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SITRA e -Techletter

...News during the last two months

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MARKET PERFORMANCE EVALUATION INDEX (MPEI) (April 2013 – August 2017)



To substantiate the fluctuations/volatility in the commercial efficiency, SITRA has developed an index called “MPEI” which clearly portrays the commercial efficiency of the cotton spinning industry. MPEI is an arithmetic index that is derived 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 out-put value [yarn selling price – raw material cost] in terms of Rs per kg of yarn for the 12 popular counts (40s K, 40s C, 60s C, 80s C, 40s C-Comp., 50s C-Comp., 60s C-Comp., 80s C-Comp., 100s C-Comp., 30s CH, 30s CH-Ex. and 40s CH).

The trend in the movement of MPEI for the past 51 months (i.e. from April 2013 – August 2017) is shown in Figure 1

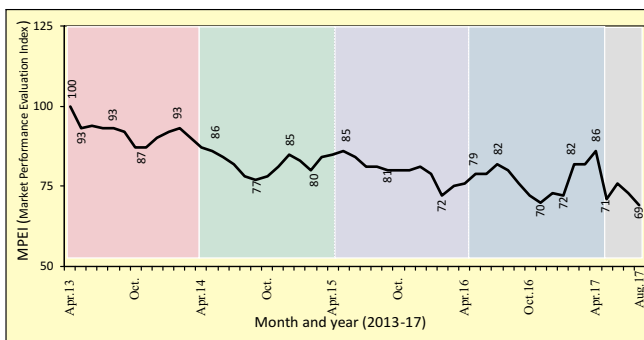


Figure 1 Market Performance Evaluation Index (MPEI)

During the last year (April 2016-March 2017) the MPEI ranged between 70 to 82 between months. After surviving the impact of demonetization, MPEI started to recover and had reached 86 in the month of April 2017.

However, in the subsequent months, it had witnessed a huge downturn and had recorded the lowest at 69 during August 2017, which is mainly because of the steep increase in the cotton cost (RMC index: 119) and partly because of the downturn in the yarn selling price (YSP index: 95).

PRODUCTIVITY CONCEPTS



A study on staffing pattern in spinning mills

Spinning mills in recent times, have been initiating various cost control measures towards reducing the yarn manufacturing cost. Nevertheless, some of the mills report that they are clueless in the optimization of staff engagement and have been contacting SITRA to provide the norms for the same. As per the earlier studies and research works carried out by SITRA, staffing pattern for a spinning mill depends on a number of factors like, installed capacity, location of the mill, availability of qualified staff, product-mix and production capacity, purchase and sales procedures being followed, etc.

There exists a wide deviation among the mills in the engagement of staff. Towards understanding the same and to come out with standards for staffing pattern in spinning mills, it has been proposed to conduct an inter-mill survey, for which a suitable questionnaire has been prepared and circulated to all the mills spread all over India requesting them to submit their staffing pattern data to SITRA. Based on the information provided by the participant mills, staff employment pattern will be critically analyzed for different types of mills and a comprehensive report shall be prepared and circulated to all the participants.

Mills are requested to participate in this unique survey for which mills are not charged for participation, and utilise the benefits of the same.

J.Sreenivasan
Liaison & Consultation Division

HOW TO RECEIVE QUICK TEST RESULTS FROM SITRA LABORATORY

Mills have been regularly sending their samples to SITRA for testing of fibres, yarn and fabrics. Fibre samples received from mills are first conditioned before being subjected to a specific test. Test results are normally posted online within a day of the sample being taken for conditioning and mills can view the results by logging in with their login credentials. Simultaneously, mills receive an SMS to their registered mobile member.

No sample is kept on hold unless a clarification is required from the mills regarding sample particulars, tests sought, etc. Mills are requested to ensure that we do not face the following issues while taking up samples for evaluation.

- ❖ Samples alone being sent, without any covering letter indicating the testing requirements
- ❖ Mismatch between sample particulars in the mill's covering letter and samples sent with regard to count, type of yarns (carded/combed), cone tip, ring frame empties colour, etc., and not mentioning the sliver sample as whether it chute, lap as sliver, etc.
- ❖ Count not indicated for testing Uster Unevenness, Rkm, TPI, etc.
- ❖ Insufficient sample size particularly for HVI, trash, cloth test, etc (Sample size required for each test may be verified on our website www.lab.sitraonline.org).

Mills are also requested to ensure the following :

- ❖ Indicate in all correspondence, the mobile number and email id of the contact person to whom the test results and invoice need to be sent. Also essential is mentioning the GST number in the requisition letter itself.
- ❖ For reports to be received by mills by post, mills are requested to indicate whether the test reports needs to be sent to the registered office or the factory address since both are printed in many cases in the letterhead.

Notwithstanding the aspects mentioned above, SITRA shall always strive to ensure prompt testing of samples received from mills.

Know Your Instrument

CUPRAMMONIUM FLUIDITY TESTER

Although cotton is stable in dilute alkalis at high temperatures in the absence of air, the presence of air causes its serious degradation. The influence of air results in oxy-cellulose formation, during which some hydroxyl groups on glucosidic units get oxidized to keto and carboxylic groups. It has been observed that the quality of cellulose is indicated by its tensile strength, copper number, methylene blue absorption, and the apparent fluidity of its dispersions in standard cuprammonium solution.

The apparent fluidity of such dispersions has been found to be a much more sensitive and precise measure of the changes in the quality of cellulose brought about by the action of light, heat, laundering and chemicals, particularly in pretreatment stage, than what is afforded by the other methods. Cuprammonium solution appears to come closer than any other known dispersing agent to being a true physical solvent for cellulose. Although cellulose regenerated from cuprammonium solution is in the hydrated form, there is evidence which indicates that it has undergone less change in the process of solution and regeneration than when other available dispersing agents are used. Cuprammonium solution is therefore regarded by many as the best medium for the examination of cellulose in a highly dispersed state. Overall, Cuprammonium fluidity is a measure of molecular chain length of cellulose.

The degradation of a polymer results in reduction of degree of polymerization. At a constant level of concentration, the degree of polymerization (DP) is related to the viscosity of its solution. Fluidity (ease of flow) is a property inversely related to viscosity (resistance to flow). Thus, the degradation resulting in reduction of the DP which can also be assessed by measuring the fluidity. In the case of cotton, the fluidity measurements are made on a solution of cotton material in cuprammonium hydroxide solution as per IS 244 test method. The following table provides details of the fluidity values of various forms of cellulosic textiles.

Type of cellulose	Fluidity values
Good Bleached	4-6
Minor Degradation	7-8
Over Bleached	8-10
Badly Over Bleached	>10

The present instrument is available in SITRA's Textile Chemistry Division, which can be used for the evaluation of degradation property and also degree of polymersiation of cotton and viscose textile materials.



CUPRAMMONIUM FLUIDITY TESTER

CONSULTANCIES OFFERED BY SITRA

S. no.	Nature of consultancy service	no. of services offered
1	Technical consultancy for NTC group of mills	7
2	Study on the process route and characteristics of cutting waste bleaching units	7
3	Water consumption and time study of soft flow dyeing machines	6
4	Technical trouble shooting at processing mills	4
5	Humidification system study	2
6	Assessment of laboratories for NABL accreditation purpose	1
7	Performance audit	1
8	Production capacity assessment certificate for combers	1
9	Techno-economic viability study	1
10	Transformer loss evaluation study	1

Besides the above consultancy studies, SITRA also tested 331 accessory samples and calibrated 152 instruments.



PAPER REVIEW

NOVEL METHOD OF HAIRINESS REDUCTION BY MODIFIED LAPPET DESIGN AND SEPARATOR IN CONVENTIONAL RING FRAME

S. Sundaresan, R. Nagarjunan, R. Anitha, S. Mohana Krishnan, Karnan, International Journal of Advance Research Innovative Ideas in Education, Vol. 2 (2), 2016, pp.1352 – 1362.

An attempt has been made by the authors to reduce yarn hairiness level in the yarn on a conventional ring frame by a modified lappet design and providing suction pressure in the lappet zone. Also, an attempt is made to alter the separator design to find the impact of reduction in hairiness of the yarn. Lappets were designed by hollow tubes with 2mm and 4mm perforations. Similarly the separators were also designed with perforations. Shankar 6 cotton with 28mm mean staple length was used as a raw material. The following five yarn samples, of 34 Ne were prepared by maintaining the same process parameters.

- Sample A. Yarns produced with existing set up
- Sample B. Yarns produced with hallow lappet having 2mm perforation and with ordinary separator
- Sample C. Yarns produced with hallow lappet having 4mm perforation and with ordinary separator
- Sample D. Yarns produced with hallow lappet having 2mm perforation and with perforated separator

Sample E. Yarns produced with hallow lappet having 4mm perforation and with perforated separator

Then these yarns were tested by the authors for hairiness index and imperfections on yarn unevenness tester. Along with hairiness testing, count and CSP were also tested onlea strength tester.

The authors report that the CV of the yarns produced with hallow lappet having 4mm perforations and with perforator separator (Sample E) gave better results when compared to the other 4 samples. The hairiness index reduced from 4.38 to 4.02 and the CSP was higher by about 24% when compared to conventional yarns (sample A).

- J.Sathish / Rupesh Koshti
Spinning Division

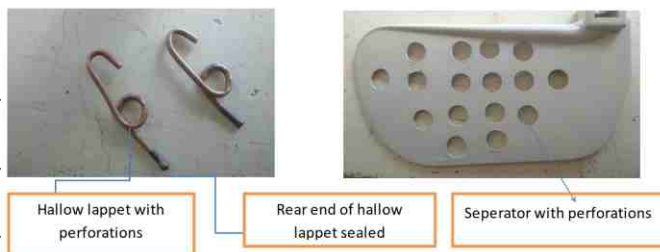


Figure 1. Hallow lappet and perforated separator

TRAINING PROGRAMMES



Training programme on “Energy management in spinning mills”

With a focus on the need for the textile industry to manage energy by ensuring its effective usage and conservation, SITRA conducted a training programme on “Energy management in spinning mills” during 21st and 22nd August, 2017. Fifty six participants representing 42 mills comprising of general managers, electrical engineers and electrical supervisors attended the programme which covered various topics like Importance of and economics of an energy conservation programme, Performance assessment of energy efficiency in electrical system, Energy conservation in textile machines and ancillaries, A holistic approach for PF improvement in a harmonic rich environment, Calculation of UKG adjusted to 40s Count & Power consumption in different types of yarns, Energy saving opportunities in lightings and pneumatic fittings, Air leakage quantification and control methods, etc.

Supervisory development programme

At the request from a spinning mill in Guntur, Andhrapradesh, SITRA conducted a two day training programme for their workers towards sensitizing them on the various technical aspects. The topics covered in the programme included Production and Productivity Quality control in spinning, Online and offline process control etc. Thirty trainees attended the programme.

Technical training programme

At the request from M/s. ICAR, SITRA conducted a three day training programme for six of their technical officers. Various topics like Process control in spinning, Quality Aspects, Production and Productivity etc. required by the technical personnel for their day to day operations were covered during the programme.

Training of trainers programme

At the request from a spinning mill in Salem, SITRA conducted a six day training programme for their workers towards sensitizing them on the various technical aspects related to their work. The topics covered in the programme included present textile scenario, work methods, duties and responsibilities of operatives in mills, etc. Fourteen trainees attended the programme.

Ancillary labour training

Two batches of retraining programmes were conducted for the doffers of M/s. Kerala Lakshmi Mills, Kerala. The trainees were trained on the right methods of doffing ring frames. Post training, the doffers were able to achieve significant improvements in their doffing time and the practices they followed was helpful in controlling double gaiting.

Pre-employment training and retraining programmes for textile workers

Four out-station mills availed SITRA's training services for their workers. Eighty three operatives in spinning departments were trained in 5 batches. The training programmes were conducted in Tamil, Malayalam and Kannada.

STAFF CONTRIBUTIONS



MEETING ATTENDED

Dr. Prakash Vasudevan, Director attended the 6th meeting of the Project Appraisal and Monitoring Committee (PAMC) under the Chairmanship of Textile Commissioner on 21.06.2017 at the Office of the Textile Commissioner, Mumbai for reviewing the R&D projects under the Ministry of Textiles, Govt. of India.

The South India Textile Research Association

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