliberated during discussion which was approved by all participants.

1. Washing or not washing greasy sole? if yes, reports should be accepted for En20344 certification
2. Whether abrasion of sole with last / mechanical foot or not? merits and demerits were discussed
3. Description of "abrasion" or "abrasion cleaning"
4. Needs of fine tunings of exiting drawings to avoid misconception
5. What kind of tiles? will there be any joining between tiles?

Decision of WG1 + WG 2

The whole day deliberation on. EN 20344 rather left incomplete and decided the will continue during 5 to 7th February in Vienna and 13 to 17th may at Helsinki before the documents circulate for ballot.

Major agenda point was about HAS consultant rejection of exiting EN 20344 in total for EU PPE notification. After deliberation it was decided that Conveners will meet HAS experts and sorted out. It was decided to removed drop test and Scuff caps test and ankle protection will be added.

Dr JC cannot present his study about clamp of Bally flexing machine and difference between old and new Martindale abrader. It was decided that after finishing job in hand, work on orthopedic footwear will commence.

Dr B N Das superannuates on 31st December 2018 as 'Chief Scientist'

Director & Staff
CSIR-Central Leather Research Institute

wish

the Doyens and Members of the Indian Leather
Fraternity; Colleagues from CSIR; Mentors, Teachers,
and Friends & Readers of

The LEATHER POST

Festive Greetings &
A bright and prosperous
New Year





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