

SITRA e - Techletter

... News during the Year

INSIDE THIS ISSUE		
PRODUCTIVITY CONCEPTS1		
TECHNICAL NOTES4		
Тітвітѕ6		
New Testing Instruments7		
KNOW YOUR INSTRUMENT9		
SEMINARS & CONFERENCES10		
TRAINING PROGRAMMES14		
CONSULTANCY OFFERED16		
PAPER REVIEW17		
Стаге Менис 19 ———		

Performance of spinning mills during the period January – December 2022

PRODUCTIVITY CONCEPTS

SITRA regularly conducts inter-firm surveys on commercial and operational factors in order to keep the mills informed about the industry trend and enable them to make decisions and necessary benchmarking. These inter-firm surveys also form a base for revising SITRA standards from time to time. Of the various inter-firm surveys being conducted by SITRA, the monthly Online Survey on Raw Material Cost (RMC) and Yarn Selling Price (YSP) has been receiving good response among the participant mills as it covers the commercial efficiency of spinning mills.

SITRA launched the survey on raw material cost (RMC) and yarn selling price (YSP) in April 2013. The objective of this survey is to help the mills to compare their RMC, YSP, Net output value (NOV), as well as yarn quality, production rate & yarn realization (pertaining to 10 counts in each mills) with other mills every month. This survey gives vital information about the trend in the movement of count-wise YSP and RMC, between months, of popular counts. For this survey, SITRA has created a dedicated web portal www.rmcysp.sitraonlin.org.in, where the mills can register with SITRA to participate in this unique survey. SITRA has stuck to the timelines in all these surveys where the analysis report is uploaded on the website on the 21st of every month.

Market Performance Evaluation Index (MPEI)

To suitably reflect the fluctuations/volatility in the commercial efficiency of spinning mills over a period, SITRA has developed a new index by name MPEI (Market Performance Evaluation Index) which clearly portrays the commercial trend of the cotton spinning industry. MPEI is an arithmetic index that is derived by having April 2013 as the base month and the base index set to 100 for that month. The calculation of MPEI is based on the average net output value (yarn selling price – clean raw material cost) in terms of Rs per kg of yarn for 10 popular counts which occupy a considerable proportion in the market share with a wide range. The

PRODUCTIVITY CONCEPTS

popular counts that have been assumed to arrive at the MPEI are 40s K, 40s C, 60s C, 80s C, 40s C-Comp., 50s C-Comp., 60s C-Comp., 80s C-Comp., 30s CH and 40s CH.

Yarn selling price index (YSPI) and raw material cost index (RMCI)

The trend in the movement of MPEI is influenced by two major factors viz., yarn selling price and raw material cost. Hence, it is very much important to know about the trend in the movement of yarn selling price and raw material cost for the 10 popular counts that have been considered for MPEI calculation. Like MPEI, the average yarn selling price and the average clean raw material cost for the above counts is set at the index level of 100 in April 2013.

Trend in the movement of MPEI and its influencing parameters during the period January – December 2022

The trend in the movement of MPEI for the period January – December 2022 is shown in Figure 1. Similarly, the trend in the movement of yarn selling price index and raw material cost index during the period January – December 2022 is shown in Figure 2.



Figure 1 Market Performance Evaluation Index (MPEI)

MPEI for the year 2022 has started with a healthy 126 index points. However, in the subsequent two-month period it had witnessed a huge reduction and remained at 103 index points in March 2022. This huge reduction in the quarter is entirely due to increase in the raw material cost during the 3 months period. The yarn selling price index (YSPI) remained almost at a the stagnant level of 155 index points during January – March 2022, whereas the raw material cost index (RMCI) had registered at 184, 199 and 205 index points respectively during the above 3 months (Figure 2).



PRODUCTIVITY CONCEPTS

Figure 2 Yarn selling price index (YSPI) and Raw material cost index (RMCI)

In the next quarter also (April – June 2022), a similar trend was noticed. In April 2022, MPEI had witnessed a significant recovery which was mainly due to increase in yarn selling price (YSPI: 163). However, during the subsequent quarter, the YSPI did not witness any significant increase. Nevertheless, the raw material cost index had increased steadily and ended with 234 index points in June 2022. Due to the above, the MPEI which remained at 112 index points in April 2022 had reduced to 89 index points in June 2022.

The third quarter of the calendar year (July – September 2022) was so critical in which the MPEI had further reduced to 66 index points in July 2022, which is 23 points lower than that prevailed in June 2022. This was mainly due to reduction in the yarn selling price (YSPI: 153) with a contradictory increase in the raw material cost (RMCI: 237). By the end of this quarter, the YSPI witnessed a further reduction and remained at 147 index points with RMCI at 224 index points. Due to the above, the MPEI registered at 70 index points in September 2022.

In October 2022, the MPEI had registered for a record low value of 56 index points which was mainly due to low yarn selling price (YSPI: 140). In the subsequent months also, the YSPI has witnessed further reduction and registered at 131 and 125 index points in November and December 2022 respectively. At the same time, the RMCI also followed a reduction and recorded at 189 and 178 index points in the above two months. In effect of the above, the MPEI has ended with 70 index points in December 2022.

No. 6.1

TECHNICAL NOTES



How to Improve Yarn Realisation in Spinning Mill? Part-II

(continuation to the first part which appeared in the previous issue of this newsletter)

Comber Noil

Comber noil has to be optimised based on the quality requirement. The following are some of the measures to be taken to optimise the comber noil.

- 1. Maintain the variation in comber noil at ± 0.5% from average between combers.
- 2. The condition of all the critical components and theirreplacement and critical settings in combers have to be maintained properly.
- 3. Check and ensure the nep removal efficiency of combers in the range of 70 to 80 by maintaining the combers in good condition.
- 4. Short fibre removal efficiency has to be maintained greater than 70%.
- 5. Adequate waste suction pressure has to be maintained in combers.
- 6. Check and ensure that there is no good fibre loss in the noil.

Hard waste

Hard waste is the only waste that occurs almost at the final stage of yarn manufacturing process which means that it carries the entire conversion cost besides raw material cost. The following are some of the measures suggested for reducing the generation of hard wastes.

- 1. Restarting breaks must be maintained at less than 2% in ring frames fitted with auto-doffers. For ring frames without auto-doffer, the same must be maintained at less than 5%. This will, in turn, reduce the incidents of remnants in the ring cop.
- 2. Cop rejections in autoconersmust be controlled at less than 5% and repeater cycles must be controlled to less than 5%. The mill has to analyse and attend the reason for the excessive cop rejection and repeater cycles.
- 3. Ensure less than 70 clearer cuts per one lakh meters of yarn in all the winding machines by fine tuning the back processes.
- 4. Regularly check the functioning of kink prevention rod/brush and balloon breaker in all the automatic cone winding machines, preferably on a daily basis. In addition, check the peg centering and package suction arm setting in all the machines.
- 5. Record the hard wastes generated due to defective cops (top/bottom slough off, ring cuts and stained cops) and defective cones separately and exercise a strict control over the same.
- 6. Avoid using damaged empty cops in ring frames. Also, the mill must prevent workers using knife to cut the yarn remnants in order to avoid damages to the cops.
- 7. Remove hard waste in winding machines once in a hour for counts up to 20s and for counts between 20s and 40s, the hard waste must be removed once in two hours.
- 8. Avoid repeated transfer of cops between baskets. It is suggested to consider using the same ring frame doffed cop crate in feeding the round magazine of automatic cone winding machines. This will ensure 'zero cop transfer' and in turn will reduce the yarn waste due to entanglement.
- 9. Exercise strict supervision over the work methods of ring frame tenters, doffers, automatic cone winding tenters and material transportation workers. Winding tenters have to be trained to remove all back winding coils and tail ends from the cops while feeding the same in to the magazine. Apart from the above, it is suggested to optimise the back winding coils and under winding coils in ring frames.
- 10. Tension breaks in winding machines must be maintained at less than 3 per one lakh meters.

TECHNICAL NOTES

Sweep waste

The following are the some of the measures suggested for reducing the generation of sweep wastes.

- 1. Provide hip bags to all the workers.
- 2. Avoid the practice of throwing good waste on floor.
- 3. Pick the good waste from floor before sweeping.
- 4. Check and ensure the sweep waste periodically.
- 5. Keep separate bins for collecting the usable and sweeping wastes.

Invisible loss

Invisible loss is mainly due to following reasons.

- 1. Short fibres and fluff escape from the department to outside.
- 2. Weighment errors.
- 3. In-correct tare weight in raw material and yarn package.
- 4. Excess give away of yarn
- 5. Inaccuracies in the stock estimation.
- 6. Differences in the moisture level between cotton and yarn.

Usable waste

To control the usable waste, the following measures are suggested.

- 1. End breaks in various machines must be controlled at par with standard levels.
- 2. Material handling and storage needs to be ensured
- 3. Ensure correct work practices of operatives.
- 4. Record and ensure generation of usable waste in each department is less than the allowable limit on daily basis.
- 5. Reconcile the usable wastes production data with the issue data maintained by mixing department once in a month and ensure that there is no significant difference between the reported wastes.

Standards for usable wastes are given below.

Type of waste	Percentage (%)*
Lap bits	0.5
Card web	0.2
Sliver waste in draw frame and fly frames	0.5
Comber preparatory and comber	1.0
Roving waste	0.3
Pneumafil waste	1.5

The above article would be helpful for the mills to optimize the yarn realization without affecting the yarn quality. Though the reasons for the low yarn realisation and high invisible loss are well known, nevertheless, often mills have been finding it difficult to identify the exact causes. SITRA has been offering consultancy services to the mills for improving the yarn realisation and reducing the invisible loss. Interested mills can avail the above service.

'*' all the wastes are expressed as % of respective machine's/department's feed material

For further clarifications, mills may contact the Spinning Division of SITRA (Phone no. 0422-4215347, 345) E-mail id.: spg@sitra.org.in/nkn@sitra.org.in).



TEXTILE TITBITS

Robust conductive materials for medical e-garments

By Sarah Gibbons, 03 January, 2020 WTIN

Researchers in Singapore say they have devised a new conductive textile material which enables wearable devices to interconnect and transmit data with far more strength than existing technologies, improving the ability to conduct remote medical monitoring by healthcare professionals and family members.

The team from the National University of Singapore (NUS) has developed conductive materials based on comb-shaped strips of conductive fabrics using carbon, nickel, copper, gold, silver or titanium, attached with adhesives to the surface of a finished garment.

The 'metamaterial' receives information from non-textile sensors worn on the body, collating and directing this information via novel conductive textile strips integrated into a garment towards a separate internet-enabled device, such as a smart phone, relaying that information to external users, in what the team have termed a 'wireless body sensor network'. The conductive fabric corrals these data signals, confining them to just 10cm away from the body.

Assistant Professor John Ho, who led the team from the Institute for Health Innovation & Technology (NUS iHealthtech) and the NUS Faculty of Engineering, says the sensors worn on the body (like a smartwatch) or mounted on the skin (like a smart health patch) can use the conductive garment to communicate wirelessly between each other through radiofrequency signals, creating surface data waves across the body."Their proximity to the textile makes the connectivity 1,000 times stronger, which allows much longer battery life and can be even wirelessly charged by the hub or smartphone," he says.

He adds that garments fitted with the metamaterial can collect and accumulate data that can map physiological signals such as body temperature, motion, cardiac signals, and blood oxygen. "Current technology can measure these signals only at a single point on the body and we believe that the clothing can more conveniently capture these signals during daily activities," he says, giving a specific example of mapping body temperature during exercise to prevent overexertion.

Because sensors are separate, the garment can also be easily washed, more than many existing e-garments. Potential applications could range dramatically – from measuring a patient's vital signs without inhibiting their freedom of motion, to adjusting the volume in an athlete's wireless headphones with a single hand motion, according to the NUS.

Ho says the data collected and relayed to the internet could be delivered to healthcare professionals or concerned family members, thus boosting the development of a connected healthcare system and even access to the Internet of Things (IoT), when a user might need to send data to an internet-enabled device.

Smart clothes incorporating these sensors can be folded, washed, ironed and the strips can even be cut without impacting the conductivity, and they can interact with any conventional wireless device. The project has received an international patent, says Ho, and the team is now partnering with companies to commercialise it, with a view to having it on the market for consumers within five years on the back of what Ho describes as "significant interest from textile and wearable technology companies".

New instrument installed at SITRA Physical Testing Lab

Constant Tension Transport – Electronic (CTT – E) Friction Tester.

SITRA is offering some special testing of yarns like yarn friction coefficient and lint shedding in addition to the testing of regular yarn properties. The special tests mentioned above are carried out on the Constant Tension Transport (CTT Instrument) manufactured by Lawson Hemphill, USA. The existing CTT instrument was replaced with the next generation instrument Constant Tension Transport – Electronic (CTT – E) from the same manufacturer. The new instrument is equipped with servo motors and state of the art software versions for improved performance and accurate test results. The image of the equipment is given in Figure 1.



Figure 1 CTT - E instrument

Mills may send their yarn samples for testing the following parameters.

1.Yarn to metal friction, 2.Lint shedding

CTT – Friction Test

By accurately monitoring both input and output tensions of yarns through various devices in the yarn path, the configuration automatically determines the tension build up developed. The friction coefficient of yarn samples can be measured.

CTT – LGT (Lint Generation Tester)

This configuration is designed specifically to test and compare different yarns for lint generation. A must for the manufacturer or end user of any type of staple yarn to determine how much lint a yarn will generate under different manufacturing conditions – yarn to yarn, yarn to metal, yarn to ceramic, needles, sinkers and reeds at any angle. This test closely simulates dynamic production conditions and provides a quick and accurate test.

New instrument installed at SITRA's Calibration Laboratory

UNIVERSAL LENGTH MEASURING MACHINE (ULM)

SITRA calibration laboratory has received NABL Accreditation for Mechanical, Thermal and Electro technical calibration in accordance with ISO/IEC 17025:2017, in July 2020. Calibration is carried out by the laboratory for various parameters in the areas of Dimensions, Volume, Temperature, Specific heat & Humidity, Timer, Temperature simulation, Pressure &vacuum, Speed, Weights, Weighing balances, Force (Tensile testing), etc.

SITRA's calibration laboratory has recently been included a new Universal length measuring Machine - Mahr Precimar ULM 600-E which is a hi-tech, best in the class machine.



Textile and engineering industries in and around Coimbatore often seek SITRA's services for dimensional calibration. With addition of the Mahr Precimar ULM, SITRA is now capable of covering almost 90% of the scope in dimensional calibration for various parameters like Dimension, Volume, Temperature, Specific heat & Humidity, Timer, Temperature simulation, Pressure & Vacuum, Speed, Weights, Weighing balances, Force (Tensile testing), etc. This facility will be useful for textile and engineering Industries and SITRA is one of very few laboratories in Coimbatore with NABL Accreditation to cover the entire range of calibration.

Know Your Instrument

ION CHROMATOGRAPHY (IC)

Ion chromatography is a widely used analytical technique for the separation and determination of anionic or cationic analytes in various sample matrices. It is a useful tool for determining the presence and concentration of anions in samples and utilized in numerous settings including environmental analyses such as the determination of anions (PO_4^3 , CI, NO_3^3 , etc.) in surface waters. Current IC methods are often used to quantify concentrations in the low ppm level.

The Metrohm 930 Compact IC Flex system performs ion analysis using suppressed or non-suppressed conductivity detection. Ion chromatography system typically consists of liquid eluent, a high pressure pump, sample injector, a guard column and a separation column, a chemical suppressor, a conductivity cell and a data collection system. This can be applied to the determination of ionic solutes, such as inorganic anions, cations, transition metals, and low molecular weight organic acids and bases. It can also be used for almost all kinds of charged molecule including large proteins, small nucleotides and amino acids. The IC technique is frequently used for the identification and quantification of ions in various matrices.

Description:

The ions in a sample are moved through the system in solution and then the various ions are separated in a column with an ion-exchange resin. The resin's surface layer has limited ion-exchange sites that attract either anions or cations. A conductivity detector at the end of the column measures the quantity of exiting ions, and from this data a chromatogram is produced. Once the chromatograph is produced, contaminants can be identified and quantified. To identify contaminants, the sample's chromatograph is compared to that of a known reference material. The quantification is done by means of comparing the peak area of each anion and cation in the chromatogram with the standard curve of each specie's known concentrations. The available IC system is capable of analysing the anions in different types of water.

Specifications:

- Available column For Anion detection (Metrosep
- A Supp 5: 4.0 x 250mm)
- ✓ High pressure pump
- Minimum Sample Volume: 20 μL
- Conductivity detector

Applications

- Aqueous samples (e.g. water) or water-extractable surfaces
- Separation and purification of charged molecules
- ✓ Sample purity determination
- Quantitative analysis of ions
- Common anions Fluoride, chloride, nitrite, nitrate, sulfate, bromide and phosphate
- ✓ Other ion examples Chlorate, chlorite, sulfite (as sulfate), acetate, formate, iodide, citrate, bromate
- ✓ Trace anions in organic solvents
- Acidic thermal decomposition products in polymer materials
- lonic contamination in critical components

Strengths:

Page 9

- ✓ Rapid determination of inorganic and organic anions
- ✓ Sensitivity on the µg/L (ppm) level
- ✓ High selectivity in samples with complex matrix
- ✓ Ion species analysis
- Stability of the separator columns
- ✓ Small sample quantity needed





SEMINARS AND CONFERENCES



No. 6.1

SITRA's 60th Joint Technological Conference

The 60th Joint Technological Conference of ATIRA, BTRA, NITRA and SITRA was held at SITRA on 11th and 12th November, 2022. Shri R.Gandhi, Hon'ble Minister for Handlooms & Textiles, Govt. of Tamil Nadu inaugurated the Conference.

Welcome address was delivered by Dr. Prakash Vasudevan, Director, SITRA, Presidential address was delivered by Dr. K.V.Srinivasan, Former Chairman, Council of Administration, SITRA and the Keynote address was given by Dr. S.K.Sundararaman, Deputy Chairman, SIMA, Coimbatore.. Felicitaitons were delivered by Shri T. Rajkumar, Chairman, Confederation of Indian Textile



Industry (CITI), Smt. Roop Rashi, IA&AS, Textile Commissioner, Ministry of Textiles, Govt. of India, Shri Dharmendra Pratap Yadav, IAS, Principal Secretary (Handlooms, Handicrafts, Textiles and Khadi), Govt. of Tamil Nadu, Dr. Sameeran, District Collector, Coimbatore and Dr. M.Vallalar, IAS, Commissioner-Textiles, Govt. of Tamil Nadu.



Dr. K.V.Srinivasan



Shri Dharmendra Pratap Yadav



Dr. M.Vallalar



Smt. Roop Rashi



Dr. S.K.Sundararaman



Dr. Sameeran

SEMINARS AND CONFERENCES



SITRA's 60th Joint Technological Conference

The JTC had 5 technical sessions wherein 17 technical papers were presented by scientists from SITRA, BTRA, NITRA and ATIRA.

Session 1 on Circularity & Sustainability in Textiles Manufacturing was chaired by Dr.N.N.Mahapatra, Business Head (Dyes), Shree Pushkar, Chemicals & Fertilizers Ltd., Mumbai.



Session 2 on Mechanical Processing was chaired by, Dr. A.N.Desai, Former Director, BTRA, Mumbai.

Session 3 on Mechanical Processing, Engineering & Energy conservation was chaired by Dr. V.Chandrasekaran, Vice-

President, Adwaith Textiles Limited, Coimbatore.



Session 4 on Technical Textiles (Parallel) was chaired by Dr. A.Shanmugavasan, Managing Director, KOB Medical Textiles, Palladam.

Session 5 on Textile Processing (Parallel) was chaired by Mr. Suresh Manoharan, Executive

Director, Best Colour Solutions(I) Pvt. Ltd., Tirupur.

The following 8 papers were presented by SITRA scientists.

- 1. Development of breathable, reusable and oxo-biodegradable coverall using biocidal polyester
- 2. Synthesis of novel cationising agent and its application for salt free dyeing of textile Materials
- 3. A novel approach to evaluate nep removal in cards
- 4. Manpower retention strategies for spinning mills
- 5. Nepping potential of present Indian cotton
- 6. How to improve yarn realization in spinning mills a case study
- 7. Thread strategies for minimising power cost in spinning mills
- 8. Development of surface-active E-spin nanofibrous scaffolds for hard to heal wounds







SEMINARS AND CONFERENCES



Exhibition on Circularity & Sustainability in Textile Manufacturing

An exhibition, on the focal theme, 'Circularity & Sustainability in Textile Manufacturing" was held as a three-

day event, concurrently with the 60th Joint Technological Conference. The exhibition provided ample scope for exhibitors to interact with industry personnel at a single point and fulfil their requirements.





Also it served as a platform for business p r o m o ti o n opportunities on current technologies, products and services on

unconventional, recyclable and sustainable solutions.

The exhibition was visited by around 1000 persons representing industry, students and processing houses.





Exhibitors who showcased there products in the 3-day exhibition include Manufacturers / Dealers / Agents/ Suppliers of

- Alternate textile solutions
- Unconventional fibre, yarn and fabric (Jute, Hemp, Sisal, flax, Ramie, PALF etc.)
- Sustainable and green processing solution
- Effluent treatment plants
- Waterless & Saltless dyeing solutions
- Global certification for sustainable and ECO friendly solutions
 - Textile testing instruments
 - Textile ancillaries
 - Green energy solutions
 - ECO solutions
 - Energy efficient equipment
 - Recycled textile materials



Signing of MoU with MAK India Ltd.

for the transfer of technology towards commercial manufacture of salt free dyeing of cotton fabrics



Dr. Prakash Vasudevan, Director, SITRA and Mr.Manickam M.D, MAK India Ltd. exchanging the agreement signed towards the transfer

SITRA has synthesised a cationising chemical and has successfully developed a single step pre-treatment cum cationisation process methodology for dyeing of cotton fabrics. The developed methodology is suitable for salt free dyeing of cotton fabrics for a wide range of shades and depths.

SITRA has granted license to M/s. MAK India Ltd. (MIL) to use this technology for commercial manufacture of the salt-free dyeing chemical. MIL has traveled along with SITRA in this journey by establishing and standardizing the enrichment process that would be suitable for commercial production by fabricating a pilot vessel and carrying out pilot industrial trials and providing necessary support towards incorporating various modifications as and when necessary. The licence would be valid for a period of 10 years of which the initial 5 years would be an exclusive one and the next 5 years will be non-exclusive.

TRAINING PROGRAMMES



Training programme on "Healthcare Safety Practices during Covid 19 in Textile Industry" for the Indian Chamber of Commerce, Germany

At the request of Textile Skill Sector, New Delhi, SITRA conducted a series of online training sessions for the supervisors, fitters and Operatives of textile industry with an aim to create awareness among them about post Covid19 measures to be taken to be on the guard. Verified Information about Covid-19, identifying sources and risks of Covid-19 infections, preventive and Reactive measures against Covid-19 cases, transmission route, risk group were some of the topics that were highlighted. Two hundred and fifty participants attended the online sessions held from February 22-24, 2022.

Webinar on "Classimat Faults – Analysing and interpreting test results for enhancing quality of yarns".

SITRA organised a Webinar on "Classimat Faults – Analysing and interpreting test results for enhancing the quality of yarns" on 25th March, 2022. The technical session was handled by Mr.Murali Ganesh, Product Support Manager, USTER Technologies, India who dealt about understanding the new system of classification of contamination in yarn in addition to yarn fault classification, predicting the outliers in yarn and optimization of clearer setting using clearing Index. Positive feedbacks were received from many of the 95 participants who attended the webinar.

Training Programme on Spinning Mill Management

The management development programme organised every year by SITRA, attracts young entrepreneurs interested in understanding the various aspects of textile mill management. This intensive two week programme covers all the major aspects of mill management - material management, financial management and cost control, production and productivity, statistics and quality control, energy management and maintenance, personnel management, etc. Four young executives attended this programme which was held during 18 to 28 April 2022

Technical Training for Sales Employees of Grasim Industriess

At the request of M/s. Grasim Industries, Mumbai, SITRA conducted a one-week online training programme for their technical sales employees towards sensitizing them on the various technical issues in spinning mills and the trouble shooting mechanisms for the same. Twenty sales executives attened the programme that was conducted as 3 hour sessions spanned across 15 days.

Training Programme on Maintenance Management in Modern Spinning Machinery

SITRA conducted a three day training programme on maintenance management in modern spinning machinery. The topics covered maintenance cost- burden or blessing, facets of maintenance in spinning mills, maintenance of critical areas from blow room to winding, impact of maintenance on energy conservation, machinery audit and compressed air quality and its usage in machines. Thirty four participants attended the programme which was held during $20^{th} - 22^{nd}$ July, 2022.

TRAINING PROGRAMMES



No. 6.1

Training Programme on "Cost auditing in spinning mills" for Tamil Nadu Co.op Spg Mills

At the request from **Tamilnadu Co.operative Spinning Mills, Chennai** SITRA conducted 2 batches of a two day training programme on "**Cost auditing in spinning mills**" for their staff members. The topics covered in the programme included process control in spinning, quality aspects, production and productivity etc. Fifty four executives attended the programmes, which were held during $29^{th} - 30^{th}$ April and $2^{nd} - 3^{rd}$ May, 2022

Training Programme on Defect Analysis - Woven & Knitted Fabric"

SITRA conducted a two day training programme on Defect analysis – Woven & Knitted Fabric. The topics coverd in the programme included the different types of defects and their mode of occurrence, causes and remedies for defects in yarn and fabrics and case studies of defects in industry. Forty three participants attended the programme which was held during 6-7 July, 2022.

Pre-employment training and retraining programmes for textile workers

One out-station mill availed SITRA's services to train their 15 operatives of their spinning department. The training programme was conducted in Tamil and significant improvement was reported to be achieved in key departments, in timings, incidence of waste and production rate.

Visitors

Shri Piyush Goyal, Honourable Textile Minister, MoT, Govt. of India.

Mr. R. Gandhi, Hon'ble Minister of Handlooms and Textiles, Govt. of Tamil Nadu.

Mr VKSingh, Special Secretary, MoT, Govt. of India.

Smt. Roop Rashi, Textile Commissioner, MoT, Govt. of India

Shri Rajeev Saxena, IAS, Joint Secretary, Ministry of Textiles, Govt. of India

Mr. Dharmendra Pratap Yadav, IAS, Principal Secretary Handloom, Handicrafts and textiles Govt of Tamil Nadu.

Dr. M. Vallalar, IAS, Commissioner, Commisionerate of Textile, Govt. of Tamil Nadu.

Mr. Prasad Pant, Director, Zero Discharge of Hazardous Chemicals, (ZDHC).

Prof Manian, Former VC of Annamalai University

Mr. Senthilrajan, Scientist and Mr. Anshat, Head, Naval Physical & Oceanographic Laboratory

Dr. Seshadri Ramkumar, PhD, CText, FTI (UK), FTA (*Honorary*), Professor, Nonwovens & Advanced Materials Laboratory, Texas Tech University, Lubbock, TX, USA.

Mr Andre Michalon, Director, ANDRITZ, Non woven France.

CONSULTANCIES OFFERED BY SITRA

S. no.	Nature of consultancy service	No. of services offered
1.	Technical consultancy visit	21
2.	Quality audit	4
3.	Energy audit.	5
4.	Machinery audit	3
5.	Air compressor study.	7
6.	Humidification Plant study	5
7.	Annual consultancy service	14
8.	New product development	3
9.	Work assignment study	1
10.	Productivity study	1
11.	Yarn realization study	1
12.	Flow measurement study	1
13.	Solar Plant study	1

Besides the above consultancy studies, SITRA made 14 liaison visits to mills, solved 16 adhoc problems regarding UKG conversion factors, conducted 7 training programs, attended 16 Technical trouble shootings, tested 1723 accessory samples and also calibrated 12430 instruments.

PAPER REVIEW

MOISTURE TRANSPORT BEHAVIOUR OF ELI-TWIST KNITTED FABRIC AND ITS COMPARISON WITH FABRIC MADE FROM YARNS SPUN ON DIFFERENT SPINNING SYSTEMS

Madan Lal Regar1, S K Sinha2, a Ə R Chattopadhyay Fashion Design, National Institute of Fashion Technolog, Indian Journal of Fibre Ə Textile Research Vol. 48, March 2023, pp. 5-12.

The study reports an investigation on moisture management properties of knitted fabrics made from Eli-Twist spun polyester and cotton yarns. A comparative analysis with knitted fabric from conventional ring-spun, Siro spun, compact yarn is also made.

The authors point out the role of pores and micro pores present in the clothing which can influence the transfer of moisture from the body clothing and thus maintaining the thermal balance. Yarns being the basic structural unit of fabric, both inter \Im intra yarn pore in the clothing is responsible for the transmission characteristics of moisture and heat. A change in a spinning system modifies the arrangement of fibres and the structure of yarn, leading to a change in its physical and mechanical properties. The authors have adopted Eli-Twist spinning system which combines attributes of both Siro and compact spinning systems, through fibre doubling during spinning while compaction of the structure is assisted by air suction. The Eli-Twist yarn was produced on Elite compact set ring frame (LR60/AX) from Suessen, maintaing a distance of 8 mm between two rovings in the drafting at a negative pressure of 28-30 mbar. Single ring and compact yarns were spun on a Lakshmi spinning line while Siro yarn was produced on spinning (LR60) machine from Lakshmi machine works.

The moisture management behaviour of fabric has been determined through liquid moisture transmission characteristics. It is reported that single jersey knitted fabrics made from Eli-Twist yarns exhibited higher air and water vapour permeability followed by fabrics from compact, ring and siro yarns. Lower air and water vapour permeability was observed for cotton knitted fabrics as compared to polyester knitted fabrics. The moisture transfer and quick drying behaviour of textile material depended mainly on the surface energy, capillary flow and regain of the constituent fibres. The drying behaviour of knitted fabrics made from Eli-Twist polyester yarns is reported to be the highest as compared to that in fabrics made from compact, ring and siroyarns. Moisture absorption capability, maximum wetted radius, spreading speed, accumulative one-way transport index (OWTC) and overall moisture management capacity index (OMMC) are reported to be better for fabrics prepared from Eli-Twist and ring yarn.

No. 6.1

STAFF NEWS

Meetings Attended

Dr. Prakash Vasudevan, Director, SITRA attended the following meetings:

- 14th PAMC Meeting for R & D on 18.01.2022, Phase III on 11.02.2022, Phase IV on 14.02.2022,
- Phase VII on 28.3.2022
- SIMA CDRA Council Meeting on 21.02.2022
- 38th BoG meeting SVPISTM on 27.04.2022
- 29th Board meeting of Textile Sector Council on 01.07.2022
- 3rd Council meeting of SIMA CRDA on 01.07.2022
- Stakeholders work shop on Ginning Industry, Hotel Trident, Mumbai on 05.07.2022
- 29th Board meeting of Textile Sector Council at Delhi on 16.08.2022
- 10th Asian Textile Conference (ATEXCON) at Delhi on 17.08.2022
- 38th BoG meeting of SVPISTM on 02.09.2022
- 8th AGM & 31st Board meeting of TSC on 29.09.2022
- 47th AGM of SIMA CDRA on 30.09.2022
- SIMA CDRA Panel Meeting on Traceability of Cotton on 31.10.2022
- Meeting with Textile Minister regarding revitalizing of TRA's at Delhi on 03.11.2022
- BISTXD 36 meeting on 14.12.2022
- Interaction meeting with Stakeholders & Associations of Textiles at Taj Vivanta, Coimbatore on 28.12.2022

Research publications

Insight into the effective utilization of cotton spinning wastes from textile mills for the production of bio ethanol, Moorthy Ranjithkumar, Ravikumar Rajarathinam, P.SenthilKumar, Gayathri Rangasamy, Baskarn Gurunathan Baranitharan Ethiraj, **V Thanabal**, Sustainable Energy Technologies and Assessments,Volume 53, part D, October 2022.

Papers presented / Lectures delivered

D.Jayaraman, Deputy Director, SITRA presented a technical paper on "Moving towards synthetics: Challenges of processing synthetics rich blends" at The Textile Association (India) South India Unit foundation day seminar on 21.05.22 at Coindia hall Coimbatore.

N.K.Nagarajan, Senior Scientific Officer, presented a paper on "How to improve production and cut costs in MSME spinning mills in challenging times" in SISPA on 22.12.2022.

Mr.M.Muthukumaran – Head Textile Engineering & Instrumentation, delivered a lecture on "Conservation of Energy" at training programme for "Promotion of Energy Audit and conservation of Energy" (PEACE) scheme on 11.03.2022 organized by District Industries Centre (DIC), Coimbatore.

The South India Textile Research Association

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