

The LRT Pulse

THE NEWSLETTER from LAKSHMI RING TRAVELLERS



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LRT at DTG - 2024, Dhaka, Bangladesh



LRT at Bharat Tex - 2024, New Delhi, India



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Alone we can do so little, together we can do so much

Textile Technical Information

Evaluation of Cotton Fibres Maturity

Fibre maturity: The maturity of cotton fibre has a big concern to a cotton spinners. The maturity of cotton fibres plays a decisive role in deciding the yarn properties to be spun.

It is a significant characteristic of cotton fibres. The maturity of cotton fibre is an indicator that expresses the degree of development of cotton fibres. The maturity of fibre tells us how much development has been taken place in the fibres. The cotton fibres do not have regular development within the sample or the fibres obtained from the same seed too. This difference among the maturity of various fibres appear, because of the variations in the degree of the secondary thickening or deposition of cellulose in fibres.

In mature fibres, the secondary wall thickness is very high. In some fibres, the lumen gets invisible too. In the immature fibres, due to some physiological reasons, the secondary deposition of cellulose has not taken place sufficiently and in maximum fibres, the secondary thickening is practically absent.

The presence of immature fibres appears as a defect in yarn, grey fabric and processed fabric excessive neps appear on the yarn surface, if the cotton has immature fibres in it. The neps appearing in this yarn influence the appearance of the fabric greatly.

The presence of an excessive degree of immature fibres in the yarn result in the form of weight losses in processing. The balls of immature fibres appearing on the fabric surface require an extra dose of caustic soda and hydrogen peroxide to dissolve the same during processing. This extra dose of chemicals cause increases in the processing cost and has environmental concerns as well.

The presence of excessive immature fibres also influence the gsm of finished fabric. Due to excessive weight loss occurring during dyeing, the gsm of the processed fabric is decreased.

The presence of immature cotton fibres in the fabric also influence the dyeing affinity of the fabric. The immature fibres have very poor dyeing affinity. The colour of dyed fabric gets uneven, if excessive immature fibres present in the fabric.

Maturity ratio: The 100 fibres are picked up from the comb sorter sample. The picked-up fibres are selected randomly. These fibres are treated with a caustic soda solution. The concentration of the solution is kept at 18 %. When the fibres get completely swollen, each swollen fibre is examined with the help of a microscope having sufficient magnifying capability.

Now the observations are recorded accurately. After completion of the observation process, the fibres are classified into different maturity groups

depending upon the basis of the relative dimensions of wall thickness and lumen of the fibres. However, the procedures followed in different countries for sampling and classification differ in some respects. The swollen fibres are classed into three groups as follows:

Normal fibres: Rod - round shape like fibres with no convolution - twist and no continuous lumen are classified as normal fibres.

Dead fibres: Convoluted - twisted fibres having wall thickness one-fifth or less of the maximum ribbon width are classified as dead fibres.

Thin-walled fibres: The fibres having maturity lesser than normal and greater than dead fibres are classified as thin-walled fibres. A combined index known as maturity ratio is used to express the results.

Maturity ratio = (Normal fibres% - dead fibres%) / 200 + 0.70

Maturity co-efficient: Around 100 fibres from the comb sorter are spread across the glass slide - maturity slide and the overlapping fibres are again separated with the help of a teasing needle. The free ends of the fibres are then held in the clamp on the second strip of the maturity slide which is adjustable to keep the fibres stretched to the desired limit. The fibres are then irrigated with 18 % NaOH solution. Now, these fibres are covered with a suitable cap. The prepared slide is examined with the help of a microscope. The observations are recorded precisely. Now the data are analysed and then the fibres are categorised into the following three groups:

- Matured fibres = Lumen width wall thickness / wall thickness < 1
- Half matured fibres = Lumen width / wall thickness < 2 but > 1
- Immatured fibres = Lumen thickness / wall thickness < 2

About four to eight slides are prepared from each sample and are examined. The results are expressed as a percentage of matured, half-matured and immature fibres in a sample. The maturity co-efficient of the cotton fibres sample is determined as below:

Maturity co-efficient = $(m + 0.6 h + 0.4i) / 100$, where m = matured fibre%, h = half immatured fibres% and i – immature fibres%

Classification of maturity co-efficient	
Grade Name	Maturity Co-efficient
Very immature Fibres	Lesser than 0.60
Immature fibres	0.60 - 0.70
Average mature fibres	0.71 - 0.80
Good mature fibres	0.81 - 0.90
Very good mature fibres	0.91 and above

Source: textileadviser.com

Felicitation



Mrs. K. Padma, Assistant Spinning Master, Sidhaarth Exports Private Limited receiving LRT Best Reply Award from their General Manager Mr. J. Kumar



Mr. M. Nagarajan, General Manager, Maruti Spintex Private Limited receiving LRT Best Reply Award from their Director Mr. Alpesh N. Kanetiya



Mr. T. Sasikumar, Maintenance Manager, Manchester Textile Private Limited receiving LRT Best Reply Award from their Chief General Manager Mr. P. Balasubramaniam

Replies from the Readers to our last Quiz

What are the steps to be taken care in Ring frame to get optimum performance, while spinning super fine counts?

Mr. B. Ravichandran, Maintenance Manager, Omax Cotspin Private Limited, Surendranagar, Gujarat.

- Wider back zone setting and lesser break draft will give good performance.
- Considering the short stretch angle in ring spinning will give better performance.
- Maintaining of 50-52% RH gives better performance in ring spinning.
- Proper speed control at the start and end of the spinning cycle is required.
- Half flange ring is suitable and it will control the breakage rate in super fine counts.
- Ring diameter - 34mm with 160mm lift and usage of slim minimum breakages.

Mr. S. Nallathambi, Spinning Master – Maintenance, Prabath Spinners India Private Limited, Salaipudur, Palladam, Tamilnadu.

Given below are the steps to be taken care in Ring frame to get optimum performance, while spinning super fine counts

- Cots taper to be checked randomly.
- To maintain maximum number of step speed for reduced breaks.
- To ensure half and full cleaning schedules in spinning.
- Drafting zone cleaning to be done daily with the help of fluff gun.
- Compact Eli tube air cleaning should be done regularly.
- Apron damage checking to be done once in 4 days.
- To ensure spinning tubes as good condition.

Mr. S. Kanthimathinathan, Maintenance Manager, Pariyur Amman Spinning Mills Private Limited, Gobichettipalayam, Tamilnadu.

The following steps to be taken care in ring frame to get optimum performance, while spinning super fine counts.

- Selection of raw materials with high staple length with lesser waste for optimum performance.
- Always go with lesser bow height Travellers with respect to yarn count and its diameter.
- Travellers should be always lighter side according to counts.
- Select ring diameter of 34 or 36 mm based on counts, if required 1/2 flange ring also.
- Try to maintain recommended spinning geometry with minimum working height.
- Select lesser wharve diameter of spindle to achieve higher GPS even lesser spindle speed.
- Lesser height ring tube with lesser thickness to be preferred for super fine counts.

Mr. Kannan Venkatchalam, Senior Manager – Spinning, Ashok Textiles Private Limited, Ponneri, Tamilnadu.

Generally, for superfine counts like above 80s – 120s, Count CV, CSP, IPI, Classmate faults are important in quality point of view, Production point of view, higher GPS and breakages within 4 – 6 to be focused. For achieving the same following points to be implemented.

- Rich preparatory machines setup - lower speed and higher / optimum waste extraction and setting based on AFIS result in comber and drawings helps to produce better roving.
- In spinning selection of cradle and spacer 39mm via media for getting optimum breaks and quality.
- Better to maintain lower break draft & wider back roll setting.
- Replacement or life of aprons and cots, ring, lappet hook and bobbin holder is essential.

Mr. M. Salaudeen, Quality Manager, Sumati Spintex Private Limited, Vapi, Gujarat.

To optimise the performance of Ring Frame, the following are the points to be considered while spinning super fine counts.

- Speed pattern can be set based on Traveller profile, weight and finish.
- Department RH % should be maintained around 55% to reduce fly liberation.
- Number of air changes should be maintained in the range of 25.
- HD plant condition to be maintained so that files are sucked properly to avoid floating fibers.
- Pneumafil suction to be maintained 150 mm at fan side and 80 mm in offend side.
- Ring condition and life should be good enough to give optimum performance.

Mr. S, Kather Mohideen, Maintenance Manager, Sree Ayyanar Spinning and Weaving Mills Limited, Mallankinaru, Tamilnadu.

The following points to be taken care in ring frame to get optimum performance while spinning super fine counts.

- Free rotation of bobbin holders.
- Smooth roving passage.
- Avoiding the condenser chocking.
- Top roller cots shore hardness 60 to 65.
- Improving the suction pressure by fan weight, diameter, duct design, suction tube profile and suction nozzle diameter.

Mr. Angamuthu.V, General Manager, Kutti Spinners Private Limited, Tiruchengode, Tamilnadu.

For super fine counts, the low clearance Traveller is best for super fine count yarns due to the limited yarn clearance. The low profile allows for high productivity. The low profile gathers more lubrication from high twist. A major factor which limits the maximum spindle speed is the end breakage rate. An end break occurs whenever the spinning tension exceeds the yarn breaking force. The yarn tension condition prevailing during a bobbin buildup becomes necessary in any attempt to increase the spindle speed by reducing the end breakage rate.

Mr. K.T. Srinivasan, General Manager, Kumaran Ginning & Pressing Mills, Palladam, Tamilnadu.

- Compact with short stretch 680 mm with 34/36 mm rings with lift 160 mm is required.
- Raw materials and mixing variations should be with in tolerance limit.
- Bobbin holder should be free rotation and 4 lever pins with 2 grams spring load is better.
- Top roller shore hardness 65/83 in alufit with double layer.
- Cots buffing schedule should be with in maximum 30 days.

We have edited replies received to fit the page available

It takes two flints to make a fire

Know your Product

U1 MEL UDR Profile Travellers

Traveller for Medium compact yarn with more CSP

LRT has introduced U1 MEL UDR Profile Travellers recently. While spinning medium compact cotton warp yarn with more CSP, spinners face the difficulty in achieving higher speed due to more ends down while using compact profile Travellers because of less thread passage. Meanwhile, while using profiles like U1 UL UDR, EL1 UDR faced Traveller fly due to more thread passage. In U1 MEL UDR profile Travellers, this issue is totally overcome by its adequate configuration of profile and helps to achieve better results in performance also. LRT would like to thank its customers for acceptance of the product.



U1 MEL UDR is used not only in medium compact warp count, also it can be used in PC compact, viscose compact and carded compact.

- Suitable for normal and anti-wedge rings.
- Suitable for higher productivity.
- Traveller range from 1/0 to 10/0.
- Finishes in Sapphire Plus and Ruby.
- Best suitable for medium compact warp with more CSP.

Win Exciting Prizes

What are the settings to be done in Ring spinning to reduce the hard waste in Autoconer?

Congratulations

We are happy to announce privilege cards from Reliance Trends to the following winners for their best reply.

Mr. B. Ravichandran,
Maintenance Manager,
Omax Cotspin Private Limited,
Surendranagar, Gujarat.

Mr. S. Nallathambi,
Spinning Master – Maintenance,
Prabath Spinners India Private Limited,
Salaipudur, Palladam, Tamilnadu.

Mr. S. Kanthimathinathan,
Maintenance Manager,
Pariyur Amman Spinning Mills Private Limited,
Gobichettipalayam, Tamilnadu.



Technocrat of the Issue

Mr. Sanjeev Gupta is a well-known Textile Technologist in the Asian Textile Industry for the past three and half decades. He is presently working as President cum Chief Technical Officer at Aditya Birla group – Yarns division in Indonesia, which has of three spinning mills in Indonesia viz PT.Indo Liberty Textiles, PT. Elegant Textiles and PT.Sunrise Bumi Textiles. In total, it has a spindlage of 4.6 lakhs and manufactures about 1.3 million metric tons/annum including value added products.

Mr. Sanjeev Gupta passed his B.Text - Textile Technology from Technological Institute of Textiles and Sciences, Bhiwani, Haryana in the year 1985, he started his career at Birla Synthetics, A Unit of Birla Jute & Industries Ltd, Birlapur, West Bengal as Carding Master. He shifted to Reliance Industries Limited, Naroda, Gujarat as Deputy Spinning Superintendent in 1994. In the year 1996, he joined at Soma Textiles, Ahmedabad as Spinning Manager.

In the year 1998, he joined at PT. Sunrise Bumi Textiles, a Unit of Aditya Birla Group, Indonesia as General Manager. Later he was promoted as Vice President - Works and was shifted to Indo Thai Synthetics Company Limited, a leading Textile Spinning Mill of Aditya Birla Group in Thailand. Here he led the project instating the plant after flood and was responsible for selection of latest technologies, discussion with suppliers, negotiation and project commissioning. From 2017 onwards, he is working in as Joint president and later he was elevated as CTO for Indonesian three Plants.

Mr. Sanjeev Gupta was leading Technical Textiles products from Germany and Slovakia plants focusing on Technical Textiles products for protective segment. He is always involved in developing systems for strict quality control, Production Planning and Maintenance. He worked with marketing team and NPD team in establishing new as well as value added products.

Mr. Sanjeev Gupta has focused on Quality and De-bottlenecking of plants by upgrading technologies regularly. Actively participating in Human Resource development activities for improving local talents through preparing modules for local technical persons. We thank Mr. Sanjeev Gupta for his contributions to the industry with the vast experience he has gained over the decades.

For further details please contact :

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