

NITRA NEWS

...with industry always



Issue: Jul. – Sept. 2020

Insight

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Editorial Structure

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FROM DIRECTOR GENERAL'S DESK



Dear Patrons,

Before beginning to talk about NITRA, let me first believe that all of you our esteemed patrons and your associates are in good health in spite of the long-going pandemic situation arising out of Covid-19. Similarly, you will be happy to learn that all associated with NITRA are keeping well and the organization too is steadily gathering fast momentum activity-wise.

This quarter has been quite an eventful one for NITRA as the 44th Annual General Meeting to form NITRA's Council of Administration for the year 2020-21 has taken place in this quarter. NITRA's esteemed council members virtually met in the 44th AGM held on 25th Sept.'20. They elected NITRA's new leadership team for managing its activities for the year 2020-21. Sh. Dinesh Nolkha, MD, Nitin Spinners Ltd. is elected as the new Chairman of NITRA. Sh. Raj Kumar Jain, MD, Zonac Knitting Machines (P) Ltd. is elevated as Dy. Chairman whilst Sh. Vidit Jain, Joint MD, Pasupati Spinning & Weaving Mills Ltd. has been inducted as the new Vice Chairman. Sh. S. K. Kapoor, MD, Surya Processors (P) Ltd. and the outgoing chairman handed over the baton to the new team. While taking over, the new chairman thanked the outgoing chairman for his invaluable guidance that had helped NITRA grow steadily. He also assured to deliver quality service from NITRA to the Indian T&C industry and allied sectors.

In this quarter, beside regular works, NITRA continued to conduct various testing and inspection services including the tests and inspection of PPE Kits, which is the need of the hour. Here it is worth mentioning that all NITRA testing services are approved by flagship agencies such as NABL, BIS and MoT whilst the inspection services are accredited by NABCB for ISO 17020.

In another notable happening, for enriching the knowledge of T&A industry professionals, NITRA organized a series of six webinars on various contemporary issues having direct bearing with this industry. All the webinars were full-house and highly appreciated by the participating professionals. Furthermore, two important MoU, one with Centre for Indian Bamboo Research & Technology, New Delhi and another with University of Huddersfield, UK has been signed. From this issue we are starting a series of technical write up on Sustainability in Textiles and Apparel industry.

In addition to above, classes for the three job-oriented short-term programs on textile & apparel that is offered by NITRA every year have also been started in on-line mode during this quarter. In the same line, regular classes for two B. Tech programs on Textile Technology and Computer Science & Engineering offered at NITRA's academic wing NITRA Technical Campus (NTC) is also being conducted in full swing as per the directives of AKTU, Lucknow.

To conclude, I wish you all enjoy reading **NITRA News Bulletin** and send valuable feedback.

Regards,

Dr. Arindam Basu
Director General



Northern India Textile Research Association

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R&D SPECTRUM

Presently NITRA is working on six Government and Industry sponsored projects.

Government Sponsored Projects - On-going:

- New Approaches to Reduce Water Consumption in Textile Wet Processing
- Development of Value Added Products from different fibres produced in Himalayan Region
- Development of Air Cleaner Home Textiles to Reduce Indoor Air Pollution
- Setting up of Common Effluent Treatment Plant (CETP) -150 KLD at Ajrakhpur, Bhuj
- Development of regenerated cellulosic fibres from Indian bamboo

Industry Sponsored Project - Completed:

- Development of technical textile products in the field of feminine hygiene

Proposed Projects - Submitted to Government Agencies for Financial Support

- Development of Stab, Impact and Puncture Testing Instrument for Body Protector (submitted to DST, GoI)
- To initiate a process for making rural women economically self-reliant by engaging them to convert agriculture bio mass waste in to useful products (submitted to DST, Govt. of India)
- To develop protective work-wear for sewage and sanitary workers (submitted to DST, Govt. of India)
- Development of protective work wear for fire safety of women working in fire hazard areas such as kitchen, match sticks manufacturing, brick firing & fire work industry (submitted to DST, Govt. of India)
- Development of cooling fabric for summer-season traffic police (submitted to industry)
- Development of low-cost sanitary napkins (submitted to industry)
- Development of thermal layer using aero-gel (submitted to Industry)
- Isolation of Nano/Macro Cellulose from agriculture waste using eco-friendly method to solve stubble-burning problem (submitted to DST, Govt. of India)

RESEARCH PAPERS PUBLISHED/PRESENTED

S. No.	Title	Author(s)	Publication/Place	Date
1	Smart Electronic Yarn & Wearable Fabrics	Dr. Arindam Basu	Chapter in "Nanosensors and Nanodevices for Smart Multifunctional Textiles" edited by A. Ehrmann, T.A.Nguyen & P. N. Tri and published by Elsevier Inc., UK	September 2020
2	FR Medical Textiles: Test methods as per specific requirements	Dr. M.S. Parmar	Virtual Lecture organized by NIFT, Delhi	12 th July 2020

3	Recent Trends In Data Science and its Application	Dr. B.K. Sharma	2 nd Webinar Series, SDIT, Dausa	2 nd July 2020
4	Stock Market Predication using Machine Learning Techniques for effective decision making	Dr. B.K. Sharma, Mohit Sharma and Archana Sharma	Int. Conference on Emerging Trends in Information Technology and data (INCETITIDS-20), IMS, Gzb.	4 th July 2020
5	Sustainability in Textiles & Apparel Industry	Dr. Arindam Basu	Asian Textile Journal	April-May 2020
6	Design, Enhancement and Optimization of Low Pass Filter Using Neural Network and Genetic Algorithm	Dr. B.K. Sharma, Harshita Sharma and Dr. Madhu Jain	National Conference on Innovations in Computing Electronics and Communication Engineering (NCICECE 2020), National Institute of Technology, Kurukshetra Haryana.	25 th -26 th July 2020

CONSULTANCY CORNER

- ❖ Third party inspection of textile manufacturing units for Woolen Jersey (3 unit), Gabardine (6 units), Disruptive 80-20 (2 unit's), Nycofabric (1 unit), T-Shirt (2 units), Rain Cape (1 unit), Sleeping bag (1,unit), Under pant thermal (1,unit), Angola shirting (2 units), Water Bottle (1,unit), Helmet (1,unit), Blanket (1unit), Serge (1,unit), Fullbody Protector (1,unit), Universal Kit-bag (1 unit)
- ❖ Third party inspection of PPE Kits for HLL (16 units)
- ❖ Third party inspection of PPE Kits for Export Certification (4 units)
- ❖ Manpower assessment study (1,unit)

HRD FOCUS

Dissemination workshop on Energy Efficiency and Conservation Opportunities

Dissemination workshop on Energy Efficiency and Conservation opportunities in energy intensive SME Textile Cluster organized by Engineering Dept on 24th July, 2020. The workshop was attended by 70 participants from Panipat textile cluster, which includes industry owners, senior managers and academicians.

A Bouquet of 1 day training programs on Synthetic Blood Penetration Tester as per ISO 16603 conducted by NITRA during the reported period

- Richa Global Export Pvt Ltd, Gurgaon on 28.07.20. A total of 5 participants attended.
- Matrix Clothing Pvt Ltd, Gurgaon on 29.07.20. A total of 2 participants attended.
- Pioneer Hygiene Products, Bharuch, Gujarat on 10.08.20.20. A total of 4 participants attended.
- Arvind Ltd, Ahmedabad, Gujrat on 10.08.20. A total of 6 participants attended.
- Kapoor Enterprises, Kuldli on 07.09.20. A total of 2 participants attended.
- Chinar Forge Ltd., Jalandhar on 19.09.20.

A series of Webinars conducted by NITRA during the reported period

During the months of July and August 2020, NITRA conducted a series of 6 webinars for the professionals of textile and apparel industry. The webinars conducted includes; Defects in Spinning, Weaving & Processing, Usefulness of the SQC Techniques in Textile and Apparel Industry, Advance use of Google Spreadsheet in Textile & Apparel Industry, Impact of Covid-19 on Global Apparel Business and Opportunities for India, Solutions to your daily factory report-NITRA's mobile app "APPRISE", and Profitability Concept and factors contributing to high productivity in spinning. Over 200 participants from large number of textile and apparel units pan India participated in the webinars. The webinar series was highly appreciated by the participants.

TESTING ZONE

During the period, total 1894 samples were tested in all the labs as per following table:

S. No.	Lab Name	No. of samples tested
1	Physical Quality Evaluation lab	689
2	Chemical Quality Evaluation lab	948
3	Heat & Flame	
4	Polymer & Technical Textiles lab	188
5	Eco lab	69
6	Env. Lab	

In addition to this, 03 cases of Fabric Defect Analysis also done during the quarter.

GLIMPSES

Industrialist Sh. Dinesh Nolkha Takes over as NITRA's New Chairman

The members of Council of Administration NITRA had virtually met in the 44th AGM held on 25th Sept.'20 and elected its new leadership team for 2020-21. Sh. Dinesh Nolkha, MD, Nitin Spinners Ltd. is elected as the new Chairman of NITRA. Sh. Raj Kumar Jain, MD, Zonac Knitting Machines (P) Ltd. is elevated as Dy. Chairman whilst Sh. Vidit Jain, Joint. MD, Pasupati Spg. & Wvg. Mills Ltd. has been inducted as the new Vice Chairman. Mr. S. K. Kapoor the outgoing chairman handed over the baton to the new team. The new chairman thanked the outgoing chairman for his guidance and also assured quality service from NITRA to the Indian T&C industry and its allied sectors.

A Glance at NITRA's Office - Bearers for the Year 2020-21



Chairman - Sh. Dinesh Nolkha, is a CA and CWA by qualification. He secured all India 4th rank in ICWA Final in 1991 and a merit holder in ICAI Exam. He is the MD and a co-founder of Nitin Spinners Ltd. and spearheaded continuous expansion of the company. The company is exporting more than 60% of its produce to more than 50 countries across the globe. His primary focus is on overseas marketing and sales promotion for the company besides looking after production, expansion programs, regular operations & marketing activities. Sh. Nolkha is also the Immediate-past President of Mewar Chamber of Commerce and Industry.



Dy. Chairman - Sh. Raj Kumar Jain is the Managing Director of Zonac Knitting Machines (P) Ltd. He is a qualified engineer from Delhi, having practical training on circular knitting machines at various European and Asian machine manufacturer facilities. He looks after the production facilities in the company and is also involved in development of new innovations. Being an engineer himself, Mr. Raj Kumar Jain remains updated and fully aware of the global technological advancement happening from time to time. As a result of this, his brand BONJOUR™ has become a trend setter.



Vice Chairman- Sh. Vidit Jain is the Joint Managing Director of Pasupati Spinning & Weaving Mills Ltd.- a company engaged in the manufacture of 100% Polyester Spun Yarn and 100% Polyester/Filament/Core Spun Sewing Thread. He has studied Business Administration from Wharton Business School, University of Pennsylvania, USA. Hailing from an industrial family, he has an experience of about 20 years in the textile industry. Mr Vidit Jain is a young and energetic new-gen entrepreneur having interest in diversified fields.

Mou Signed During The Reported Period

- With M/s. Centre for Indian Bamboo Research & Technology, New Delhi for cooperation in conducting a R&D project, sanctioned by Ministry of Agriculture & Farmer's Welfare, Govt. of India on 25th August, 2020.
- With M/s. Solidaridad Regional Expertise Centre (SREC), New Delhi on 7th September 2020 for work towards sustainable growth of Panipat Cluster

Mutual non - disclosure agreement signed with University of Huddersfield, UK

- A mutual non-disclosure agreement signed with University of Huddersfield, UK on 2nd September for detail discussion on carrying out joint project with NITRA.

Training Program/workshop/seminar Attended By Staff

S. No.	Name of the program	Venue	Dates	Name of staff
1	Manufacture and Export of Textiles Based Personal Protective Equipment (PPEs)	Webinar	11-12.08.20	Vivek Agarwal & Shweta Saxena
2	Awareness on Meeting Challenges of PPE Export Market	Webinar	26.08.20	Vivek Agarwal & Shweta Saxena
3	ILAC Documents relevant for Inspection Bodies organised by NABCB, New Delhi	Webinar	11.09.20	R.K.Gaur & Sanjeev Shukla
4	Innovation Excellence Indicators Framework- Webex Meeting organised by Confederation of Indian Industry, Gurugram	Webinar	17.09.20	R.K.Gaur
5	Workshop on Capacity Building and Digital Content Development	Virtual	29.09.20	R.K.Gaur, M.K. Bansal & V.S. Khoiwal

NITRA Developments Got Commercialized

- Technology of "Synthetic blood penetration tester" transferred to M/s. Asian Test Equipments, Ghaziabad.
- Technology on "Development of stab and impact resistant material for anti riots body protector" transferred to M/s. Applied Systems Mumbai.
- Technology of Work wear for Cement Porters transferred to M/s. Arvind Ltd., Ahmedabad
- Technology of developing "Multi Layered Flame & Thermal Resistance Fabric for Fire Fighter Clothing" transferred to M/s. Arvind Ltd. and Aeronav Industrial Safety Appliances.
- Technology of "NITRA Electronic Drape meter" transferred to M/s. Dinu Technologies, Coimbatore.
- Technology of "NITRA's Fabric Smoothness Tester" transferred to M/s. Multiflo Instruments Pvt. Ltd., Navi Mumbai.
- Technology to produce "Seamless low cost jute carry bags" transferred to M/s. G. D. Industries, Kolkata
- Study material for "Fabric Defect Analysis" transferred to Textile Sector Skill Council, New Delhi

TECH-FEATURE

The aspect of sustainability has arrived in textile industry in a big way. Sustainable development takes place without depleting the present natural resources. Today large sections of the population are marginalized by ill-considered development. This is the burning area which needs all-round effort to innovate sustainable technologies vis-a-vis save the mankind as well as the flora and fauna. Most of the textile manufacturers are now shifting focus to developing innovative eco-friendly textile products. In this backdrop, from this issue NITRA is coming out with series of articles on Sustainability in order to help the industry.

Sustainability in Textile and Apparel Industry

Dr. Arindam Basu

Part 1 – Raw materials

Sustainability is the buzzword in all industries as people have understood that if we continue to do what we are doing so long there will be no natural resources such as pure air, water, minerals etc available for our next generation. There is a concept of Circular economy which is based around four goals that allow recycling and maximum use of raw materials with as little waste as possible. The main goals include phasing out substances that could cause harm, increasing clothing re-use through design and marketing of clothing durability, improving recycling and recyclability of mixed fibre items and to make better uses of resources and switching to renewable wherever possible. Among the processes involved in textile and apparel industries wet processing pollutes the environment maximum hence majority of the efforts are being taken in this area. But starting from selection of fibres, spinning, weaving, knitting, garmenting processes also can contribute in sustainability.

Raw materials used in the textile industry can be divided into two major categories, renewable materials, which grow, are biodegraded and whose seeds enable them to re-grow and non-renewable finite materials which do not re-grow and the supply of which may soon become exhausted if used intensively. Natural fibres such as cotton, silk, wool, jute, flax are most popular fibres but their growing processes can be improved keeping clean environment as main objective. Organic and genetically modified cottons are becoming more acceptable by the major brands in the World. Similarly organic silk, wool are being tried by several manufacturers. In its 2017 Preferred Fibers and Materials Market Report, the Textile Exchange reported that organic and other preferred cotton (like better cotton, Fair trade, Recycled) use has increased 47% over the previous year, recycled polyester grew 58%, demand for Lyocell was up by 128% and companies are using 54% more preferred down (certified to the Responsible Down Standard or the Traceable Down Standard).

Italy based Orange Fibres, is making a silk like fibre out of orange peels. They are sourcing the orange peels (around 700000 tons) from Sicily which would have ended in landfill. The waste skin, pulp and pips from apple juice farms are transformed into 'apple skin' a vegan and sustainable leather like fabric that is fully biodegradable. A relatively recently developed fabric, Coconut Wool, uses sustainably sourced coconut waste to produce a tree free soft rayon. Developed as an alternative to wool by the Australian company 'Nanollose', the first viable garment utilising 'Nullarbor fibre' was created in December 2018.

Pineapple leather or 'Pinatex' has swiftly gained popularity within the footwear industry as sustainable and vegan alternative to traditional leather. Produced primarily by the UK based "Ananas Anam" Company, the fabric is made using the fibres from Pine apple leaves, which are natural by products from Pineapple farming industry. The fibres are extracted from the leaves by the pineapple farming communities, by a process called decortications. They are degummed and transformed into a nonwoven mesh, which undergoes a specialised finishing process that gives it

leather like texture. Residual leaf biomass from the pineapples is used as biomass.

“Mycelium leather” is created from the microscopic spores produced by mushrooms. Companies are able to cultivate these cells which naturally self assemble into a sturdy 3D mesh-like structure that can be compressed to become a viable material. This is then dyed and tanned to create leather like finish. The material is non toxic and bio-degradable and can be produced within days. Companies such as Bolt Threads and MycoWorks are producing this material for use across the fashion and interiors industry.

Food industry by-products are a key area for fabric innovators and alongside apple, pineapple and coconut waste from wine industry can be utilised. “Grape leather”, developed by the Italian company Vegea, uses waste fibres and oils from wine production to create sustainable leather alternative. It is created from “grape marc” – a waste material consisting of the grape skins, seeds and stalks that remain after grapes have been pressed for wine.

Plastic pollution is an increasing focus and various companies are processing plastic waste into textile grade fibres. “Seaquel” creates recycled polyester using plastic waste salvaged from the Spanish Mediterranean coast. Similarly “Econyl” uses waste from landfill and oceans to create nylon.

US based company Bolt threads uses bioengineering to put natural silk genes into yeast cells, which are then cultivated through fermentation yeast, sugar and water. The liquid silk is then extracted and spun into fibres, which are then woven into fabric. The final textile which is called “Microsilk” has high tensile strength, elasticity, durability and softness.

In 2002, Cargil Dow (now Nature Works) won the Greener Reaction Conditions award for their improved polylactic acid (PLA) polymerisation process. Polylactic acid is a polymer derived from lactic acid – a natural product usually derived from corn or sugar beet. It is 100% renewable and 100% compostable. It uses 20-50% less fossil fuel resources than traditional polymerisation process. Scientists in Japan developed renewable bio based polyester fibre by using bio based paraxylene derived from distilling bio fuel instead of crude oil. The bio based fibre behaves in the same manner as conventional polyester other than being nontoxic.

Recycled cotton and wool fibres and yarns are already available in the market. The recycling is being done from post consumer sources. Through the FIBERSORT project, Circle Economy has found that upward of 15 percent of all collected PCT is recyclable grade mono material, with more than 80 percent cotton, which is suitable for mechanical recycling into new textiles. With global collected volumes of more than 12 million tonnes per year, this suggests there is plenty of feed stock available. One T-shirt made with Recover yarns containing 52% recycled cotton, saves up to 2700 litres of water. In the Higg Materials Sustainability Index, recycled cotton fibre scores a 1.0, compared to 11.9 for organic cotton and 60.5 for conventional cotton.

NITRA ESTABLISHES MICROBIOLOGY LAB

Testing Facility at NITRA for Antimicrobial Testing		
S. No.	Test	Test method
1	Antimicrobial Finishes on Textile materials: Assessment - Staphylococcus aureus ATCC No 6538 - Klebsiella pneumonia ATCC No 4352	AATCC 100
2	Antimicrobial Activity Assessment of Textile Materials: Parallel Streak Method	AATCC 147
3	Antimicrobial Activity Assessment of new carpet i) Qualitative assessment ii) Qualitative assessment	AATCC 174
4	Antibacterial activity assessment of textile materials: Agar plate method	AATCC 90
5	Determination of antibacterial activity of textile product	ISO 20743
6	Determination of antibacterial activity of textile product-Agar diffusion plate test	ISO 20645
7	Antimicrobial activity assessment of Textiles against Fungi	AATCC 30, ASTM D 4576, BS EN 14119
8	To evaluate the antibacterial efficacy of antibacterial finished textile product	JIS L 1902
9	To determine the resistance to dry bacterial penetration	IS 16548, ISO 22612

**18% GST extra*



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