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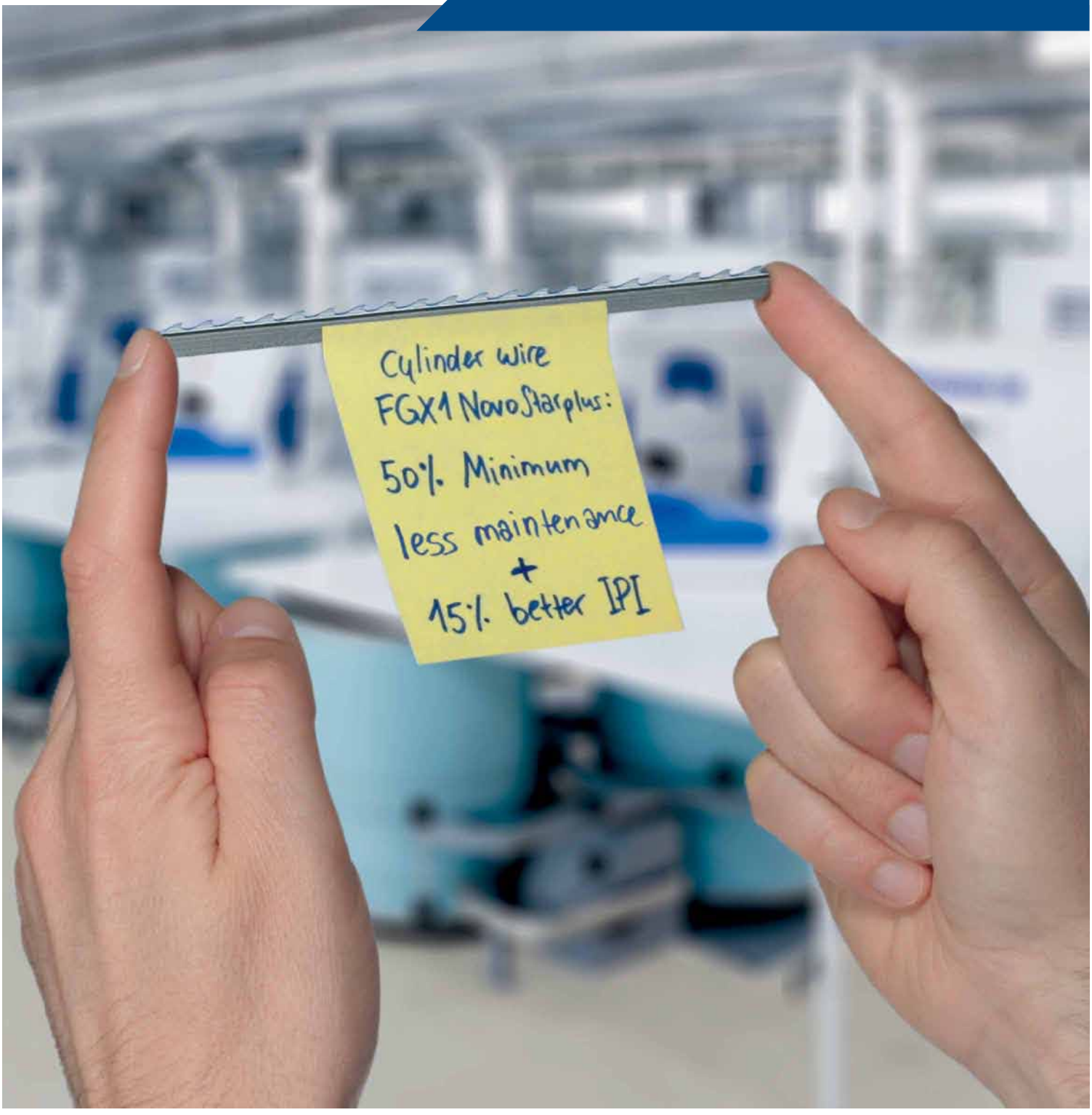

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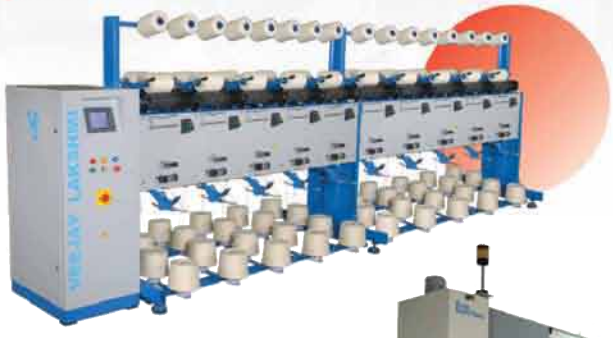

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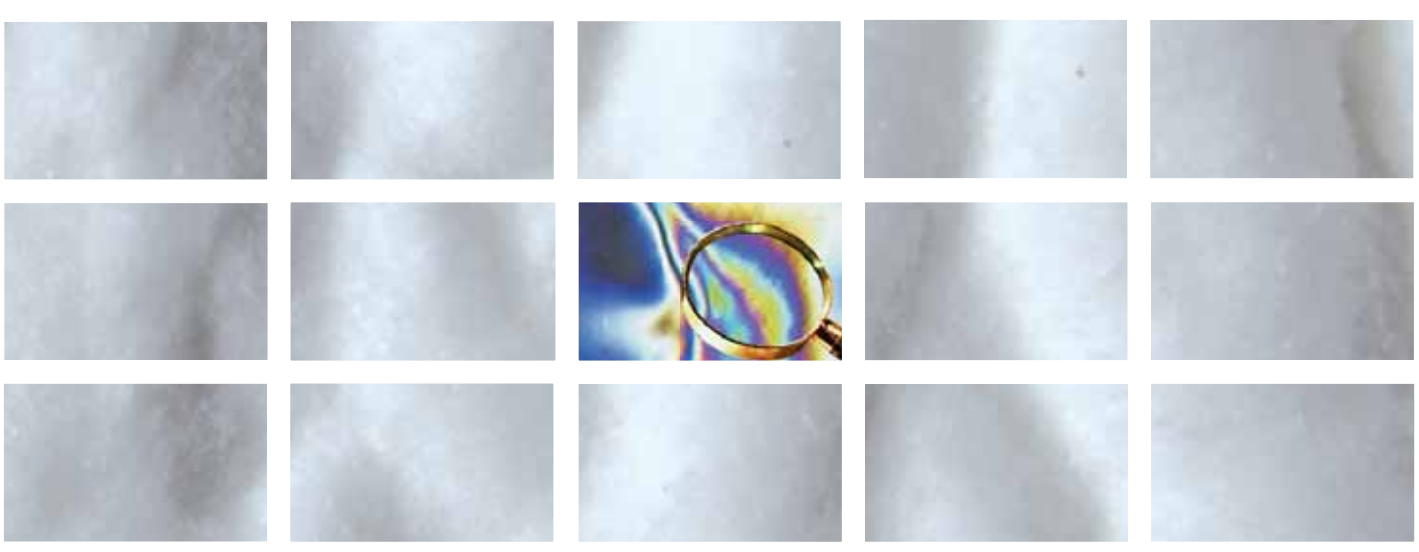

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The Textile Association (India)
(Founded 1939)

Published by PAVITRA PUBLISHER
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M. : 9819801922
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Journal of the TEXTILE Association
TEXTILE SCIENCE | TECHNOLOGY | ENGINEERING | MANAGEMENT

ISSN 0368-4636
July-August 2011
Volume 72 No. 2

Contents

JTA is Abstracted by :

Chemical Abstracts,	USA
World Textile Abstracts,	UK
Indian Science Abstracts,	India
Texincon,	India

JTA is a Bimonthly Publication of
THE TEXTILE ASSOCIATION (INDIA)
Pathare House, R. No. 6, 2nd Floor, Next to State Bank of India, 67, Ranade Road, Dadar (W), Mumbai - 400 028.
Phone: (91-22) 2446 1145 Fax: (91-22) 2447 4971
E-mail: taicnt@mtnl.net.in
www.textileassociationindia.org

Printed at SUNDARAM ART PRINTING PRESS
12, Wadala Udyog Bhavan, Naigaum X Road, Wadala, Mumbai - 400 031. Tel. : 022-2412 6942

Editorial

Rising India

Today I can confidently say a concerned Indian like me has transformed into a proud Indian with the revolutionising victory that we as the people have won for the development of better India. Yes, my friends I am talking of the victory of Anna Hazare struggle against corruption. A new landmark in the history of independent India, a new path is paved by the veteran anti- corruption campaigner Anna Hazare. His struggle against corruption was a gentle reminder of Mahatma Gandhi's Satyagraha. Hazare, who was on a 12-day fast, spearheaded what he called India's "second freedom struggle" by demanding a Jan Lokpal bill. The parliament broadly agreed to three key demands of his civil society group to battle corruption, boosting people's faith in him and his movement. Although Hazare's fast didn't achieve all its goals, it's a half-victory, Anna Hazare said. But the real victory lies in the fact that neither civil society nor parliamentary democracy lost in the end. India won, and its people won which I would majorly attribute to the younger generation or youth that we commonly say as it was for the drive inside them that the struggle became so huge. It is just the beginning of a rise of the country to become a super power with more responsible youth and common man.

Currently all over the country and particularly in *Maharashtra*, the 2 most talked about things are the *Anna Hazare satyagraha* against corruption, and the popular Ganesh festival celebrated by people of all faiths, social strata, economic backgrounds, caste, creed etc. Of course the complete humiliation of the world champion Indian boys in blue is a close third but we won't talk about it here. Poor guys have already been battered black and blue.

Ganesh Chaturthi is probably the most celebrated of all festivals in Maharashtra which was popularized in a big way by freedom fighter Lokmanya Bal Gangadhar Tilak as a show of unity against the British Raj when large gatherings where prohibited. Now after a 100 years and more, the festival is bigger than ever before. The fact that Ganeshji is the most loved and cutest of all Gods also furthers this religious fervour! The one glaring difference between then and now is the use of harsh material like plaster of Paris being used as opposed to the natural earth and clay people used to use then. Most of the idols were immersed in tanks or wells so as to not contaminate the natural water bodies. But with the increase in size and girth of the idol, Ganesh visarjan now happens mostly in lakes and seas polluting the water as mercury is released from the paints used to colour the plaster of Paris idols. It is totally ruining the environment. So my humble appeal to all and sundry is to switch to eco-friendly Ganpati idols and

do their bit for our environment. And trust me, Ganpatiji will have a big smile on his cute face if you take care of MOTHER EARTH.

As if the largest textile machinery trade show wasn't enough to draw participants at ITMA Barcelona 2011 (one of the largest textile and garment machinery exhibition in the world. The event is a showcase of the very latest technology and a vital meeting place for buyers and sellers from all over the world), here they will have an opportunity to attend a very special technical textiles conference. The Industrial Fabric Association's Advanced Textiles'11 continues to be a unique and sought-out European/U.S. platform on the future of technical textile applications. Technical textile innovations will be highlighted at IFAI's Advanced Textiles 2011 conference, with presentations on fascinating new research, which will also demonstrate in real-world terms how these innovative technologies can benefit your company's next generation of products. Topics to be covered by leading industry experts include an overview of the technical textile market and demands and challenges; an examination of specific end market needs such as performance apparel; bio-hazard/ extreme environment; electronic interactive materials; digital signage and complex materials applications. Its focus shall be on new developments in protective textiles including "Future Soldier Systems," "Protective Textiles in the Security Industry" and "Nonwovens-Based Heat and Flame Protection Materials", on smart and interactive textiles. The presentations will analyze this industry's success stories and bottlenecks and the pitfalls in the e-textiles area. They will also cover the development of a commercial smart textiles product. Delegates will go out with a new perspective on the industry's state-of-the-science advancements in technical textile applications. I wish good luck to the delegates showcasing our industry, visiting the exhibition and attending the conference.

The highly coveted Centre of Excellence (COE) under the Technology Mission of Technical Textile (TMTT)in Sportech has been awarded to the Department of Fibres and Textile Processing Technology, Institute of Chemical Technology, Matunga, Mumbai with a grant of Rs 24.50 crores. The announcement to this extent was made on August 25, 2011, by the Honourable Minister of Textiles, Shri Anand Sharma at the inaugural function of the event Technotex 2011 held between August 25 – 27, 2011, at the Bombay Exhibition Centre, Goregaon, Mumbai. In this venture the major collaborators of ICT are Kemrock Industries and Exports Limited, Kusumgar Corporates Private Limited and Reliance Industries Limited and JCT. An Expression of Interest has been extended by Textiles committee, Textile Association of India and Texan lab and have agreed to support with all there branches to co-operate in spreading awareness and training in Technical Textiles. Also, with the development of COE in Agrotech (SASMIRA) and COE in Geotextiles (BTRA) in the same vicinity in Mumbai having established linkages with each other, with this new COE, it is expected that the Technical textiles industry or rather the Textile industry as a whole would be chiefly benefited.

Prof. Ravindra Adivarekar
Editor, JTA

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Properties of Gin Roller Covering Materials for Cotton Double Roller Gins (Part-II)

Vijayan Gurumurthy Iyer*
PDrKVCOT, Chennai

Abstract
The covering washer or "Packing" used for cotton roller gin roller is very important to the operation and maintenance of the gin and is supposed to be a major expense item for a commercial double roller (DR) ginning machine. It is important to conduct research experiments on various roller covering materials in order to find a suitable material which enables faster ginning, longer wearing results, maintenance of good fibre quality, cheaper and eco-friendliness. A major research project was performed at the Belgaum roller ginning industries to compare the performance of different roller covering materials.

Key words
Covering, Chromium, Eco-friendly, Roller, Ginning

1. Introduction

The cotton ginning mills in the country have been contaminating and polluting the environment with chromium. The chrome composite leather clad (CCLC) rollers are used in cotton ginning mills to separate cotton fibres from the seed-cotton. The chrome tanned leather roller would have a 180 mm thickness when it was used for the first time and after three months of use, the thickness of these rollers would be reduced to 115 mm. The constant dust-producing grinding action results in the leak of 80 microns of chromium an hour, leading to air pollution and also contaminating the cotton fibres, spun yarns, fabrics and textile effluents. The invisible contamination present in the Indian cottons in the form of chromium is much beyond the tolerance limits.

As per the Ministry of Environmental Forest standards Reference Number 157, MOEF Notification No.157, dated 4.5.1996, the permissible level of chromium present in the cotton products is 0.1 mg/kg (ppm)(parts per million) for Cr (III) and 0 ppm for Cr(VI). The invisible chromium contamination from CCLC is beyond 1000 ppm and source CCLC is around 40,000 ppm.

Correspondance should be addressed to,
Dr. Vijayan Gurumurthy Iyer,
Principal, PDrKVCOT,
9, B, Block-II, GF, Ammaiyappar Apartments,
Rathina Nagar Road, Virugambakkam, Chennai-600 092
Email: vijayan_iw_2002@sify.com

Chromium is a carcinogenic substance. The chromium leakage is so alarming that it leads to higher prevalence of cancer among cotton ginning mill and textile workers. Chromium can cause serious health hazards to those who wear cotton garments.

No attempt was made to find an eco-friendly method for cotton fibre separation for many years. Since several progressive ginning and pressing unit owners showed interest in the alternate roll materials for their double roller gins , this major research project has been attempted to find a suitable material which enables faster ginning, longer wearing results, maintenance of good fibre quality, cheaper and eco-friendliness while comparing performance so as to primarily eliminate the contamination of cotton and its products, air pollution in cotton ginning mills, and other ginning problems at the source through the design and development of an eco-friendly, pollution-free chromeless roller. [1]

There are rubberized cotton fabric (RCF) rollers, felt (90% wool) rollers, fibre glass woven (FGW) rollers and vegetable dyed tanned leather rollers to replace the CCLC rollers, but the mill owners are not buying them because of ginning problems and high price. However, few ginning machinery manufacturers are still not sure about the commercial success of the alternatives to CCLC rollers and enormous awareness is required to

be created among the ginning industries.

2. Materials and Methods

When two or more materials are combined together to produce a new material which possess much superior properties than any one of the constituent materials, such a material is known as composite materials/ composites. Mechanical tests were conducted in order to determine the best materials by knowing mechanical engineering properties such as durability, strength and hardness and cotton technological as well as environmental properties. [2]

2.1. Roller Construction, Covering, Testing and Maintenance

The roller gin roller is the major component of a roller gin stand. CCLC rollers are commonly covered with a packing made of CCLC bonded and stitched together in the form of 78 to 80 numbers of compressed disk washers, depending upon thickness.

These CCLC washers are mounted on a hexagonal or square steel shaft at a maximum hand held pressure through a conventional hand press and these roller washers should be sufficiently pressed on the roller shaft. Leather tanneries supply this type of CCLC leather washers in a bulk quantity to the ginning industries in turn employed as CCLC rollers in DR gins. [3] The washers should be sufficiently turned and polished on lathe to obtain smooth surface. The hardness of the pressed roller should be such that if the hard pressure of thumbnail is applied on the smooth roller surface the nail mark should be seen. Such rollers are well pressed rollers. This could also be known by hearing the peculiar sound. One can become familiar with this by sufficient practice and experience in the line. The fully pressed, finished and spirally grooved gin roller is finally used in gins everyday to increase friction and to enable the fibres removed smoothly after ginning operation. [4]

CCLC roller is pressed against the stationary knife at a considerable pressure. The roller rotates at a speed of 100 revolutions per minute. This enables pulling of fibres from the seed-cotton (or *kapas*) due to abrasion between rollers and knife, leads to a continuous rate of wear and tear of the rollers. This action is known as dust-producing grinding action of CCLC roller and adds to chromium burden of the environment. This contaminates and pollutes the surrounding as powdered chrome specific dust (CSD).

2.2. Mechanical Testing

2.2.1. Hardness test

Hardness test can be defind as the resistance of the material to localized plastic deformation. In this process of hardness test, the specimen is indented by a special tip which may be a steel ball or a diamond cone. The tip first overcomes the resistance of the material to elastic deformation and then a small amount of plastic deformation.

Hardness measurements for determining the properties of roller covering have found to select a better material and to design a new roller. The hardness of roller covering materials was measured at the ginning surface after the rollers have been tried.

Brinell's Hardness Test has been carried out by pressing a steel ball known as the indentor in to the roller covering. The mean diameter of the indentation left on the specimen is measured after the load is removed. The value of the hardness of various roller covering materials is mathematically calculated by the formula and is given in Brinell's Hardness Number (B.H.N.).

B.H.N.(Brinell's Hardness Number) = Load on ball / Area of Indentation.

Table 2.1 : Values of Hardness of Various Roller Covering Materials Used In Roller-Gin

S.No.	Name of the Roller covering	B.H.N.
1.	Chorome composite leather clad (CCLL) roller,	190-230
2.	Fabric and Rubber Packing,	90-110
3.	Walrus Leather,	90-92
4.	Plastics,	200-210
5.	Synthetic Rubber,	130-135
6.	Thermo Plastic Elastomer,	134-140
7.	Rubberized Cotton Fabrics,	90-95
8.	Woven Fibre Glass,	90-100
9.	Cotton,	80-90
10.	Felt	75-80
11.	Rubber,	100-110
12.	Rubber And Cork,	100-110
13.	Fluorinated Ethylene Propylene	110-120

3. Results and Discussions

3.1. Mitigation Study

Research was done to compare the ginning performance of various roller covering materials. Roller gin separates the fibre from the seed-cotton (*kapas*). Rollers have been experimented made from Pandharpur leather - paper washers, coconut coir material, chrome composite leather cladding, vegetable tanned walrus leather

covering, eco-friendly tanned leather covering, coir board roller covering, woven fibre glass roller covering, rubberized cotton fabric roller, felt (90% wool) covering roller. The physical characteristics of the materials are given such that the gin roll has its frictional and wear properties that makes roller ginning process possible. During the ginning process, the covering material is worn away and must eventually be replaced.

3.2. Evaluation of Different Roller Coverings Materials on a Roller Gin Roller

Roughness of the covering and its tendency to remain rough seems a likely cause of the greater ginning rate of the proposed experimental coverings. The work focuses on this property and may provide a better understanding of the relationships between covering construction, roller life, ginning rate and fibre properties. [5]

Table 3.1 : Roller Covering Materials and Construction Details of The Trial Rollers; Roller Covering; Material: Chrome Composite Leather Clad Roller (CCLC) Covering

Roller Code	Laboratory Gin/GRED and DR Gin : CCLC
Roller Covering Material	Hexavalent and trivalent chromium composite embedded with leather (chrome tanned leather)
Method of Construction	78-80 numbers of Compressed Disks
Core Material	Steel (Square, Hexagonal 50 X 50 mm size)
Roller Dimensions	190 mm roller length (GRED)
182 mm dia and 1016 mm long	171-178 mm(DR)
Method of fastening material to core	Bonded and Stitched and clamped bolted between end plates

3.3. Evaluating Vegetable Tanned Walrus Leather Roller Covering

Vegetable Tannins are complex glycosides of tanning acids obtained from tree barks and woods. Traditionally vegetable tanning was carried out by immersing hides in a pit of water with layers of tannin-bearing bark or wood sandwiched between them. The objectives of this experiment were to define the physical properties of a roller material that contribute to its ginning rate potential in order to produce good quality chrome free-lint cotton and to search for a better roller covering material. However, the ginning rate with the cost of the vegetable tanned walrus leather covering material is not enough to warrant changing from the conventional CCLC rollers being used in the industry.

Table 3.2 : Roller Covering Materials and Construction Details of the Trial Rollers ; Roller Covering; Material: Vegetable Tanned Walrus Leather Clad Covering

Roller Code;	Laboratory Gin/GRED and DR Gin : VT
Roller Covering Material	Vegetable tanned walrus leather
Method of Construction	78-80 Numbers of Compressed disks
Core Material	Steel shaft (square, Hexagonal, 50X50 mm size)
Roller Dimensions	190 mm roller length (GRED)
182 mm dia and 1016 mm long	171-178 mm(DR)
Method of fastening material to core	Bonded and stitched; Clamped /bolted between end plates

3.4. Evaluating Eco-Friendly Tanned Leather Roller Covering

Eco-friendly tanning leather is an innovative eco-friendly technology . This uses only neem oil and liquid soap solution. 2-4 % neem oil and 1-3% liquid soap solution is used for processing the walrus and buffalo leather. Time required to tan considerable quantity hides and skins is two to three days. This process is cheaper than the chrome tanned leather process. However, the ginning rate with the cost of the eco-friendly tanned leather covering is not enough to warrant changing from the conventional CCLC rollers being used in the industry.

Table 3.3 : Roller Covering Materials and Construction Details of The Trial Rollers; Roller Covering; Material: Eco-Friendly Neem Tanned Leather Clad-Roller Covering

Roller Code;	Laboratory Gin/ GRED and DR Gin : ECO
Roller Covering Material	Eco-friendly tanned leather
Method of Construction	78-80 Numbers of Compressed disks
Core Material	Steel shaft (square, ; 50 X 50 mm Size)
Roller Dimensions	190 mm roller length (GRED)
182 mm dia and 1016 mm long	171-178 mm(DR)
Method of fastening material to core	Bonded and stitched; Clamped between end plates

3.5. Physical Characteristics of Various Trial Rollers

Roller code = ECO, VT, CCLC, FRP, RPR, RCF, WFG,
Roller length = 190 mm
Roller diameter = 185 mm
Roller hardness = 89-106 B.H.N.
Layers of fabrics = Good number of fibres; Moderate number of fibres
Fabric fibre colour = White /Brown
Layers of fabrics at ginning surface = Yes/No

Approximate distance fibre bristles protrude above rubber surface: 0.5 to 1 mm
Rubber compounding: Resilient condition; Rubber Board Standards

3.6. Evaluating A Coir Board Roller Covering On A DR Gin

An experimental covering made of coir board was tested. Final removal of the ginned fibers from the roller-gin cylinder presents problems which depend upon the nature of the covering. [6]

Table 3.4 : Roller Covering Materials and Construction Details of The Trial Rollers; Roller Covering; Material: Coir Board Roller Covering

Roller Code;	Laboratory Gin/GRED and DR Gin : COIR
Roller Covering Material	Coir board roller
Method of Construction	70 numbers of Compressed disks
Core Material	Steel shaft (square, Hexagonal, 50X50 mm size)
Roller Dimensions	190 mm roller length (GRED)
182 mm dia and 1016 mm long	171-178 mm(DR)
Method of fastening material to core	Bonded and stitched; Clamped between end plates

3.7. Evaluating Woven Fibre-Glass Roller Covering On a DR Gin

An experimental DR gin roller covering, made from woven fibre glass fabrics (FGF) , was tested on a DR gin to evaluate its ginning performance and effect on fibre quality. The experimental covering was much better than the present CCLC covering; it ginned at 1.5 times the present rate and lint quality is very good. The roller temperature has been reduced to 4 to 5 °C (39° C) as compared to 45°C in other coverings. Analysis showed that the fiber glass fibres did not contaminate knitted cloth made from the lint ginned with the roller. Final removal of the ginned fibers from the roller-gin cylinder presents problems which depend upon the nature of the FGF covering. If the fibres are returned to the ginning point, jamming and chokages, commonly known as "back-lash" occur.

Table 3.5 : Roller Covering Materials And Construction Details of the Trial Rollers; Roller Covering; Material: Woven FibreGlass Fabrics (FGF) Roller Covering

Roller Code;	Laboratory Gin/GRED and DR Gin : WFG
Roller Covering Material	Woven fibre glass covering bonded with white rubber compound roller
Method of Construction	Compressed disks / spool winding /flat sheet
Core Material	Steel shaft (Square, Hexagonal , 50X50 mm size)
Roller Dimensions	190 mm roller length (GRED)
182 mm dia and 1016 mm long	171-178 mm(DR)
Method of fastening material to core	Bonded and stitched; Clamped between end plates

Woven fibre glass roller covering-Roller-II has been evaluated for fibre quality and ginning performance in a DR gin. This type of woven fiberglass roller covering on a roller gin cover have pulled more fibres under the fixed knife, increasing ginning rates reducing heat generated at the surface of the roller at a roller speed of 100 revolutions per minute. The fibre quality and quality of knitted fabrics was good compared to the CCLC covering results and thus free from contamination problems. However, in a DR gin, the covering failed after thirty five hours of normal ginning. The experimental gin roller coverings (Roller-II) are much more better than the CCLC roller coverings as they ginned at 1.5 times the rate and resulted in less roller heat, there were significant differences in the fibre quality and spinning test measurements.

However, the ginning rate with the cost of the woven fibre glass material is not enough to warrant changing from the conventional CCLC rollers being used in the industry.

3.8. Evaluating Rubberized Cotton Fabric (RCF) Roller Covering Material

The RCF rollers both for laboratory and commercial studies have been designed, fabricated and experimented on a special-built GRED and DR gins. These rollers are covered with packing-type roller covering material made from multiple layers of cotton fabric bonded together with a rubber compound. Four types of roller covering material with different rubber compounding and multiple fabrics composition were tested in GRED and DR gins. Two rollers are abandoned primarily due to higher wear and tear rate, adhesive failure and ginning is not carried out properly. Two RCF rollers were found effective and successful in ginning out the seed-cotton in eco-friendly way besides resulting in higher productivity in terms of ginning rate potential and cotton technological parameters. The RCF rollers made with experimental covering materials are tested (1) to find obvious short comings in performance such as short roller life, temperature and lint contamination (2) to establish the existence of some ginning rate potential.

One of the specimen of roller gin covering material is the most superior among all types tested in respect of ginning rate potential (kg of cotton ginned per unit of time at maximum feed rate) and amount of energy consumed (work required to gin a kg of lint). Conventional fabric and rubber roller gin covering material are selected with the following characteristics viz. The manufacturing technology, design engineering features, and assembly experience show that the RCF roller covering can be selected with the following characteristics: hardness of 106 B.H.N. (type Brinell Hardness Number), 7 to 10 layers of fabrics 20 mm length and fabric thickness of fabrics 1.2 mm, The rubber compound is resilient and fibre bristles protrude 0.76 mm beyond the rubber surface is maintained in spite of wear. [7]

On the basis of the design and development of various rollers with subsequent performance evaluation studies, pollution-free RCF roller has been demonstrated with reference to techno- economical and eco-friendliness in ginning industries. The newly developed RCF rollers are successful and effective in functioning and in ginning out seed-cotton. Environmental parameters of CCLC roller and RCF roller ginneries are given stating cost economics in table. Eco-friendly RCF ginnery sounds better in all aspects with reference to cotton technological parameters, techno-economical and environmental aspects.

Comparative economics have been worked out for the chrome less RCF roller ginneries and CCLC rollers ginneries; that is for the 'System before and after modifications' and for commercialization to the ginning industry. However, the ginning rate with the cost of the RCF is not enough to warrant changing from the conventional CCLC rollers being used in the industry.

Table 3.6 : Roller Covering Materials and Construction Details Of The Trial Rollers; Roller Covering; Material: Rubberized Cotton Fabric Roller Covering

Roller Code;	Laboratory Gin/GRED and DR Gin : RCF
Roller Covering Material	Rubber packing roller covering
Method of Construction	60 Compressed disks / Flat sheets /spool winding
Core Material	Wood/ Steel shaft (square, ; 50 X 50 mm Size)
Roller Dimensions	190 mm roller length (GRED)
182 mm dia and 1016 mm long	171-178 mm(DR)
Method of fastening material to core	Rubber packing bonded with adhesive to roller core ; spool windings ; Compressed disks are Clamped between end plates

3.9. Evaluating Felt (90% Wool) Packing Roller Covering

An experimental covering made of rubber packing was tested. Final removal of the ginned fibers from the roller-gin roller presents problems which depend upon the nature of the covering. [8]

Table 3.7 : Roller Covering Materials and Construction Details of The Trial Rollers; Roller Covering; Material: 90% Wool (Felt) Roller Covering

Roller Code;	Laboratory Gin/GRED and DR Gin : WPR
Roller Covering Material	Wool packing type roller covering
Method of Construction	Compressed disks
Core Material	Steel shaft (square, ; 50 X 50 mm Size)
Roller Dimensions	190 mm roller length (GRED)
182 mm dia and 1016 mm long	171-178 mm(DR)
Method of fastening material to core	90% Wool, (Felt material)

Research was done to compare the ginning performance of a felt material (90% wool) against the commonly used CCLC covering material. This particular felting used is soft to perform satisfactorily over a long period without wear. This felt material wore well, ginned at an optimum rate while maintaining fibre quality. However, the ginning rate with the cost of the felt material is not enough to warrant changing from the conventional CCLC rollers being used in the industry.

4. Conclusion

The heart of the cotton roller ginning machine is gin roller. A cotton roller gin separates the fiber from the seed-cotton (or *kapas*) using the interaction and interrelation of fixed knife that rides with some pressure against a rotating roller (known as gin roller), pulling fibres from the seed. Walrus hide, which was used till 1940, was thought to be unequalled for roller coverings. The physical characteristics of this covering material are what give the gin roller its frictional and wear properties which is worn away and must eventually be replaced. Replacement of the roller washer is done subsequently. A common material made from a composite of chromium tanned leather is used to cover the gin roller by the roller ginning industry. When cotton is processed, the ginned lint would contain about 180 to 250 ppm of Cr (III) and Cr (VI) which are known to be highly carcinogenic in nature. The roller ginning

industry would benefit if a satisfactory, cheaper, longer and eco-friendly wearing roller covering material could be found. Research and experiments show the possibility of obtaining a substitute. Ginning investigations have been carried out to help meet the objective of designing and developing eco-friendly roller coverings for cotton double roller (DR) gins. Various eco-friendly substitutes and methods have been studied and devised, such as felt (90% wool), vegetable tanned leather, woven fibre glass fabrics, neem oil tanned leather, 100% wool material, alternative rubber and rubber-processing technology, and modification of the commonly employed CCLC roller gins. Research was done to compare the ginning performance of rollers against the commonly used CCLC roller. Tests showed that the ginning rate of some rollers was significantly very good with CCLC covering. Also, these roller materials were soft to perform satisfactorily over a long period without undue wear. Further work will be done with other materials to see if an alternative roller covering material can be found.

For further reading

1. Vijayan Gurumurthy Iyer, Book entitled "Properties of Covering Materials of Roller Used in Cotton Roller Gin", Sub title: "Unsafe Chromium Contamination and Pollution from Cotton Ginning Industries and Development of Eco-friendly alternatives" , (ISBN: 978-3-8443-9755-0) Edited By Tatiana Melnic LAP LAMBERT Academic Publishing GmbH & Co. KG Dudweiler Landstraße 99 66123 Saarbrücken, Germany. Pages : 160.
2. Vijayan Gurumurthy Iyer, Book enttield" Recent Research Results and Accomplishments of Vijayan Gurumurthy Iyer", Sub Title : "Selected Paper Abstracts and Hints By Vijayan Gurumurthy Iyer", (ISBN: 978-3-8454-0574-2) Edited By Tatiana Melnic LAP LAMBERT Academic Publishing GmbH & Co. KG Dudweiler Landstraße 99 66123 Saarbrücken, Germany.

Acknowledgements

The author wishes is thankful to M/S LAP LAMBERT Academic Publishing GmbH & Co.KG, Dudweiler LandstraBe 99D-66123 Saarbrucken, Germany for sponsoring his book project I and II entitled "Properties of Covering Materials of Roller Used in Cotton Roller Gin", Sub title: "Unsafe Chromium Contamination and Pollution from Cotton Ginning Industries and Development of Eco-friendly alternatives" , (ISBN: 978-3-8443-9755-0) Edited By Tatiana Melnic LAP LAMBERT Academic Publishing GmbH & Co. KG Dudweiler Landstraße 99 66123 Saarbrücken, Germany. Pages : 160.

References

1. Vijayan Iyer G., Book of the Properties of Covering Materials of Roller Used in Cotton Roller Gin, Lap Lambert Academic Publishing GmbH & Co.KG, Germany 160 (1), 1, (2011)
2. Vijayan Iyer G., *Journal of Textile Association (India*) **66** (3) 265, (2005).
3. Vijayan Iyer G., *Journal of Agricultural Safety and Health,* **13,** (1), 33, (2006).
4. Vijayan Iyer G., WSEAS Transactions on Environment and Development, **2,** (4),425, (2006).
5. Vijayan Iyer G., *Journal of the Textile Association (India)*, **71** (2), 60, (2010).
6. Vijayan Iyer G., *Journal of the Textile Association (India)*, **59** (7), 87, (1998).
7. Vijayan Iyer G., *Journal of Textile Association(India)*, **65** (3), 265, (2005).
8. Vijayan Iyer G., *Journal of Textile Association (India),* **67** (3), 255, (2007).

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Comparative Study of Blended Worsted Yarn Tensile Properties, Measured in Different Principles of Measurement

Achintya Kr. Samanta*
Wool Research Association, Thane

Abstract
Tensile property of textile yarns is a prime important parameter in determining the suitability for any particular application. It is therefore of utmost importance to determine this characteristic accurately. There are three basic principles for measuring yarn tensile strength. But for measuring single yarn tensile strength mainly constant rate of extension (CRE) and constant rate of loading (CRL) principles are used. A single yarn shows two different results of breaking load and elongation value in these two methods due to the difference in measuring system. In this article a comparative study is carried out between these two methods.

Key words
Yarn breaking strength, breaking elongation, CRE, CRL, Correlation, Regression

1. Introduction

It is absolutely essential for spinners today to test weaving or knitting yarns properly prior to actual use or further processing. Breaking strength, elongation, elastic modulus, resistance abrasion etc. are some important factors which will represent the performance of the yarn. Among all these measurable tensile properties of spun yarn, considerable attention has been paid on the evaluation of tensile strength and breaking extension, as these properties of the spun yarns influence the efficiency of weaving and knitting machines and the quality of the fabric produced from them. The first theoretical work published concerning the mechanics of blended yarn was by Hamburger. He was concerned with the fact that the blended yarns have breaking strengths lower than those expected from the summation of the proportioned constituent fiber component strengths. [1] However, the tensile strength and breaking extension of the yarns are not the unique functions, but they depend on the rate of extension, gauge length, breaking time and also on the principle of testing machine. [2] According to Midgley & Pierce, rapid test produces a higher breaking load than a slow test and they have also established relationship between the strength values obtained and the breaking time. [3]

Correspondance should be addressed to,
Achintya Kr. Samanta
Wool Research Association,
Kolshet Road, Sandoz Baug,
Thane (W)-400607, Maharashtra
E-mail: achin.burdwan@gmail.com

Based on the principle of working, the instruments used for determining the tensile strength are classified into three groups,

1. CRT - Constant rate of traverse
2. CRE - Constant rate of extension
3. CRL - Constant rate of loading

In the instruments of CRE type, the application of load is made in such a way that the rate of elongation of the specimen is kept constant. In the instruments of the CRL type, the application of load is made in such a way that the rate of loading is constant throughout the duration of the test. And in the instrument of CRT type, traverse rate of the gripping jaw is constant. Although now-a-days only two methods are mainly used to measure the tensile properties of textile specimens, 'Constant Rate of Loading' (CRL) and 'Constant Rate of Extension' (CRE). [4] According to Morton and Hearle, if the stress-strain curves of the textile yarns are nonlinear, there will always be a difference between the constant rate of loading (CRL) and constant rate of extension (CRE) tests results due to the different proportions of time spent on different parts of the stress-strain curves. Thus, in studying time effects of yarn breaks, it is important to indicate, whether the tester uses the CRL or CRE method. [5]

The present investigation intends to correlate the yarn tensile properties of blended worsted yarn, obtained from both the CRE and CRL type instruments, with each other to give an idea of the similarities or variations

in the result obtained from both the instruments.

2. Materials and methods

2.1. Material

Dyed two ply yarn, which is the final product of the worsted yarn production, is used for this experiment. All the yarns were spun in the same worsted processing system. Three different blends of Polyester – Wool and two different counts of each selected blend, are selected for tensile testing. To reduce the chance of occurrence of within bobbin variation, only one bobbin for one variable was tested. Same bobbin is tested both in CRE and CRL instruments. The details of the tested yarns are given in Table 2.1.

Table 2.1 : Yarns taken for testing

Sample ID	Count (Nm)	Wool %	Polyester %	Wool Micron	Polyester Denier
Sample 1	2/60	45	55	21.5	2.5
Sample 2	2/70	45	55	21.5	2.5
Sample 3	2/60	35	65	22.5	2.5
Sample 4	2/70	35	65	21.5	2.5
Sample 5	2/60	25	75	22.5	2
Sample 6	2/70	25	75	22	2

2.2. Method

Prior to testing all the yarn samples were kept in a standard atmospheric condition (65% ±2 RH and 27ºC ±2) for 4hours and then tested in both CRE and CRL type instruments. SHIMADZU Tensile tester (Model No. AG-X) is used as a CRE type instrument and Zellweger USTER Tensile tester (Type AD) is used as a CRL type instrument in this experiment. All the samples were tested under a standard test method. British Standard EN ISO 2062 (1995) was followed for all the testing. The details of the testing parameters are given bellow.

SHIMADZU
Gauge Length: 500 mm.
Jaw Speed: 500mm/min.
Pre-tension: 0.5 cN/tex.
USTER
Gauge Length: 500mm.
Time to Break: 20±3 Sec.

A minimum of 50 observations were made for each sample in order to obtain a 5% error of estimation. The tenacity and breaking extension values were recorded, and then the average value and standard deviation were calculated. The results were also tested for significance and correlation.

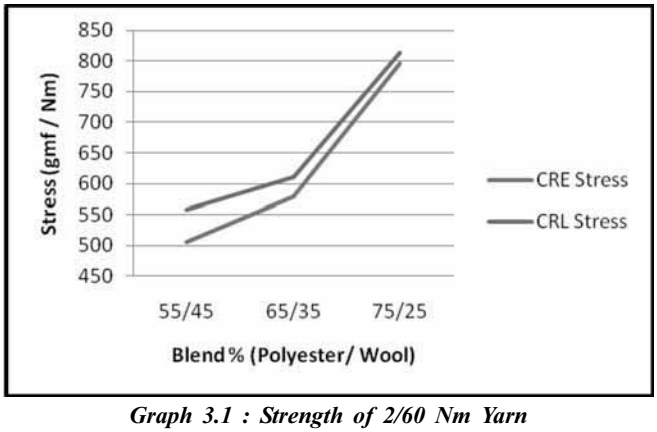
3. Results and Discussions

3.1. Breaking Tenacity

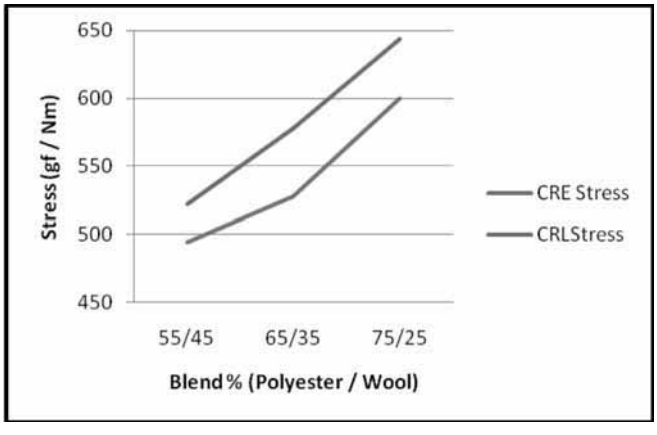
The detail results of the tensile strength, tested by both the principle, are given in Table 3.1. It was observed that in all the cases CRL principle shows higher stress than CRE principle test method. It was also observed from the Graph 3.1 and Graph 3.2 that yarn strength follows the same trend in both the principles and shows higher difference in 2/70 Nm yarns. Yarn strength increases with the increase of the polyester percentage in the blend. 75/25 polyester/wool blended 2/60 Nm yarn shows highest strength between the entire variable. To confirm the presence of real difference between these two method results, significance test for mean and standard deviation was done.

Table 3.1 : Tensile strength tested by both principles

Blend (P/W)	Count in Nm	CRE Stress (gm-f/ Nm)	CRL Stress (gm-f/ Nm)
55/45	60	15.15	16.77
55/45	70	17.28	18.27
65/35	60	17.37	18.34
65/35	70	18.47	20.23
75/25	60	23.86	24.42
75/25	70	21.00	22.54



Graph 3.1 : Strength of 2/60 Nm Yarn



Graph 3.2 : Strength of 2/70 Nm Yarn

The detail results of significant test are given in Table 3.2. Almost in all the cases it was observed that the value of T is greater than 2.58, which implies that the difference between two methods of testing is significant at 99% level of confidence. It was also observed that in all the cases values of F test is much lesser than 1.96 i.e. standard deviations of the strength results, measured in two different methods, is not significantly differ even at 95% level of confidence. In other word it indicates that the differences in mean stress results are not by chance. So the variation in stress value is only for the principle of measurement.

Table 3.2 : Significance test between the two methods

Blend	Count	T Value	F value
55/45	60	9.42	0.55
55/45	70	3.31	0.78
65/35	60	2.83	0.27
65/35	70	3.65	0.45
75/25	60	2.39	0.09
75/25	70	4.45	0.32

In constant rate of extension (CRE) tests, the specimen is extended at a constant rate up to the break and the force is a dependent quantity, whereas in constant rate of loading (CRL) tests, the specimen is loaded at a constant rate up to the break and the elongation is a dependent quantity. For the usual non-linear fibre stress–strain relations, the load–time relation is different in the two procedures (Fig 3.1 and Fig 3.2). So in case of CRE principle, specimen spends the maximum time in higher load region and as a result yarn shows lower value of breaking strength.

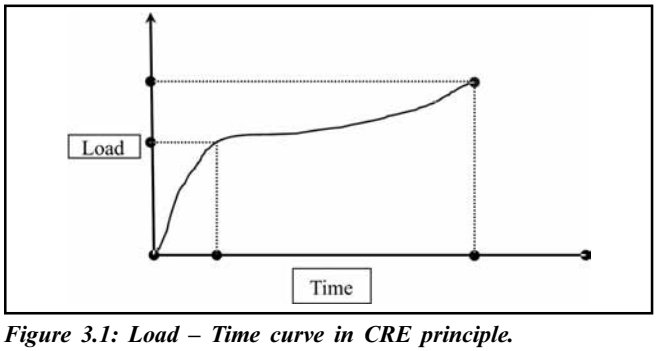


Figure 3.1: Load – Time curve in CRE principle.

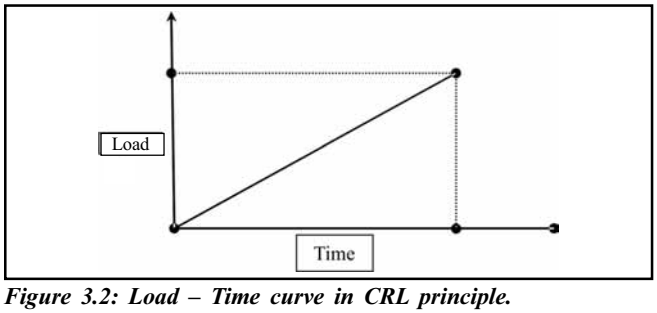


Figure 3.2: Load – Time curve in CRL principle.

Another consequence is that in a constant rate of extension test it is possible for the load to decrease while the elongation increases, but this is not possible in constant rate of loading tests, where the load must increase throughout the test, giving the difference shown in Fig. 3.3.

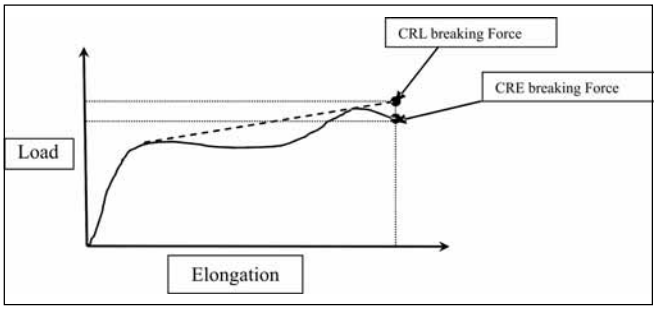


Figure 3.3: Load-Elongation Curve for yarn.

To find out the relation between these two methods, all the stress results are analysed for Correlation and Regression equations in linear, quadratic and cubic model. It was found that yarn stress shows a very good correlation between these two methods in cubic model (The value of R^2= 0.997). It shows the feasibility of predicting the CRE stress from the CRL stress result. The regression equation for these two principles is

CRE = -213.548 + 33.1439(CRL) - 1.60977(CRL)^2 + 2.66E-02(CRL)^3

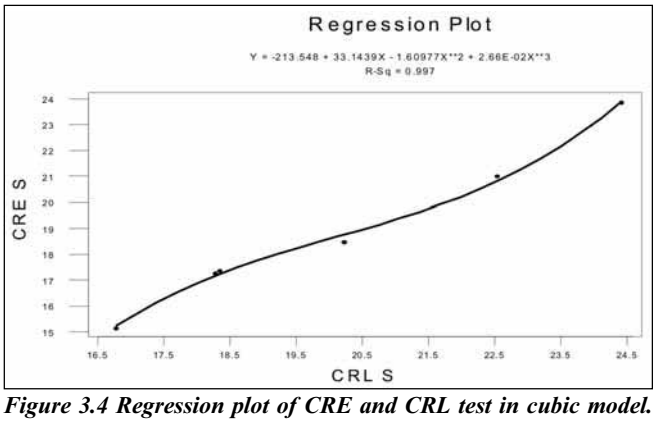


Figure 3.4 Regression plot of CRE and CRL test in cubic model.

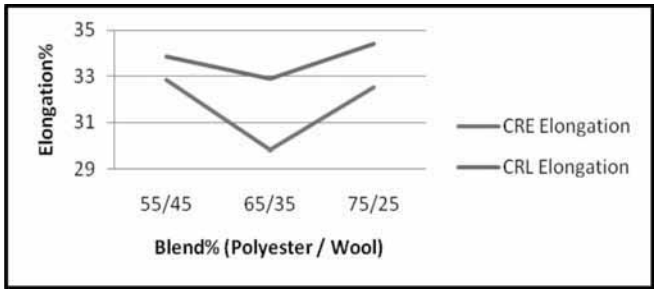
3.2. Breaking Elongation

Table 3.3 : Breaking Elongation tested by both principles

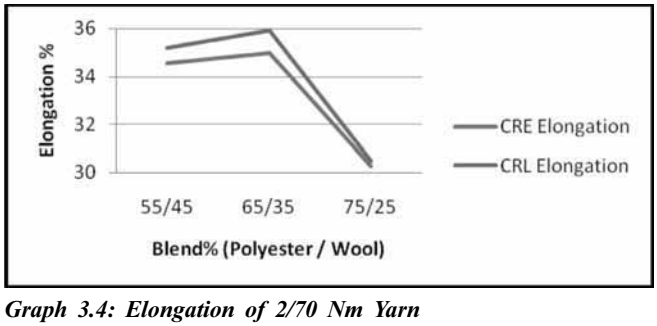
Blend% (P/W)	Count in Nm	CRE Elongation%	CRL Elongation%
55/45	60	32.85	33.88
55/45	70	34.56	35.20
65/35	60	29.81	32.90
65/35	70	34.99	35.90
75/25	60	32.53	34.40
75/25	70	30.27	30.50

It was observed from the Table 3.3, that in case of breaking elongation, the same yarn shows higher elongation at break in CRL principle of measurement.

From the Graph 3.3 and Graph 3.4 it was observed that the trend shown by the different blend and count yarns are same in both the principles. In 2/60 Nm yarn 65/ 35 (P/W) blend shows the lowest elongation% where as in 2/70 Nm yarn 75/25 blend shows the lowest elongation%. It was also observed that 65/35 polyester /wool blended 2/60Nm yarn shows the highest difference in elongation% between these two methods of measurement.



Graph 3.3: Elongation of 2/60 Nm Yarn



Graph 3.4: Elongation of 2/70 Nm Yarn

No definite trend was also observed in elongation% with the variation in blend ratio in both the principles. 65/ 35 polyester/wool blended 2/70Nm yarn shows the highest elongation% between the entire variable. To confirm the presence of real difference between these two methods result, significance test for mean and standard deviation was done. The detail results of significant test are given in Table 3.4.

Table 3.4 : Significance test for mean & standard deviation

Blend (Polyester/Wool)	Count in Nm	T Value	F value
55/45	60	4.844712	0.649097
55/45	70	4.157298	1.61427
65/35	60	3.005103	0.729394
65/35	70	4.43533	0.678129
75/25	60	5.247438	0.999512
75/25	70	4.007042	0

In all the cases it was observed that the value of T is greater than 2.58, which implies that the difference between two methods of testing is significant at 99% level of confidence. It was also observed that in all the cases values of F test is much lesser than 1.96 i.e. standard deviations of the strength results, measured in two different methods, does not significantly differ even at 95% level of confidence. In other words, it indicates that the differences in mean stress results are not by chance. So the variations in strain values are only for the principle of measurement.

In CRE principle rate of increase in elongation percentage is constant with the time but in CRL principle amount of extension is comparatively lower in the initial portion of the measurement, but in the final position, rate of extension is high (Fig 3.5 and Fig 3.6).

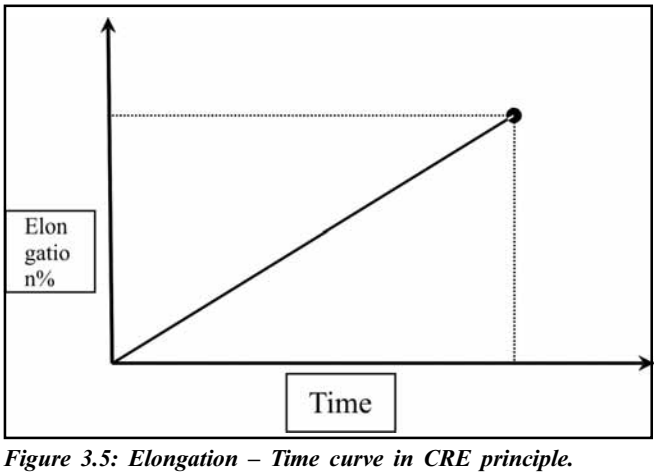


Figure 3.5: Elongation – Time curve in CRE principle.

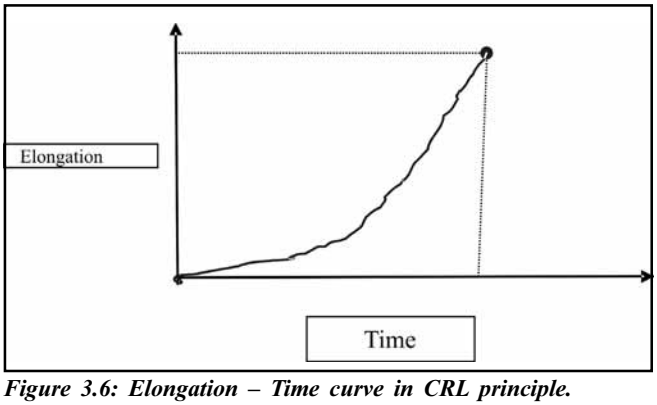


Figure 3.6: Elongation – Time curve in CRL principle.

So in the final phase of CRL principle, yarn sample shown a similar behaviour as a rapid test in CRE principle. Number of ruptured fibre increase in any rapid test method which contribute the maximum fibre elongation in yarn elongation. So yarn sample shows higher strength and elongation in CRL principle.

Strain results are also analysed for Correlation and Regression equations in linear, quadratic and cubic model to find out the relations between these two methods. It was found that yarn elongation shows a poor correlation between these two methods. Only in cubic model it shows some correlation (The value of R^2= 0.534). The regression equation for these two principles in cubic model is

CRE = -50951.4 + 4766.15CRL - 148.265CRL^2 + 1.53462CRL^3

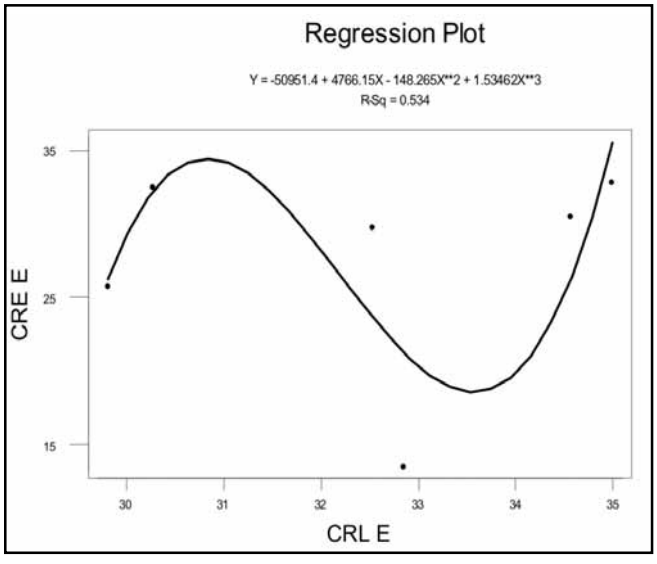


Fig. 3.7 Regression plot of CRE and CRL test for Elongation% in cubic model.

4. Conclusion

From the forgoing discussion it can be now concluded that yarn tensile properties highly depends on principle of measurement. Above experiment shows that CRL principle instrument always shows higher strength and elongation value than the CRE principle instrument. So it is necessary to mention the testing principle at the time of comparing tensile testing results.

From the regression analysis of the two variables, it is observed that breaking stress of one specimen can be predicted in one principle of measurement from another. But yarn breaking elongation cannot be predicted with high accuracy.

References

1. Hamburger, J.W.; The Industrial Applications of the Stress-strain Relationship; *Journal of Textile Institute* 1949, **40,** 700-720
2. http://textiletechnology.bravehost.com/spinning/yarntesting.htm
3. Midgley, E.; Pierce, F.T.; Tensile Tests for Cotton Yams, Part III: The Rate of Loading; *Journal of Textile Institute* 1926, **17**: T330-T341.
4. Principles of textile testing by J.E.Booth, Heywood Books, edition 1968, page 371.
5. Morton, W.E.; Hearle, J.W.S.; Physical Properties of Textile Fibers; The Textile Institute, Butter-worths, Manchester and London, 1962.

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Air Permeability Behavior in Multi Layer Weft Knit Fabrics

P Kanakaraj*, R. Ramachandran
PSG College of Technology, Coimbatore
&
B S Dasaradan,
Angel college of Engineering and Technology, Tirupur

Abstract
The air permeability behaviour of multi layer knit fabric produced using cotton and polyester in two bed weft knitting machine has been studied. The various combinations such as group I: CPC-S1 & CPP-S2, group II: CCC-S3, CCC-S4, CCC-S5 & CCC-S6, group III: CPC-M1, CPC-M2 & CPC-M3 with respect to material, yarn linear density and number of yarn feed respectively. The produced multi layer fabrics are subjected to analysis of air permeability property by varying the test surfaces (face & back of the fabric). The test results were concluded with two-way ANOVA statistical tool at 5% significance level. The influences of fabric properties stitch density, thickness of the fabric, tightness factor and loop length on air permeability has been studied. It is observed that the air permeability of the multi layer knits through face and back of the surfaces depends on the yarn linear density, type of material present in the layer, number of combined yarn feed, tightness factor, fabric weight and stitch density.

Keywords
Air permeability, Cotton polyester fabric, Multi layer fabric, Transmission property, Weft knitting, Yarn feed

1. Introduction

The important transmission characteristics of textile materials are light, heat, water, air and sound. These may be accounted as individual and/or in combination, very much essential for the low end to high end application. The ability to transport heat and air of textile material is critical to the wears comfort. When sweat proceeds in human it is essential to cool the human skin by absorbing the sweat and the introduction of atmospheric air (cool air) to the micro climate of human skin. Hence, the fabric which the wearer wears is important. Considerable research work has been carried out to improve the transport characteristics of fabric through various approaches. Air and water vapor transport properties are mainly related to heat and moisture transfer characteristics of textile material. The various factors influences the air transmission through the textiles such as Fiber – Orientation, morphological structure, volume of fiber fraction: Yarn – twist, linear density, type of material, yarn flattening, yarn structure: Fabric – Surface Porosity, fabric thickness, specific energy of the fabric, loop length, tightness factor, type of structure, types of stitch.[1-3,5-10] Kornoohina *et al.* [8] reported that in fibrous structure permeability rises with increasing the values of the orientation parameter and decreasing the effective density of fibrous layers. Many researchers have worked with the porosity of jersey knitted fabric, and concluded that the relationship between porosity and permeability characteristics of the fabric is linear. Bozena Wilbik-Halgas *et al.* [1] revealed with the plain double-layered knitted fabric of cotton/polyester the barrier ability of knits to air is based on surface porosity, fabric thickness & type of stitch. Also as the specific energy of the fabric increases, air permeability decreases. [2] The variation in air permeability depends on the area density, linear density, loop length & tightness factor of plain & plated plain knits as reported by Ricardas Ciukas *et al.* [6] Yarn flattening is of great importance. At constant yarn area, the greater the degree of flattening the smaller the porosity & less the permeability. [7]

In this direction, an attempt has been made to analyze the air permeability of the multi layer weft knits with respect to face and back of the fabric surfaces. The knits produced for this study were cotton/polyester/

Correspondance should be addressed to,
P. Kanakaraj,
Department of Fashion Technology, PSG College of Technology, Coimbatore – 641 004
E mail: pkr@fas.psgtech.ac.in

cotton, cotton/cotton/cotton and cotton/polyester/polyester of different combinations. This could be useful findings for the researchers and the comfort wear producers.

2. Materials And Methods

2.1. Materials

Cotton and polyester yarns of various linear densities with combinations such as group-I, group-II and group-III were used for the production of dissimilar multi layer fabric. Table 2.1 shows the yarn linear density and various multi layer fabric combinations.

2.2. Knitting

Three layer fabrics were produced from Interlock and flat kiting machine. The knitting machine parameters are given in Table 2.1. The production machines consist of two beds (Interlock knitting: cylinder & dial; Flat knitting: front bed & back bed). Three feeders were used, feeder 1 feeds the given yarn to every front bed needles producing knit stitch, feeder 2 feeds the given yarn to every back bed needles producing knit stitch and feeder 3 feeds the given yarn to front & back bed of the alternate needles, produces float/miss stitch which is the connecting thread to connect front and back layer. The same has to be followed for one more time to complete the repeat, but in this feeder 3 feeds remaining alternate needles from the front and back bed.

2.3. Testing

The produced multi layer knit fabric was given relaxation process and following tests were carried out. The knitted fabric properties are given in Table 2.2.

Table 2.1 : Knitting machine & Multi layer fabrics

Machine Details	Group I	Group II	Group III
Machine type	Interlock	Flat knitting	Interlock
No. of Needles	1018 × 2	400 × 2	576 × 2
Total feeders	36	8 × 2	72
M/c Gauge	18	14	18
M/c Speed (rpm)	40	10	20
Sample Code	Multi layer knit fabrics		
GROUP I			
CPC-S1	34^s Ne Cotton/18D Polyester/34^s Ne Cotton		
CPP-S2	34s Ne Cotton/18D Polyester/18D Polyester		
GROUP II			
CCC-S3	32^s Ne Cotton/25^s Ne Cotton/30^s Ne Cotton		
CCC-S4	25^s Ne Cotton/32^s Ne Cotton/30^s Ne Cotton		
CCC-S5	25^s Ne Cotton/32^s Ne Cotton/30^s Ne Cotton		
CCC-S6	25^s Ne Cotton/30^s Ne Cotton/25^s Ne Cotton		
GROUP III			
CPC-M1	20^s Ne Cotton/80D Polyester/20^s Ne Cotton		
CPC-M2	40^s Ne Cotton/60D Polyester/40^s Ne Cotton		
CPC-M3	60^s Ne Cotton/60D Polyester/60^s Ne Cotton		

2.3.1. Stitch density

The courses and wale density of the samples in outer, middle and inner layer were calculated individually in the direction of the length and width of the knit fabric. The average density per $inch^2$ of 10 reading was taken for the discussion.

2.3.2. Areal density of the fabric

The area density of cotton/polyester/cotton, cotton/cotton/cotton and cotton/polyester/polyester grouped multi layer knit samples was obtained from measurements of 10 × 10 cm^2 samples, which is reported in g/m^2.

Table 2.2 : Multi layer knitted fabric parameters

Parameter	Loop Length (cm) (Stitches/$Inch^2$)			Stitch Density			Tightness Factor			Weight (GSM)	No.Yarn Feed in a feeder			Thickness	Air permeability (mm) (ft^3/ft^2.min)	
S.Code Group I	L_O	L_m	L_i	S_O	S_m	S_i	TF_O	TF_m	TF_i	W	NYF_O	NYF_m	NYF_i	T	AP_F	AP_B
CPC-S1	0.317	0.233	0.317	916.7	904	896	13.1	6	13.1	185	1	1	1	0.815	281.5971	289.4002
CPP-S2	0.347	0.237	0.347	924	912	916	12	5.96	4	181	1	1	1	0.835	317.004	343.785
Group II																
CCC-S3	0.34	0.25	0.34	806	839	822	12.6	19.4	13	480	1	1	1	0.999	147.5001	141.3752
CCC-S4	0.34	0.24	0.3	789	875	789	14	17.8	14.7	470	1	1	1	0.901	200.11	191.1027
CCC-S5	0.34	0.3	0.34	811	861	811	14	14	13	465	1	1	1	0.989	189.5271	176.1116
CCC-S6	0.35	0.3	0.36	822	870	822	13.8	14.7	13.5	460	1	1	1	0.947	137.6283	127.7281
Group III																
CPC-M1	0.527	1.03	0.527	481	973.8	481	14.5	2.89	14.5	480	2	1	2	2.02	72.96644	69.92594
CPC-M2	0.53	0.936	0.53	407.8	873	407.8	14	2.75	14	470	4	1	4	1.87	61.04919	57.95854
CPC-M3	0.527	0.945	0.527	455.7	892.8	455.7	10	2.73	10	465	3	1	3	1.94	66.34598	67.62385

Parameter subscript: o – Outer layer, m – Middle layer, i - Inner layer & F – Face of the fabric, B – Back of the fabric

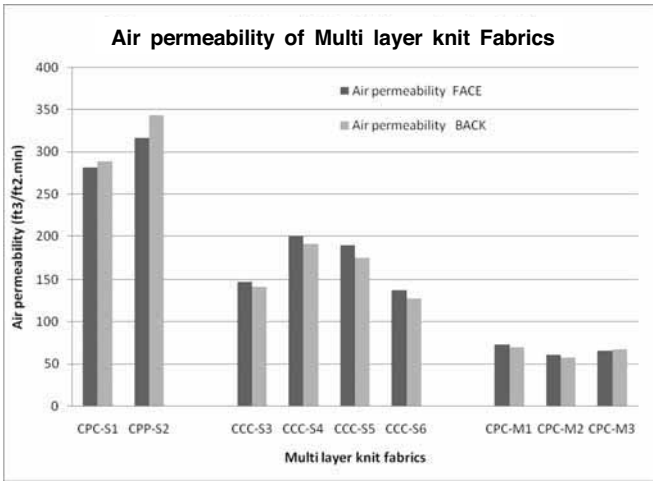

Figure 3.1 : Air permeabilty behaviour of Group-I, Group-II and Group-III Multi layer knit fabrics

2.3.3. Loop length/Stitch length

In outer, middle and inner layer of various combinations in multi layer fabric, the 20 loops in a course were unraveled and the length of yarn measured in cm (L_T). From the L_T value the stitch length/loop length was measured by using the following formula,

Stitch length/loop length in cm (L) = length of yarn (L_T)/20 (1)

The average of 10 loop length (cm) was taken and reported in Table 2.2.

2.3.4. Tightness Factor (TF)

The tightness of knits was characterized by the tightness factor (TF). It is known that TF is a ratio of the area covered by the yarns in one loop to the area occupied by the loop. It is also an indication of the relative looseness or tightness of the knitted structure. For determination of TF the following formula was used

Tightness Factor (TF) = $^{vT}/_{l}$ (2)

Where T= Yarn linear density in Tex, l = loop length of fabric in cm. The TF of three layers (outer, middle & inner) were calculated separately given in Table 2.2.

2.3.5. Thickness of the fabric

The thickness of the various group-I, group-II and group-III multi layer knit fabrics (T) in mm was measured at 50 gf/cm^2 pressure by using Kawabata evaluation system (KES-FB3 compression tester. Katotech Co, Ltd.,).

2.3.6. Air Permeability

The measurement of the air permeability is the rate of air flow passing perpendicularly through a known area under a prescribed air pressure differential between the two surfaces of a material of textile fabrics. [9] The air resistance values of the group I, group II and group III multi layer knitted fabrics were measured individually through face and back side of the samples by using Kawabata evaluation system (KES-FB-AP1 Katotech Co. Ltd.,) under automatic air permeability tester. The air resistance value of KES is converted into Frazier type tester values using the following relationship:

Air permeability (ft^3/ft^2.min) = $^{24.58}$ / $_{R}$ (3)

Where R is the air resistance value measures in KES-FB-AP1 tester in cm^3/cm^2.s

3. Results And Discussion

3.1. Air permeability

The air permeability property of various multi layer

Table 3.1 : Two-Factor With Replication Analysis for GROUP I fabrics

Variance Analysis	*Sum of square value (SS)*	*Mean square value (MS)*	*F - Value*	*P-value*	*F crit*
Between surfaces	2990.164	2990.164	$F_{(1, 36)}$ 0.107165	0.745291	4.113165
Between fabric	20156.36	20156.36	$F_{(1, 36)}$ 0.72239	0.400978	4.113165
Interaction	900.3942	900.3942	$F_{(1, 36)}$ 0.03227	0.858445	4.113165

TABLE – 3.2 – Two-Factor With Replication Analysis for GROUP II fabrics

Variance Analysis	*Sum of square value (SS)*	*Mean square value (MS)*	*F - Value*	*P-value*	*F crit*
Between surfaces	1847.325	1847.325	$F_{(1, 72)}$ 26.78032	1.979E-06	3.973897
Between fabric	54333.21	18111.07	$F_{(3, 72)}$ 262.5528	1.109E-38	2.731807
Interaction	135.4038	45.13459	$F_{(3, 72)}$ 0.654308	0.5828523	2.731807

TABLE – 3.3 – Two-Factor With Replication Analysis for GROUP III fabrics

Variance Analysis	*Sum of square value (SS)*	*Mean square value (MS)*	*F - Value*	*P-value*	*F crit*
Between surfaces	39.25732	39.25732	$F_{(1, 54)}$ 0.957256	0.332242	4.019541
Between fabric	1456.588	728.2939	$F_{(2, 54)}$ 17.75882	1.18E-06	3.168246
Interaction	62.89139	31.4457	$F_{(2, 54)}$ 0.766776	0.469499	3.168246

knit fabrics produced from cotton/polyester/cotton, cotton/polyester/polyester and cotton/cotton/cotton combinations were analyzed both face and back side of the fabric surfaces (Fig. 3.1). It is observed that the air permeability behavior of cotton and polyester combination of single feed is higher (CPP-S2 > CPC-S1) than cotton combinations and highest than cotton and polyester multi feed combinations.

The permeability of these fabrics through face and back follows same trend. This is because of low fabric thickness and linear density of the fabric. With decrease in fabric weight, the fabric becomes thinner and flimsy. The longitudinal & transverse resistance force acting on the fibers strand [8] in a structural assembly is reduced. It is also observed that as the number of yarn in a loop/ stitch increases, there is increases in air resistance.

3.1.1. Effect of material combination on Air permeability of the fabric – Group I

Cotton and polyester combinations of CPC-S1 and CPP-S2 air permeability property was analyzed using statistical tool ANOVA at alpha value 0.05 significance level. Table 3.1 shows the permeability through face and back of the fabric, Even though there is a difference in air permeability value of multi layer fabric surfaces CPP-S2. $AP_F < AP_B$ value (AP317.004<343.785). The surfaces of the multi layer fabric shows there is no significant difference at 5% level at F value of 0.107165 ($F_{(1, 36)}$). Similarly, between the fabrics (CPC-S1 & CPP-S2) air permeability has no significance difference (*P value >0.05*). The face and back of the multi layer fabrics shows no significance difference at degree of freedom (36) [$F_{(1, 36)} < F\ crit$].

3.1.2. Effect of yarn linear density combination on Air permeability of the fabric – Group II

In group II, cotton yarn linear density (32^s Ne ,25^s Ne & 30^s Ne) combinations were used for statistical analyses at 5% level. The linear density of the yarn used in face and back surfaces of the multi layer fabric varies the between surface air permeability of the sample & gives significance difference (*F* – 26.78032 > *F crit* – 3.973897) where degree of freedom (df) is 72. Between the combinations of multi layer fabric shows significant difference at 5% [$F_{(3, 72)}$ -262.5528 > *F crit* -2.731807]. Here we observed that, the air permeability of the fabric depends on the variations in linear density of the yarn in fabric layers, fabric thickness & fabric weight. The thickness of the fabric influences more than fabric weight, but the interaction between the surfaces & fabrics has no significant difference (0.05<*P value*-0.5828523).

3.1.3. Effect of number of yarn feed combination on Air permeability of the fabric – Group III

The combined feed of yarn in a feeder was used for the inner and outer layer of multi layer fabric. The influences of the yarn feed in a multi layer fabric were analyzed using ANOVA. The 5% level shows that between surfaces and interaction between multi layer knit fabrics and its surfaces has no significant difference [0.05< *P-value* -0.332242 & $F_{(2, 54)}$ 0.766776< *F crit*-3.168246] respectively. In between fabrics, the combined feed in surfaces varies that shows significant difference (Table 3.3) [$F_{(2, 54)}$ 17.75882> *F crit* -3.168246]. There is a non-linear trend followed with the number of yarn in a combined feed and air permeability of the fabric. In other words, air permeability of the multi layer fabric increases when the number of yarn in a loop/stitch of the individual layer decreases.

3.2. Effect Of Fabric Properties On Air Permeability

3.2.1. Air permeability vs Stitch density

At the stitch density of the fabric increases, the porosity will decrease which influences more in reduction of air permeability [1]. Even though the surface porosity of the simple knit fabric is based on the stitch density, in multi layer knit fabric the air permeability is affected by the dimensional characteristics and the number of combined yarn feed, fabric density, the amount of twist in yarn type and size of yarns in the fabric. The Fig. 3.2 shows the stitches per cm^2 in outer, middle and inner layer of multi layer knit fabric.

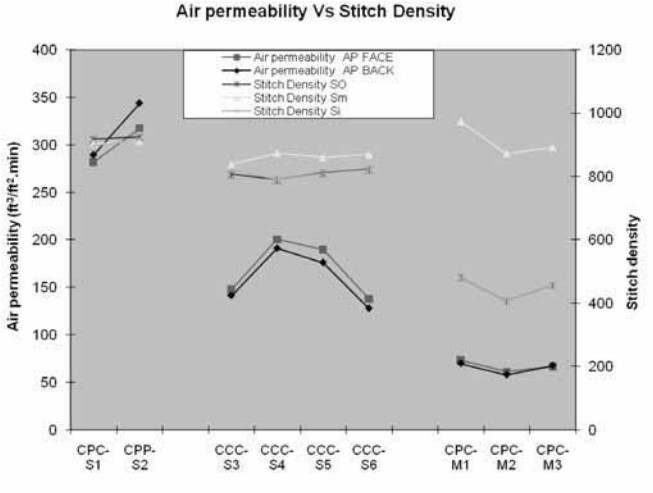

Figure 3.2 : Effect of stitch density on air permeability of multi layer knit fabrics

3.2.2. Air permeability vs Thickness of the fabric

Fig. 3.3 shows the air permeability influenced by the multi layer knit fabric thickness produced from cotton and polyester combinations. It was observed that as the fabric thickness increases, the air permeability of the fabric reduces. This is because of more resistance for the air transmission through the surface (inner, middle and outer layers). The fabric produced from CPC-S1 and CPP-S2 has lower thickness than CCC-S3, S4, S5 & S6 which are ever lower than CPC-M1, M2 & M3.

3.2.3. Air permeability vs Tightness factor

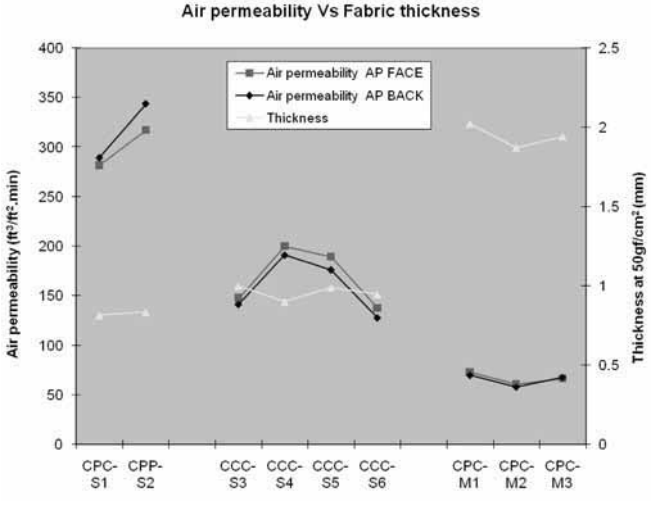

Figure 3.3 : Effect of fabric thickness on air permeability of multi layer knit fabrics

The correlation between the tightness factor and air permeability of multi layer knitted fabrics is shown in Fig. 3.4. The loop length and yarn linear density decides the tightness factor of the fabric. The results from this relation are as the tightness value of the various layers in the fabric decreases, the air permeability of the fabric gets increased. In other words, with the decrease in tightness factor value the air space in the fabric increases and as the air space increases, permeability of the fabric increases.

3.2.4. Air permeability vs Loop length

The loop/stitch length of the knits increase flimsy fabric will be the result. There is a reverse trend followed in multi layer fabrics of group I, group II & group III combinations. It is also correlated with number of yarn in single loop and type of yarn used. As the loop length decreases the presence of polyester in group I & group III gives less resistance for air to enter through the fabric in association with dimensional properties. So

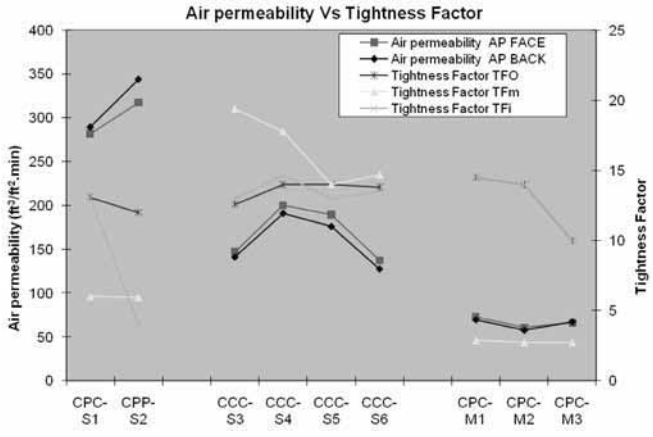

Figure 3.4 : Effect of tightness factor on air permeability of multi layer knit fabrics

CPC-S1 & CPP-S2 gives higher air permeability. In CPC-M1, M2 & M3 samples the number of yarn in a loop reduces the air permeability. Fig. 3.5 shows the relationship between air permeability and loop length of the multi layer fabric.

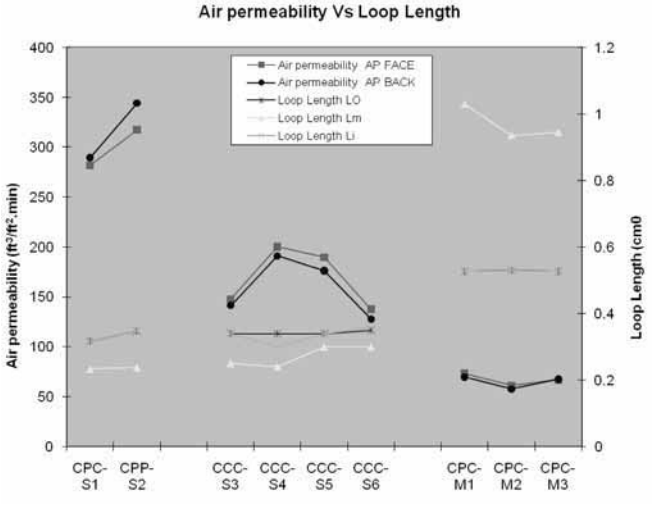

Figure 3.5 : Effect of loop length on air permeability of multi layer knit fabrics

4. Conclusion

The multi layer knit fabric produced from material combination with single feed shows higher air permeability value. The air transmission through the face and back surfaces of the fabric has no significance difference. This may be because of type of material present in the layers, thickness of the fabric, fabric weight and tightness factor. The linear density of the yarn in a layer varies which influences more on air permeability of the multi layer fabric. Here it is also observed that the fabric weight and yarn linear density of the fabric influences more than other parameters.

The number of yarn present in a loop (combined feed) reduces the air permeability of the fabric. The multi layer fabric CPC-M1, CPC-M2 and CPC-M3 have very low air permeability values. It is revealed that the combined yarn feed, fabric weight and thickness of the fabric influences more on air permeability of the multi layer knit fabric.

References

1. Bozena Wilbik-Halgas.; Remigiusz Danych.; Bogdan Wiecek.; and Krzysztof Kowalski .; "Air and Water Vapour Permeability in Double – lyered Knitted Fabrics with Different Raw Materials", *Fibers & Textiles in Eastern Europe*, July/September 2006, **14,** No. 3(57)
2. Omer Berk Berkalp .; "Air Permeability & Porasity in spun-laced Fabrics", *Fibers & Textiles in Eastern Europe*, July/September 2006 , **14,** No. 3(57)
3. R.Tugrul OGULATA.; "Air Permeability of woven fabrics", *Journal of Textile and Apparel, Technology and Management*, **5,** Issue 2, Summer 2006
4. Magdalena Tokarska.; "Analysis of Impact Air-permeability of Fabrics", *Fibers & Textiles in Eastern Europe*, January/March 2008, **16,** No. 1(66)
5. E. A. Elnashar.; "volume porosity and permeability in double-layer woven fabrics", *AUTEX Research Journal*, December 2005, **5,** No 4
6. Ricardas Ciukas.; Jovita Abramaviciute.; "Investigation of the Air Permeability of Socks Knitted from Yarns with Peculiar Properties", *Fibers & Textiles in Eastern Europe*, 2010, **18,** No.1 (78), pp. 84-88
7. W.Hamburger.; "Effect of yarn and fabric structure on air permeability", *WADC TR* 54-49
8. I.P. Kornoohina.; T.A. Kornoohina.; and S.A. Mironov.;, "Effect of Fiber Orientation on Air Permeability of Fibrous Layers", *Research Journal of Textile and Apparel*, **13,** No. 2 2009.
9. Air Permeability, Standard Test Method for Air Permeability of Textile Fabrics, *ASTM D737-96*.
10. Yi Li.; "Sensory Comfort: Fabric Transport Properties and Subjective Responses During Exercise Under Cool and Hot Environmental Conditions", *JHKITA*, 1997.
11. T.Ramachandran.; G Manonmani.; and C Vigneswaran.; "Thermal behavior of ring and compact – spun yarn single jersey, rib and interlock knitted fabrics", *Indian Journal of Fibre & Textile Research*, **35,** September 2010, pp.250-257

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Standardization of Dyeing Condition of Cochineal Extract on Pashmina Yarn

P. Temani, D. B. Shakyawar*
Division of Textile Manufacture and Textile Chemistry,
Central Sheep and Wool Research Institute, Avikanagar, Jaipur
L. Ammayappan
Mechanical Processing Division, NIRJAFT, Kolkata
V. Goyal
Department of Chemistry, International College for Girls, Jaipur
& S. A. Wani
Division of LPT, SKUAST, Shuhuma, Srinagar

Abstract
Dyeing condition for Pashmina wool yarn using natural colourant from cochineal was characterized for dye bath exhaustion, K/S value and fastness properties. It is observed that cochineal dye exhausted better at 50-60°C in 120-150 minutes than other conditions. The colourant was exhausted between 80 and 95% with K/S value ranging from 0.526 to 0.816 with very good washing (4-5) and light fastness (6-7) at standard condition.

Keywords
Cochineal, Dye bath exhaustion, Fastness, K/S value, Pashmina

1. Introduction

Pashmina wool, a finest speciality hair fiber is generally used for production of superior quality shawl and stole[1-3]. In fashion world at national and international levels, its products have great demand due to its fibre fineness (10-14m), firmness, warmth, durability, lightness and softness. [4]

Generally the aesthetic value of Pashmina products could be improved by application of natural dye extracted from locally available vegetable sources. [5] Even though the vegetable dyes give various colours on Pashmina materials, the local dyers are still pursuing some fashionable colours like purple, pale lilac to a deep violet, shade of prune and some pale shades. Here, Cochineal, an insect dye was used to dye natural textiles in particularly purple and scarlet red colour. [6-7]

The literature on application of cochineal on Pashmina wool was scanty. The present study aims to standardize the dyeing condition of a natural dye extracted from an insect called cochineal on Pashmina woolen yarn.

Correspondance should be addressed to,
D. B. Shakyawar,
Division of Textile Manufacture and Textile Chemistry, Central Sheep and Wool Research Institute, Avikanagar-304501, (Via) Jaipur
E-mail: dbshakya_67@yahoo.co.in

2. Materials and methods

2.1. Material

Hand spun pure Pashmina yarn of 2/80' Nm was procured from Division of LPT, FVSAH, SKUAST, Shuhama, Srinagar (J&K). The Pashmina yarn was mild scoured in order to remove natural as well adhered impurities during spinning. After scouring, it was well washed with water and dried at ambient condition.

2.2.Chemicals

Cochineal, an insect dye was supplied by M/s Wild Colours, Birmingham B94AA, UK. Alum ($KAl(SO_4)_2.12H_2O$, and potassium hydrogen tartarate (Cream of tartar) were used as mordants; all other chemicals used elsewhere were AR grade

2.3. Extraction of colourant from cochineal

Cochineal dye was crushed into powdered form, warmed in distilled water at 40°C for 30 minutes and soaked for 12 hours. After soaking, the soaked was boiled for 30 minutes, cooled and filtered by Whatman filter paper no. 5. The filtered colourant was made into required volume with distilled water and used for dyeing.

2.4. Dyeing Process

The natural colourant from cochineal was extracted using conventional aqueous extraction method and

dyeing of Pashmina wool yarn with extract was done in the following sequence: Pre mordanting → Dyeing → Washing. The scoured yarn was treated with mixture of potassium sodium tartarate (7%) and Alum (8%) at 60°C for one hour and kept overnight at room temperature. After soaking, the mordanted yarn was taken out from the bath, squeezed gently and dried at room temperature. The mordanted yarn was dyed with cochineal colorant in the following condition in an open water bath dyeing instrument with gentle agitation.

Dye	- 5.0 % (over the weight of material)
Dyeing Time	- 30, 60, 90, 120, 240 and 360 minutes
Dyeing Temperature	- 30, 40, 50, 60, 70, 80 and 90°C
Liquor Ratio	- 1: 100
pH	- 6-7

After dyeing, the dye bath temperature was reduced to room temperature; the dyed yarn was taken out; washed with water and dried at ambient temperature.

2.5. Test Methods

Measurement of dye bath exhaustion, colour strength and fastness property:

The percentage dye bath exhaustion was estimated using double beam UV-VIS spectrophotometer (ECIL, Hyderabad, India) according to Equation 1.

$$\text{Percentage Exhaustion} = \frac{Ad - Ab}{Ad} \times 100 \quad \text{– Equation (1)}$$

A_d and A_b are the quantities of dye taken initially and the residual dye present in the dye bath after dyeing respectively. The K/S value of dyed samples were evaluated using a JAYPAK 4802 Colour matching system (Jay Instruments Ltd, Mumbai, India) at D65 illuminate/ 10 Deg Observer. Washing and light fastness of dyed samples were evaluated using standard procedure. [8-9]

3. Results and Discussion

3.1. Dye bath exhaustion

The cochineal extract chiefly contains 80-86% (owm) carminic acid i.e. 7-a-D glucosyl pyranosyl-9,10-dihydro-3,5,6,8-tetra hydroxyl-1-methyl-9,10-dioxo anthracene carboxylic acid in which, anthraquinone is the chromophore and –COOH, -OH & $–CH_3$ are auxophores. [10] The percentage exhaustion of cochineal extract on Pashmina wool yarn dyed at different temperature and time (λ_{max} 500 nm) is tabulated in Figure 3.1.

It is observed that the percentage dye bath exhaustion (DBE) is increased with increase in dyeing time and temperature. It is ranged from 12 to 48% at 30 to 40°C; while at 50°C, there is a rapid increase in DBE i.e. it is 46-60% higher than 40°C dyeing temperature. Then the DBE is gradually increased with increase in dyeing temperature from 50°C to 70°C and saturated at 80-90°C. It is inferred that, this colourant could be exhaust more on pre-mordanted fiber between 50 and 70°C than higher temperatures. The exhaustion of colourant is gradually increased with increasing in dyeing time i.e. from 30 to 120 minutes. When dyeing time is shifted from 120 to 240 minutes, there is a linear increase in dye bath exhaustion at all dyeing temperature and it is 12 to 23% higher than 120 minutes dyeing. When dyeing time is increased, it had more influence at 30-40°C than higher temperature in terms of DBE.

It infers that this colorant has better DBE in short dyeing duration/ high temperature than long dyeing duration / low dyeing temperature respectively. It is concluded that the cochineal extract could be exhausted more in the Pashmina wool at 60-70°C / 120-150 minutes with 57-94% exhaustion than other conditions.

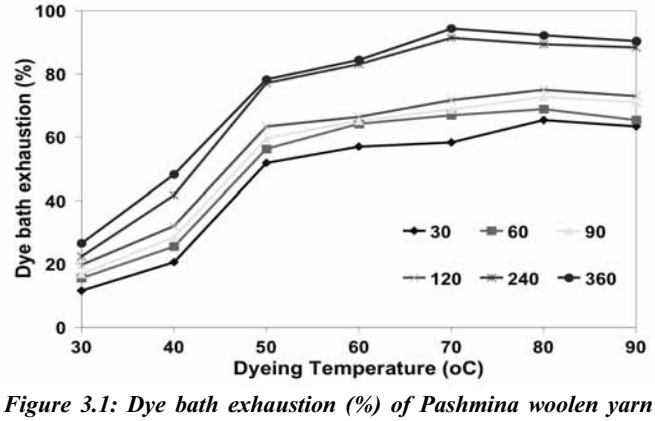

Figure 3.1: Dye bath exhaustion (%) of Pashmina woolen yarn dyed with cochineal extract at 30, 40, 50, 60, 70, 80 & 90°C

3.2. K/S value

The K/S value of dyed Pashmina woolen yarn with cochineal extract is given Figure 3.2.

It is observed that, the K/S value of un-dyed Pashmina woolen yarn was 0.325 and after dyeing / mordanting it is increased and it ranged from 0.409 to 0.816. The K/S value is increased gradually with increase in dyeing

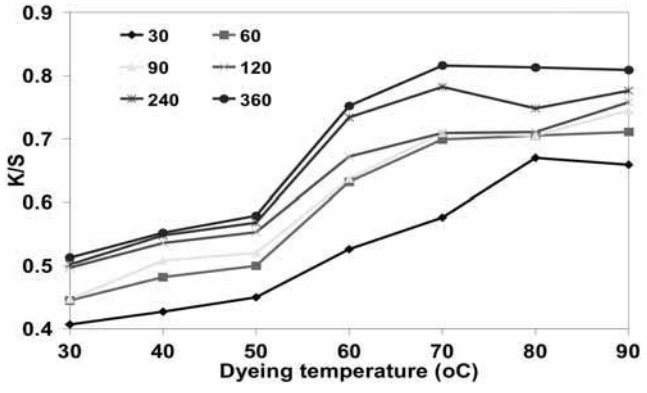

Figure 3.2 : K/S value of Pashmina woolen yarn dyed with cochineal extract at 30,40,50,60,70,80 & 90°C.

temperature from 30 to 50°C and linearly increased at 60°C, i.e. 14 to 23% higher than 50°C. It is clearly indicated that formation of co-ordinate complex between dye and mordant and their aggregation inside the fiber is better at 60°C than other temperature that leads to linear increase in K/S value. At 70°C, there is an improvement in K/S value and it is saturated at 80-90°C.

3.3. Fastness property

The washing and light fastness property of Pashmina woolen yarn dyed for 120 minutes with cochineal extract at different dyeing temperature is given in Table 3.1. It is observed that both washing and light fastness is very good and there is no significant change in the fastness with increase in the dyeing temperature. The fixed aluminum ion form coordination complexes with functional group of carminic acid in the cochineal extract in one hand and with functional groups of the Pashmina wool protein (-NH_2, -OH, -COOH) on the other hand, providing the bridge between dye and wool. The cochineal-aluminum complex inside the Pashmina wool fiber matrix is probably stable and is witnessed from the fastness results. [11]

4. Conclusion

Pashmina wool could be dyed with a natural dye extracted from an insect called cochineal for scarlet red colour and cochineal dye was exhausted between 80 and 95% at 50-60°C in 120-150 minutes. The K/S value is ranged from 0.526 to 0.816 with very good washing (4-5) and light fastness (6-7) at this standard condition. Coordination complex could be formed between functional groups of Pashmina wool polymer and metal cation / dye molecule and that complex might be entrapped in between polymer chains. It is concluded that this natural dye could be given solid shade on premordanted Pashmina wool at 60°C in 120 minutes through a strong co-ordinate complex between dye-metal ion-fiber.

Table 3.1: Fastness property of Pashmina woolen yarn dyed for 120 minutes with cochineal extract at different dyeing temperature.

S.No.	Temperature (°C)	Washing fastness			Light fastness
		Change in shade	Change in staining		
			Pashmina wool	Cotton	
1	30	4-5	5	5	6
2	40	4-5	5	5	6
3	50	4-5	5	5	6-7
4	60	5	5	5	6-7
5	70	5	5	5	6-7
6	80	4-5	5	5	6-7
7	90	4-5	5	5	6

References

1. Koul, G.L., Biswas, J.C. and, Somavanshi, , Follicle and fibre characteristics of Indian Pashmina goats. *Research in Veterinary Science,* **43,** 398, (1987).
2. Thakur,Y.P., Katoch, S., and Dogra,P.K., Production system and demographic status of Chegu goats in their breeding tract in Himachal Pradesh, *Indian Journal of Small Ruminants*, **11,** 116, (2005).
3. Wani, S.A., and Wani, M.H., Economics of Pashmina Production under Pastoralist Nomadic System of Management in Cold Arid Region of Jammu and Kashmir, *World Journal of Agricultural Sciences*, **3,** 788, (2007).
4. Acharya, R.M. and Sharma, V.D., Note on Pashmina production and its quality from Changthangi Pashmina goats. *Indian Journal of Animal Sciences*, **50,** 586, (1980).
5. Samantha, A.K., and Agrawal, P., Application of natural dyes on natural dyes, *Indian Journal of Fibre and Textile Research*, **34** (4), 384, (2009).
6. Chu, Y.J., and Soh, H.G., The Study of Cochineal Dyeing, *J. Korea Soc. Dyers and Finishers*, **10** (1), 11, (1998).
7. Han, M.H., Dyeing of Silk Fabrics by Cochineal Extracts, *J. Korea Soc. Dyers and Finishers*, **12** (2), 51, (2000).
8. AATCC, 2003a. Test Method 16-1998: Colour fastness to light, *Technical Manual of the AATCC*, Research Triangle Park, USA.
9. AATCC, 2003b. Test Method 61-1996: Colour fastness to laundering: Home and commercial-accelerated. *Technical Manual of the AATCC*, Research Triangle Park, USA.
10. Schul, J., Carmine, in: Lauro, G. J., Francis, F. J. (Eds.), *Natural Food Colorants – Science and Technology*, Marcel Dekker, New York, Basel, 1–10 (2000).
11. Stintzing, F.C., and Carle, R., Cactus stems (Opuntia spp.): A Review on Their Chemistry, Technology, and Uses, *Molecular Nutrition and Food Research* **49,** 175, (2005).

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Dimensional Characteristics of Preshrink Resin Treated Spun Viscose Weft Knitted Fabrics

J. C. Sakthivel* **& N. Anbumani**
Department of Textile Technology, PSG College of Technology, Coimbatore

Abstract
The knitted fabric properties especially the dimensional characteristics are mainly influenced by the constituent fibres, yarn properties, knitting machine variables, processing and finishing treatments. Spun viscose knitted fabric is also susceptible for dimensional stability problems. In this paper, an attempt has been made to investigate the influence of pre shrink resin treatment on the dimensional characteristics of spun viscose knitted fabric especially single jersey structure. The 40 Ne spun viscose yarn has been knitted and the knitted fabrics is bleached, dyed and pre shrink resin treated. The influences of pre shrink resin on the weft knitted fabrics has been studied on repeated home laundering up to 25 wash cycles and various parameters of the knitted fabric are measured and analyzed. Pre shrink resin treated knitted fabrics exhibit minimum spirality variations and dimension changes compare than grey, bleached and dyed fabrics.

Keywords
Dimensional characteristics, Circular knitting machine, Pre shrink resin, Spun viscose yarn, Washing, Weft knitted fabric

1. Introduction

The manufacturing of the knitted fabric is always a challenge to the knitter. Weft Knitted fabrics are preferred as clothing materials in many kinds of application especially in under garments and easy care outer garments because of their outstanding comfort related qualities. Dimensional stability of the weft knitted fabrics has been one of the most discussed subjects in the textile industry as well as in research fields. The dimensional stability of a weft knitted fabric is a measure of the extent to which it keeps its original dimensions subsequent to its manufacture. It is possible for the dimensions of a fabric to increase but any change is more likely to be a decrease or shrinkage. Shrinkage is a problem that gives rise to a large number of customer complaints.

Some fabric faults such as colour loss or pilling can degrade the appearance of a garment but still leave it usable as clothing materials. Other faults such as poor abrasion resistance may appear late in the life of a garment and to some extent their appearance may be anticipated by judging the quality of the fabric. However, dimensional change can appear early on in the life of a garment so making a complaint more likely. The excessive shrinkage or growth of a garment can make that item unwearable. Consumers consider the dimensional change in a garment to be a critical performance characteristic. [1-7]

Garment shrinkage (due to laundering, dry cleaning, steaming or pressing) occurs at three levels: fabric, yarn and fiber. The total observed shrinkage is the resultant shrinkage at these three levels. The contribution of each to the total depends on both the fabric and yarn structures as well as the nature of the fibre. For example, cotton fabrics may shrink as much as 10% under conditions that cause only 2% shrinkage in the component fibres and yarns. In cotton fabrics, in general, shrinkage occurs principally at the fabric level. It is for this reason that cotton fabrics are successfully preshrunk by a mechanical process known as "sanforising". Rayon fabrics, on the other hand, exhibit most of their shrinkage at the fibre and yarn levels. Methods for minimizing dimensional changes include Mechanical Stabilizing Methods, Chemical Treatments, Ultrasonic vibration, etc. [8] Laundering shrinkage in knitted fabrics has been reduced by preshrinking fabric prior to laundering and by fixing the dimensions of the fabric chemically. [9]

Correspondance should be addressed to,
J. C. Sakthivel
Assistant Professor, Department of Textile Technology
PSG College of Technology
Peelamedu Post, Coimbatore -641 004, Tamilnadu
Email: jcs.textile@gmail.com

In spite of the above findings and outcome of the various research studies by different workers, still lot of scope is prevailing to evolve a suitable solution that is more practical and cost effective for the dimensional behaviour problems of the knitted fabrics. In this study, an attempt has been made to study the effect of preshrink resin treatment on the dimensional properties of plain weft knitted fabrics made from 40 Ne spun viscose yarns.

2. Materials and Methods

The fabric was knitted from 40 Ne spun viscose yarn in a single jersey circular knitting machine with gauge of 28, diameter of 18", total no of needles of 1584, 18" x 3 positive feeder and a stitch length of 0.27 cm was maintained. Then the spun viscose knitted fabric was bleached, dyed with reactive dye. The pre shrunk resin treatment was carried out in industrial machines, with the recipe of Knitex 7636 - 15gpl, Amino silicone-3gpl, Softener-108gpl, Polyethylene emulsion-10gpl, Acetic acid-0.1-0.15 (to adjust pH) at the temperature of 180°C for 45 seconds. The treated samples were compared for dimensional characteristics including shrinkage characteristics with the grey, bleached, dyed fabric samples, on repeated home laundering of all the fabric samples up to 25 washing cycles in steps of 1, 2, 5, 10, 15, 20 and 25 washing cycles. For dimensional change, the samples were subjected to the Test for dimensional change determined as per AATCC 135 – 1995 with Washing and Drying Conditions of Machine Cycle-Delicate, Washing Temp-41 ± 3°C, time of 30 min washing and the Drying Procedure-(A) Tumble – Delicate with drying time of 50 min. AATCC 179 – 1996 – Skewness Change in Fabric and garment twist resulting from Automatic Home Laundering was used for the test for spirality. The fabric specimens were analyzed and evaluated for courses/cm, wales/cm, stitch density, tightness factor, areal density, thickness, dimensional constants Kc, Kw, Ks values and loop shape factor (Kl), spirality and length, width and area dimension changes in percentage .

2.1. Stitch length, Courses/ cm and Wales /cm

The stitch length was determined by measuring the length of yarn raveled from the fabrics. Courses/ cm and wales /cm of the fabrics were measured by using a counting glass.

2.2. Stitch Density

Stitch density was calculated by multiplying the number of courses/cm and wales /cm. Stitch density = Cpcm x Wpcm

2.3. Areal density

The areal density of the fabric was obtained by using torsion balance.

2.4. Tightness factor

The tightness factor of the knitted fabric was calculated using the relationship between tex and loop length: Tightness factor = v (tex) / l. where l, the loop length in cm

2.5. Thickness

The thickness of the fabric was obtained by using thickness dial gauge. Thickness of the fabric is found in mm.

2.6. Dimensional constants

These were calculated from the following relationship:

Kc = Cpcm x l
Kw = Wpcm x l
Ks = Kc x Kw
Kl =Kc / Kw

where Kc, Kw and Ks are the dimensional parameters; Kl, the loop shape factor; Cpc, the courses/cm; Wpc, the wales/cm; and l, the loop length in cm

3. Results and Discussion

Table 3.1 show the dimensional characteristics of all the fabrics - grey, bleached, dyed and pre shrunk resin treated spun viscose weft knitted fabrics.

Table 3.1 : Dimensional characteristics of spun viscose weft knitted fabrics

S.No	Parameters	Grey	Bleached	Dyed	Pre shrink resin treated
1.	Stitch length in cm	0.265	0.265	0.267	0.264
2.	Courses /cm	21.10	21.0	18.50	16.40
3.	Wales / cm	12.0	16.03	17.60	15.75
4.	Stitch density / cm^2	253.2	342.3	325.6	258.8
5.	Areal density in gsm	94.06	125.91	123.70	94.42
6.	Tightness factor	14.49	14.49	14.39	14.55
7.	Thickness in mm	0.385	0.440	0.405	0.365
8.	Kc	5.61	5.58	4.94	4.34
9.	Kw	3.18	4.25	4.70	4.16
10.	Ks	17.84	23.73	23.24	18.04
11.	Loop shape factor (Kl)	1.762	1.313	1.050	1.044

3.1 Spirality

One of the key measures determining the dimensional stability of a knittted fabric is course/wale alignment.

Basically it is necessary that the wale on the knitted fabric be perpendicular to the course. When this geometrical features is violated, the fabric will suffer a skew to the right or left. This phenomenon is called spirality and it is often observed in cotton single jersey knits. Spirality was measured for each wash. Fig. 3.1 show the effect of number of washing cycles on the percentage spirality changes of spun viscose weft knitted fabrics. The pre shrink resin treated knitted fabrics shows minimum spirality changes after 2 washing cycles compare than other three fabrics. Grey, bleached and dyed knitted fabrics shows variations in fabric skew after each washing cycles. It is observed that, dimensional stability of the pre shrink resin treated knitted fabrics is better, due to minimum fabric skew. Pre shrink resin treated knitted fabrics exhibit less spirality than other three fabrics.

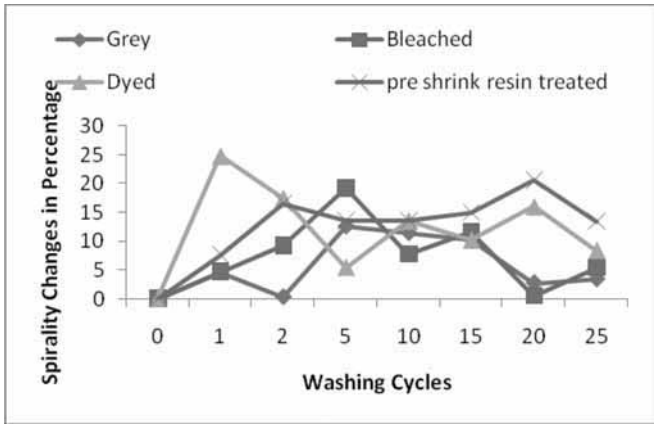

Fig. 3.1 Effect of number of washing cycles on the percentage spirality changes of spun viscose weft knitted fabrics

3.2 Dimensional changes

One of the key aspects of knitting is to produce a stabilized structure. As shown in Figure 3.2, pre shrunk samples exhibits better control in length wise dimensional changes for each washing cycles. As shown in Figure 3.3, the grey fabric exhibits higher widthwise shrinkage in 1st wash cycle as the stress involved during knitting process is relieved. It can be concluded the knitting tension at needles is more than the take up down tension as the width wise is higher than the lengthwise shrinkage. The area shrinkage is found from the total number of loops per unit area, as the number of loops per unit area increases, it represents shrinkage and on decrease it represents expansion of the fabric. As shown in Figure 3.4, all the processes show high shrinkage for the 1st wash as expected which may be attributed to the release of strain induced in the fabric during processing which is referred as the relaxation shrinkage. Further as the wash cycles are increased, progressive shrinkage occurs which may be attributed to the movement of fibre out of the yarn which is also referred as the felting shrinkage. Pre shrink resin treated knitted fabrics exhibit less variations in changes of area than other three fabrics.

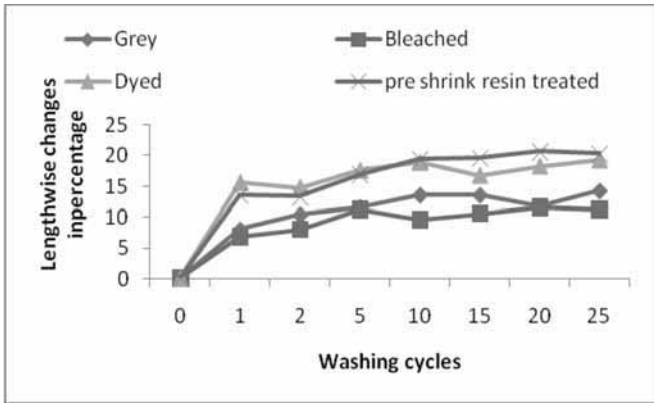

Figure 3.2 : Effect of number of washing cycles on the percentage length wise changes of spun viscose weft knitted fabrics

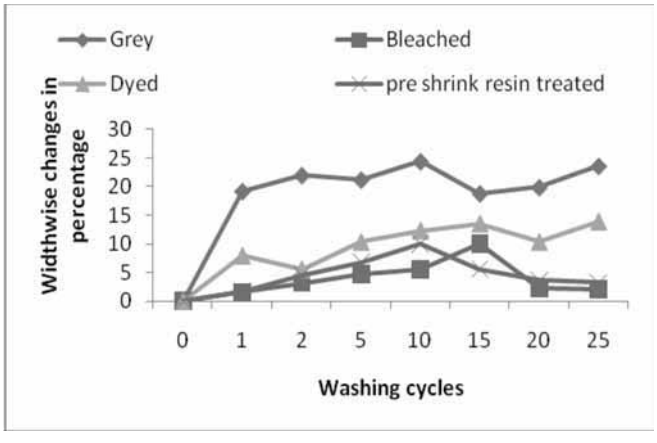

Figure 3.3 : Effect of number of washing cycles on the percentage width wise changes of spun viscose weft knitted fabrics

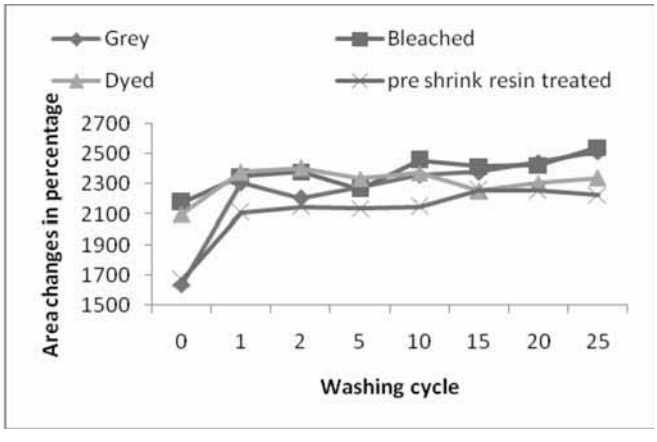

Figure 3.4 : Effect of number of washing cycles on the percentage area changes of spun viscose weft knitted fabrics

4. Conclusion

The present study shows that the pre shrink resin treatments have significant effect on dimensional properties of the 40 Ne spun viscose weft knitted fabrics. The effect of resin treatments on the values of Kc, Kw, Ks and loop shape factor of weft knitted fabrics were found. Pre shrink resin treated knitted fabrics exhibit minimum spirality variations compare than grey, bleached and dyed fabrics. Pre shrink resin treated knitted fabrics exhibit less variations in area changes compare than other three fabrics. Pre shrink resin treatment is found to be better process to reduce laundry shrinkage of spun viscose weft knitted fabrics.

Acknowledgement

The authors are thankful to Mr. P. Subbiah, Department of Textile Technology, PSG College of Technology for preparation of samples and testing of knitted fabric properties.

References

1. Sharma I C., Nagpal R and Sood S., *Indian Journal of Fiber and Textile Research,* **9** (3), 13, (1984).
2. Munden D L, *Journal of Textile Institute,* 200, (1959).
3. Anbumani N, Knitting fundamentals, Machines, Structures and Developments, New Age International publishers, (2007).
4. Alaa Arafa Badr, Dimensional stability of cotton fabric with emphasis on spirality :between the theory and the practice, Beltwide Cotton Conference, Nashville, Tennessee, January 8-11, 1527, (2008).
5. Herath C. N., Bok Choon Kang and Han-Yong Jeon , Fibers and polymers., **8** (1) 105,(2007).
6. Doyle. P. J, *Journal of the Textile Institute,* **44,** 561(1953).
7. Knapton, *Journal of the Textile Institute,* **12,** 413 (1975).
8. Mehta P V and Bhardwaj S K, Managing Quality in the Apparel Industry, New Age International publishers, (2006).
9. Frick J G and Verburg G B, *Textile Research Journal,* **3,** 227, (1976).

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Textile Dyeing Industry Waste Water Treatment with Reverse Osmosis Membrane System

M. Ramesh Kumar*
Department of Textile Technology, SSM College of Engineering, Komarapalayam
&
K. Saravanan
Department of Chemical Engineering, Kongu Engineering College, Perundurai

Abstract
Textile industry is the major source of water consumption and waste water pollution. There are various treatment techniques to remove textile waste water pollution. This paper is concerned with the waste water characteristics of textile woven fabric dyeing industry. The membrane selection process was theoretically designed using well known design softwares like KOCH and ROSA – to design treatment plant system based on the analytical report and software membrane Reverse osmosis system, to compare experimental and theoretical (KOCH and ROSA Software) values for the characteristics of printing industry. The results reveal that the Koch software membrane gives better results to treat the effluent from the printing effluent.

Key words
KOCH and ROSA software membrane, reverse osmosis treatment, waste water

1. Introduction

The textile industry uses valuable dyes, which are clearly visible if discharged into public water ways. Thus, these disposals create both an aesthetic and environmental waste water problems. At the same time, the textile industry continually seeks to conserve water that would economically benefit from dye recovered and reused. Second, water way pollution is avoided, and third, reusable water is produced. [1]

The quality of textile waste water depends very much on the employed coloring matters, dyestuffs and accompanying chemicals as well as the process itself. Depending on the season and the fashion, the compositions of textile wastewater were of the same process. About 8000 different coloring matters and 6900 additives are known and lead to an organic as well as inorganic pollution of the wastewater. [2]

Correspondance should be addressed to,
M. Ramesh Kumar
Department of Textile Technology,
SSM College of Engineering,
Komarapalayam – 638 183, Namakkal, Tamilnadu, India.
E-mail: rk_textile@yahoo.co.in

Membrane based separation processes like Ultrafiltration (UF) and Reverse Osmosis (RO) have been applied for treating a wide variety of industrial effluents. [3]

Membrane processes, namely, reverse osmosis (RO), nanofiltration (NO), ultrafitration (UF) and microfiltration (MF) are continuing to get more and more attention world wide for their effectiveness in water treatment. RO got recognition as an alternative option among other conventional treatment processes in the early 1960s when it was successfully used for the first time in the desalination of seawater. As a result of continuous research and development in this field, a new generation of RO membranes which can operate under ultra-low pressure was developed in the beginning of 1995. This new generation of RO and NF was able to produce double the quantity of flux of the conventional RO and NF at low operating pressure without sacrificing the quality of the produced water by keeping the rejection of the organic and inorganic species at the same level. [4]

Reverse osmosis membranes have a retention rate of 90% or more for most types of ionic compounds and

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produce a high quality of permeate. [5] Decoloration and the elimination of chemical auxiliaries in dye house wastewater can be carried out in a single step. Reverse osmosis permeates the removal of all mineral salts, hydrolyzed reactive dyes and chemical auxiliaries. The problem involved is that the higher the concentration of salts, the more important the osmotic pressure becomes and therefore the greater the energy required.

Nanofiltation membranes retain organic compounds of low molecular weight, divalent ions or large monovalent ions, such as hydrolyzed reactive dyes as well as dyeing auxiliaries. The effect of the concentration of dyes has been frequently reported in dye house effluents as well as the concentration of salt and the pressure. [6] In most published studies concerning dye house effluents, the concentration of mineral salts does not exceed 20 g L^{-1} and the concentration of dyestuff 1.5 g L^{-1}. [7] The effluents are reconstituted with generally only one dye and the volume studied is low. [8] The treatment of dyeing waste water by nanofiltration thus represents one of the rate applications possible for the treatment of solutions with highly concentrated and complex solution. [9]

Reverse osmosis (RO) membranes are widely used in drinking water, waste water and industrial applications. The use of RO membranes in advanced waste water reclamation using secondary treated waste water effluent to produce water for indirect potable use has also increased over the past few years. [10] However, a major impediment in the application of RO membrane technology for desalination and waste water reclamation is membrane fouling. In advanced water reclamation, secondary effluent from waste water treatment plants contains dissolved organic matter, commonly known as effluent organic matter. When the second waste water effluent is introduced to the RO membrane processes as feed water, the presence of effluent organic matter contributes to organic fouling. [11]

2. Materials and methods

Effluent samples were collected and tested as per American Public Health Association (APHA) in woven fabric dyeing industry for following parameters such as pH, TDS, BOD, COD, Cl^-, Ca^{2+}, Mg^{2+}, Na^+, K^+, NH_4^+, HCO_3^-, SO_4^{2-}, NO_3^- and SiO_2.

Table 2.1 : Software membrane details

S.No	Parameters	KOCH SOFTWARE	ROSA SOFTWARE
1.	**Membrane:**	**ROPRO**	**FILMTEC**
	RO Stage I	TFC 8040 XR 375	BW 30 – 365 FR
	RO Stage II	TFC 8040 SW 335	SW 30 HR – 380

Table 2.1, gives details of Koch and Rosa software membrane for RO (Reverse Osmosis) stage I and II.

Where, TFC = Thin Flim Composite membrane
XR = Extra Rejection
SW = Sea Water
BW = Brackish Water
FR = Fine Rejection
HR = High Rejection
375 = Membrane Active Area 375 feet square
335 = Membrane Active Area 335 feet square
365 = Membrane Active Area 365 feet square
380 = Membrane Active Area 380 feet square

3. Results and discussion

This woven fabric dyeing unit is located at Perundurai, Erode. Ten numbers of soft flow reactors (batch process), four numbers of Beam dyeing machine and five numbers of padding are used for woven fabric dyeing with different capacities of machines including Desizing, Scouring, Bleaching and Mercerization.

The total quantity of fabric processed in the unit is 2000 – 3000 kgs/day and the volume of effluent generated is of the order of 900 – 1000 m^3/day.

Two different types of membrane used in RO system. In Koch software RO stage I- TFC 8040 XR 375, RO stage II – TFC 8040 SW 355 and Rosa software RO stage I – BW 30 -365 FR, RO stage II – SW 30 HR – 380 membrane. Study was done to find which of the above two membranes is best. The best membrane selected is then used to study the experimental values. Then the results compared for RO feed, selected membrane experimental value for RO permeates, theoretical value for RO permeates (Koch and Rosa software membrane).

Table 3.1 : Quality of the effluent before and after Reverse Osmosis for Koch software in 1000 KLD capacity

S.No.	Parameters	RO Feed (Before) ppm	RO Permeate (After) ppm	RO feed and permeate rejection %
01	pH	7.50	5.08	32.26 %
02	TDS	6347	110	98.26 %
03	COD	50	Nil	Nil
04	BOD	4	Nil	Nil
05	Cl^-	3380	61.64	98.17 %
06	Ca	50	0.16	99.96 %
07	Mg	25	0.08	99.68 %
08	Na	2363	42.0	98.22 %
09	K	5.0	0.12	97.60 %
10	NH4	0.60	0.03	95.00 %
11	HCO3	300	7.27	97.57 %
12	SO4	350	1.08	99.69 %
13	NO3	5.0	0.42	91.60 %
14	SiO2	15.0	0.26	98.26 %

Table 3.1 shows the Koch software RO feed, permeate and feed & permeate reduction percentage parameters in woven fabric dyeing.

Table 3.2 : Quality of the effluent before and after for Rosa software 1000 KLD capacity

S.No.	Parameters	RO Feed (Before) ppm	RO Permeate (After) ppm	RO feed and permeate rejection %
01	pH	7.50	5.31	29.20
02	TDS	6347	244	96.15
03	COD	50	Nil	Nil
04	BOD	4	Nil	Nil
05	Cl^-	3380	133	96.06
06	Ca	50	0.54	98.92
07	Mg	25	0.28	98.88
08	Na	2363	91	96.14
09	K	5.0	0.69	86.20
10	NH4	0.60	0.33	45.00
11	HCO3	300	9.61	96.79
12	SO4	350	5.27	98.49
13	NO3	5.0	3.02	39.60
14	SiO2	15.0	0.42	97.20

Table 3.2 represents the Rosa software RO feed, permeate and feed & permeate reduction percentage parameters in woven fabric dyeing effluent.

Table 3.3 : Comparisons between woven fabric dyeing RO feed and permeate, Experimental data for selected membrane

[Selected membranes:
RO Stage I, TFC 8040 XR 375 Membrane
RO Stage II, TFC 8040 SW 335 Membrane]

S.No.	Parameters	RO Feed (Before) ppm	RO Permeate (After) ppm	RO feed and permeate Reduction %
01	pH	7.50	5.22	30.40 %
02	TDS	6347	136.14	97.85 %
03	COD	50	2.0	96.00 %
04	BOD	4	Nil	Nil
05	Cl^-	3380	84.20	97.50 %
06	Ca	50	0.23	99.54 %
07	Mg	25	0.11	99.56 %
08	Na	2363	56.34	97.61 %
09	K	5.0	0.17	96.60 %
10	NH4	0.60	0.06	90.00 %
11	HCO3	300	7.18	97.60 %
12	SO4	350	1.20	99.65 %
13	NO3	5.0	0.36	92.80 %
14	SiO2	15.0	0.24	98.40 %

Table 3.3 shows the experimental data for selected membrane RO feed, permeate and feed and permeate reduction percentage parameters in woven fabric dyeing effluent.

Table 3.4 : Comparison in Quality of the effluent for RO feed, permeate reduction % of Experimental value and Theoretical value in woven fabric dyeing

S. No.	Para-meters	Average RO Feed ppm	Experimental value for RO Permeate		Theoretical value for RO Permeate			
					KOCH Software		ROSA Software	
			RO Per-meate ppm	RO Reduction %	RO Per-meate ppm	RO Reduction %	RO Per-meate ppm	RO Reduction %
01	pH	7.5	5.22	30.40	5.08	32.26%	5.31	29.20%
02	TDS	6357	136.14	97.85	110.13	98.26%	244.28	96.15%
03	COD	50	2	96.00%	Nil	Nil	Nil	Nil
04	BOD	4	Nil	Nil	Nil	Nil	Nil	Nil
05	Cl^-	3380	84.20	97.50	61.64	98.17%	133.56	96.04%
06	Ca^{2+}	50	0.23	99.54	0.16	99.68%	0.54	98.92%
07	Mg^{2+}	25	0.11	99.56	0.08	99.67%	0.28	98.88%
08	Na^+	2363	56.34	97.61	42.75	98.19%	91.49	96.12%
09	K^+	5	0.17	96.60	0.12	97.60%	0.69	86.20%
10	$NH4^+$	0.60	0.06	90.00	0.03	95.00%	0.33	45.00%
11	HCO_3^-	300	7.18	97.60	7.27	97.57%	9.61	96.79%
12	SO_4^{2-}	350	1.20	99.65	1.08	99.69%	5.27	89.46%
13	NO_3^-	5	0.36	92.80	0.42	91.60%	2.02	59.60%
14	SiO2	15	0.24	98.40	0.26	98.26%	0.42	97.20%

Table 3.4 shows the comparison in RO feed and permeate reduction % of experimental value and theoretical values in woven fabric dyeing.

Table 3.5 : Comparison between Koch and Rosa Software in 1000 KLD capacity for Woven Fabric Dyeing

S.No	Parameters SOFTWARE	KOCH SOFTWARE	ROSA
01.	Membrane:	ROPRO	FILMTEC
	RO Stage I	TFC 8040 XR 375	BW 30 – 365 FR
	RO Stage II	TFC 8040 SW 335	SW 30 HR – 380
02.	Array Classification:		
	RO Stage I	6 X 6 : 4 X 6	6 X 6 : 4 X 6
	RO Stage II	2 X 5 : 2 X 5	2 X 6 : 2 X 6
03.	No. of Elements used:		
	RO Stage I	60 Elements	60 Elements
	RO Stage II	20 Elements	24 Elements
	Total	**80 Elements**	84 Elements
04.	No. of working hours in RO	20Hrs	20 Hrs
05.	Recovery	85.00%	85.13%
06.	Feed TDS	6357 ppm	6357 ppm
07.	Permeate TDS	110.13 ppm	244.28 ppm
08.	TDS Reduction %	98.26 %	96.15 %
09.	Average Membrane Flux	14.44 LMH	14.77 LMH
10.	Power Consumption in Kw	43.67 KW	47.02 KW
11.	Membrane cost	Rs. 25,000 to 30,000	Rs. 35,000 to 40,000
12.	Handling of projection	Simple	Complicated
13.	Investment Cost	Less Compare to Koch higher	
14	RO Feed Flow	50.0 m^3/hr	50.00 m^3/hr
	RO Permeate Flow	42.5 m^3/hr	42.57 m^3/hr
	RO Reject Flow	7.5 m^3/hr	7.43 m^3/hr
	RO Recovery %	85.00%	85.14%
15.	Recommendation	1. In Koch software total nos. of elements are 80, where as in Rosa software it is of 84 nos. 2. In Koch TDS reduction 98.26% where as in Rosa 96.15 % 3. In Koch RO Recovery 85.00% where as in Rosa 85.14%. 4. In Koch power consumption is 43.67 KW, where as in Rosa 47.02 KW. 5. Hence, it is concluded that the comparison between the Koch and Rosa software, the Koch Software Membrane is better than the Rosa software membrane.	

Table 3.5 shows the comparison between Koch and Rosa Software in 1000 KLD capacities for woven fabric dyeing process that is TDS reduction%, average membrane Flux, power consumption, membrane cost and RO recovery %.

Table 3.6 : Comparison between Koch Software and Experimental Selected Membrane Results for 1000 KLD in Woven Fabric Dyeing

S.No	Parameters	KOCH Software Membrane Results	Experimental Selected Membrane Results
01.	Membrane:	ROPRO	ROPRO
	RO Stage I	TFC 8040 XR 375	TFC 8040 XR 375
	RO Stage II	TFC 8040 SW 335	TFC 8040 SW 335
02.	Array Classification:		
	RO Stage I	6 X 6 : 4 X 6	6 X 6 : 4 X 6
	RO Stage II	2 X 5 : 2 X 5	2 X 6 : 2 X 5
03.	No. of Elements used:		
	RO Stage I	60 Elements	60 Elements
	RO Stage II	20 Elements	20 Elements
	Total	80 Elements	80 Elements
04.	No. of working hours in RO	20Hrs	20Hrs
05.	Recovery	85.00%	84.68%
06.	Feed TDS	6357 ppm	6357 ppm
07.	Permeate TDS	110.13 ppm	136.14 ppm
08.	TDS Reduction %	98.26 %	97.85 %
09.	Average Membrane Flux	14.44 LMH	14.21 LMH
10.	Power Consumption in KW	43.67 KW	44.28 KW
11	Flow Rate:		
	RO Feed Flow	50.0 m^3/hr	49.95 m^3/hr
	RO Permeate Flow	42.5 m^3/hr	42.30 m^3/hr
	RO Reject Flow	7.5 m^3/hr	7.65 m^3/hr
	RO Recovery %	85.00%	84.68%
12	Pressure:		
	RO 1st Stage	15.4 Kgs/cm^2	15.2 Kgs/cm^2
	RO 2nd Stage	19.4 Kgs/cm^2	19.1 Kgs/cm^2

Textsmile

What is the difference between an ohm and a coulomb?

Ans.

Table 3.6 represents the comparison between the Koch software membrane and experimental selected membrane that is TDS reduction %, average membrane flux, power consumption, RO recovery % and pressure.

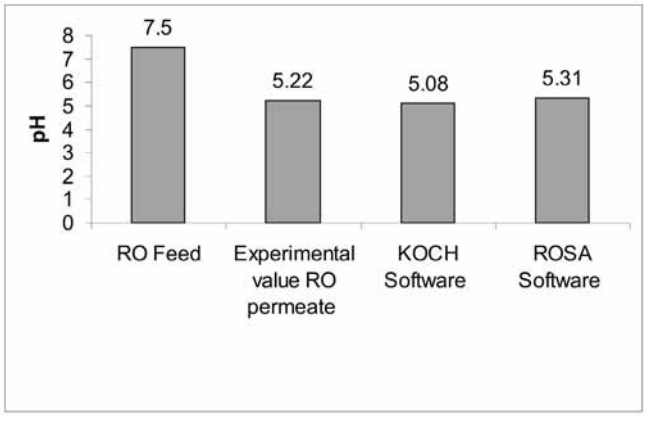

Figure 3.1 : Comparison of pH value in RO feed, permeate of experimental and theoretical values for woven fabric dyeing

The comparison of pH value for various stages given in table 3.4 and Figure 3.1, presents the pH value at various stage of the effluent taken from woven fabric dyeing. RO feed value is 7.5 and it is observed to be reduced at experimental output 5.22 and software output that is Koch 5.08 and Rosa 5.31.

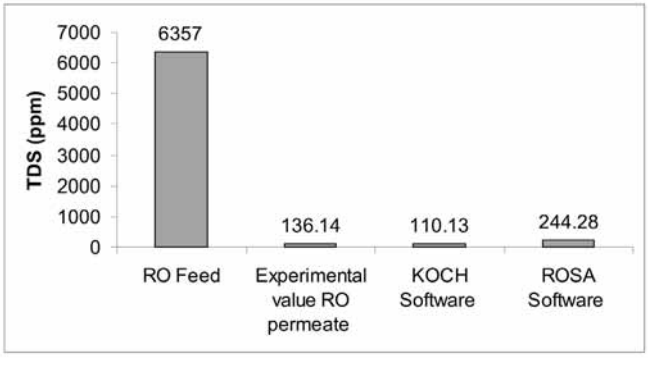

Figure 3.2 : Comparison of RO feed and permeate TDS in experimental and theoretical values for woven fabric dyeing

The comparison of TDS value for various stages is given in table 3.4 and figure 3.2. From this figure, the value of TDS 6357 ppm for RO feed can be seen and on the other hand the value of TDS reduced to 136.14 ppm (97.85%) for experimental RO permeate, 110.13 ppm (98.26%) for KOCH RO permeate and 244.28 ppm (96.15%) for ROSA RO permeate.

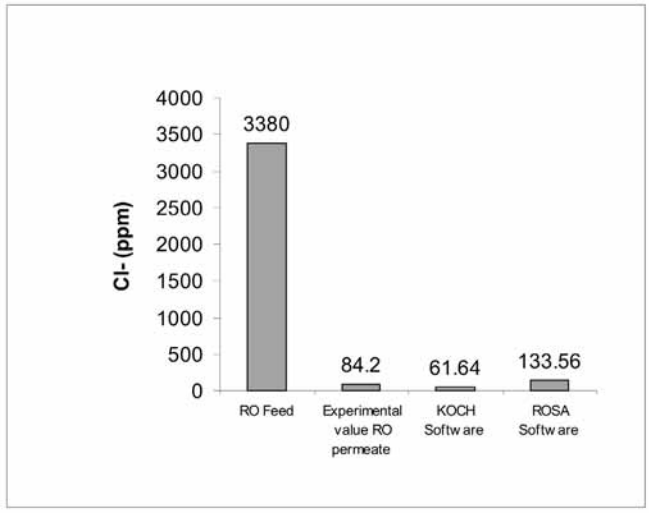

Figure 3.3 : Comparison of Cl^- value RO feed and permeate in experimental and theoretical values for woven fabric dyeing

It can be observed from the table 3.4 and figure 3.3, that the Cl^- value for RO feed, experimental output (through membrane), the KOCH, ROSA output are 3380 ppm, 84.20 ppm (97.50%), 61.64 ppm (98.17%), 133.56 ppm (96.04%) respectively.

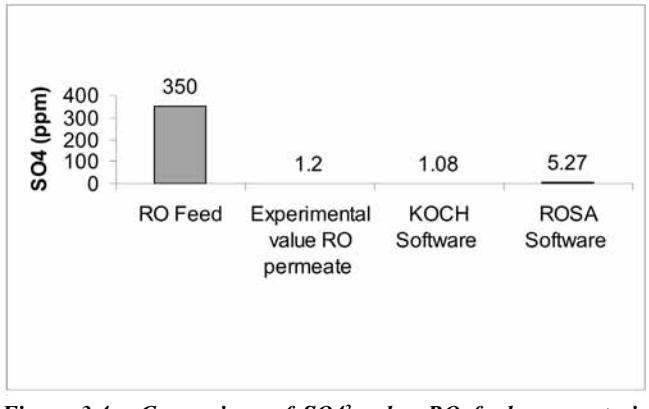

Figure 3.4 : Comparison of $SO4^{2-}$ value RO feed, permeate in experimental and theoretical value for woven fabric dyeing

The comparison of SO_4^{2-} value for various stages is given in table 3.4 and figure 3.4. From this figure, the value of SO_4^{2-} 350 ppm for RO feed can be seen and on the other hand the value of SO_4^{2-} reduced to 1.20 ppm (99.65%) for experimental RO permeate, 1.08 ppm (99.69%) for KOCH RO permeate, 5.27 ppm (98.49%) for ROSA RO permeate was observed.

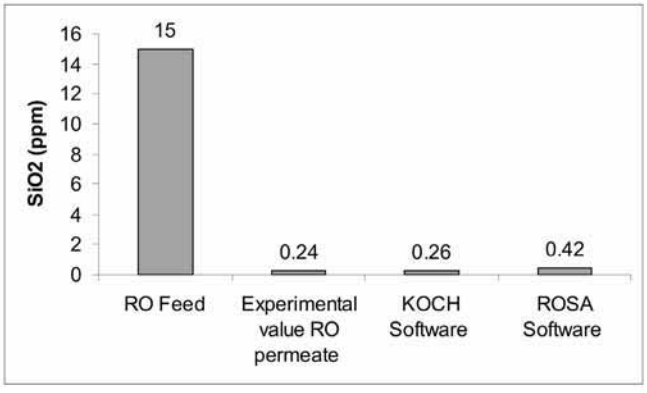

Figure 3.5 : Comparison of SiO_2 value RO feed, permeate in experimental and theoretical value for woven fabric dyeing

The comparison of SiO_2 value for various stages is given in table 3.4 and figure 3.5. From this figure, the value of SiO_2, 15 ppm for RO feed can be seen and on the other hand the value of SiO_2 reduced to 0.24 ppm (98.26%) for experimental RO permeate, 0.26 ppm (98.26%) for KOCH RO permeate, 0.42 ppm (97.20%) for ROSA RO permeate was observed.

4. Conclusions

- In KOCH Software membrane,
  - Higher TDS Reduction
  - Higher RO Recovery %
  - Power consumption is less
  - Investment cost is less as compare to ROSA software.
- From the experimental and theoretical results, it can be seen that characteristics of effluent from RO feed and permeate water, the following range of percentage reduction were observed as,
  - TDS 96.00 – 98.30 %
  - Cl^- 96.00 – 98.20 %
  - SO_4^{2-} 89.46 – 99.69 %
  - SiO_2 97.40 – 98.20 %
- To provide a solution to the preventing environment problems due to waste water from textile woven fabric dyeing industry.
- Both software membranes comparatively the Koch software membrane gives better results to treat the woven fabric effluent.
- Cost effective method of producing low salinity recycled water for industrial applications and indirect potable reuse.
- RO produce clean water suitable for plant recycle or discharge.

References

1. Akbari A., Desclaux S., Remigy J.C., .Aptel A., 2002, *Desalination* **149,** pp101 – 107.
2. Wagner V., Uber 1995, "Die oxidative Behandlung van fabigen Abwassern and Losungen ans der Textilveredlungsindustric mit kombinationen von O3, H_2O_2 UV – strahlung. Ph.D Thesis", *Technische Universitat Munchen*, Germany.
3. Amjad Z., 1993, Reverse Osmosis: Membrane Technology, *Water chemistry and industrial applications*. Van Nostrand Reinhold, New York.
4. Walter I.R., Van der Meer G.V., 2006, Mathematical modeling of NF and RO, in http://www.gezondheidstechniek.tudelft.nl/meer.htm, accessed in 2006.
5. Tinghui T., Matsuura T., Sourirajan S., 1983, *Industrial engineering chemical production research division*, **22,** 77 – 85.
6. Erswell A., Brouchaert C.J., Buckley C.A., 1988, *Desalination* **70,** 157 – 167.
7. Tang C., Chen V., 2002, *Desalination* 143, 11 – 20.
8. Abari .A, Remigy J.C., Aptel P., 2002, *Chemical engineering production*, **41,** 601 – 609.
9. Freger V., Arnot T.C., Howell J.A., 2000, *Journal of membrane science*, **178,** 185 – 193.
10. Drewes J.E., Reinhard M., Fox P., 2003, *Water Res.* **37,** 3612 – 3621.
11. Barker D.J., Salvi. S.M.L., Langenhoff A.A.M., Stuckey D.C., 2000, *Journal of Environmental Engineering*, **126,** 239–249.

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Textsmile

Once there were four men, one African, one Australian, one Chinese, and one Indian.
The Australian said, "lets make something." The Chinese replied, "we'll make a TV."
Then the African said,"I'll make the inside part of the TV."
Australian said, "I'll make the outside part of the TV."
The Chinese said," I'll make the remote of the TV."
The Indian said, "I'll write Made In India."

Computer-aided Product Life Management (PLM) : An Indispensable Tool for Fashion and Apparel Industry

Amandeep Kaur*, Monika Sharma
The Technological Institute of Textile & Sciences, Bhiwani

Abstract
PLM is a management strategy adopted by a company to control its collection from the point of conception to the point of sale. In a simpler way product-life-cycle (PLC) concept is linked with variations over time in the volume of sales or profit earned for a specific product category, form or brand. During this period significant cohesive marketing strategies are developed and adopted to increase the profit of company in terms of market and customer share. Companies either make strategic plans or follow the basic rules of the different life cycle phases that can be analyzed later. Further a clear cut understanding and analysis of PLC is very important. Any wrong strategy may lead to a failure of complete process planning of the products. This concept becomes even more important for "Fashion Apparels and Accessories" which have continuous change and aesthetic as the inherent characteristics. Keeping in view many software companies have introduced programme packages for fashion products managements, which are implemented by many garment manufacturers.

Keywords
Product life management (PLM), Strategies, Fashion & Apparel Products, PLM Softwares

1. Introduction to PLC(Product life Cycle)

Product can be defined as "any offering that is capable of satisfying customer needs". This definition includes both physical products e.g soaps, cars, cosmetics as well as services e.g. dry cleaning, life insurance etc. The various stages which individual product develops with the passage of time is generally known as Product life cycle. [1]

Typically, four distinct stages, namely, introduction, growth, maturity and decline are distinguished. Life cycle of products is represented diagrammatically as conforming to a bell-shaped distribution as shown in Fig 1. [2] A brief introduction of various stages of Product life cycle can be explained as:

1.1. Introduction Phase

After the procedure of product development i.e. a clear translation of various sources of information and incorporating them into a new product, final designed products are introduced in market. All requirements of end customers for on design, pricing, servicing and packaging are considered. Initially product requires to get launched in such a way so that it will have maximum impact at the moment of sale. Large expenditure on promotion and advertising is done while getting only a small proportion of that back in the pocket. Rapid skimming i.e. introducing the new product with high price and a high promotion level, Slow Skimming launching the new product with a high price and low promotion, Rapid Penetration i.e. introducing the product with a low price & heavy promotion, Slow Penetration i.e. introducing the new product at low promotion level and low product price are most commonly followed introduction policies. [3]

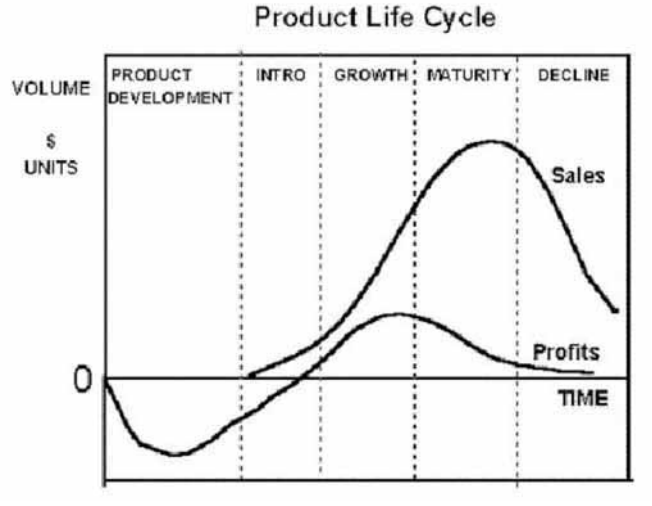

Figure 1.1 : Product life Cycle (2)

Correspondance should be addressed to,
Amandeep kaur,
The Technological Institute of Textile & Sciences,
Bhiwani (Haryana)
E mail: a2387@rediffmail.com

1.2. Growth Phase

The growth phase emphasizes on increasing the market percentage. If the product has been introduced first into the existing market then it is possible to gain market share relatively easily. Companies generally show all possible products offerings and try to differentiate them from the competitors ones. A frequent modification process of the product is an effective policy to discourage competitors from gaining market share by copying or offering similar products. This period basically involves development of efficiencies and improve product availability and service. Promotion and advertising are more oriented to market leadership theme and not in raising product awareness. Various strategies during growth phase include improvising the products and quality, creation of niche market to extend distribution etc.

1.3. Maturity stage

Maturity phase is highest returns phase. It arrives when the market becomes saturated with variations of the basic product, and all competitors are represented in terms of other alternative comparable products. While following right strategies, company that has achieved its market share goal enjoys the most profitable period, while a company that falls behind its market share goal, reconsiders its marketing strategies in new market place. New brands which compete with the company's existing product are introduced to extend the product's life. Fashion pricing & repricing policies are often changed in relation to the competition policies i.e. price moves up and down as per competitor's selling policies to get new customers. Promotion and advertising aims at the product conviction strategy. Generally adopted strategies during maturity stage are market & product modification by adding new features or by converting non users or probable users to product user category.

1.4. Decline stage

After significant time period, sales begin to decline as the market becomes saturated, the product becomes specifically obsolete or customer preferences change. If the product has developed brand loyalty, profitability may be maintained longer. If sales peak and then decline, managers may conclude the product is in the decline phase and therefore cut the advertising budget, thus precipitating a further decline. [4] The product withdrawal is generally a complex decision because of spare part availability, maintenance, service requirement factors. Often companies retain a high price policy for the declining products that increase the profit margin and gradually discourage the few loyal remaining customers from buying it.

2. Fashion & Apparel industry

Fashion and apparel industry basically consists of Apparel manufacturer e.g. Woven or knitted kid's wear, women's wear etc, Accessories manufacturers e.g. jewellery, handbag, purses, hats etc. and complimenting Fashion Services Industry e.g. fashion modeling, dyeing jobs, dry-cleaning etc.

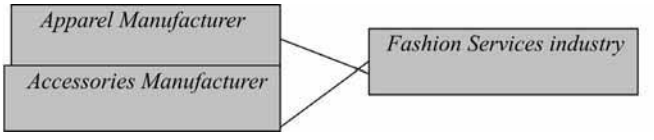

Figure 2.1 : Fashion Apparels & Services Industry

3. Fashion product's uniqueness and need of PLM

Nature of product has a deep impact on selection of product management strategies. All price, promotion and distribution mix change as per the nature of product. Fashion products like clothing and accessories are unique as:

- the length of the selling period depends on the product design, and fashion shows cyclical changes.
- the end of the production period is determined by objective constraints on sales (e.g. alternating seasons in the case of clothing).
- the length of the production cycle is incommensurate with the selling period. [5]

Accordingly apparels are classified as Fad, Fashion and Classic. Fads are generally thought to exhibit a rapid rate of early growth in sales, a low maximum level of sales and an early precipitous demise in sales. For examples Punk dresses, Hippy dresses. Fashions by comparison are generally thought to show a more gradual growth in sales followed by a plateau of popularity, which is lacking in fads, and a slow continuous period of sales decline e.g. Batik with kantha embroidery suits etc. The Classic is generally considered to show a long period of slow initial growth in sales followed by a higher and longer peak of acceptance and an extended period of gradual decline for example Shirts etc [1]. All steps starting from design generation to final distribution of product to customer are different as per the fad or fashion criteria. Moreover to use PLM, systematic empirical differentiation and characterization of market segments should be studied as a necessary prerequisite.

4. PLM Software for fashion & apparel industry

For each type of fashion product, within each industry Designing, Development, Production and Marketing are important sections. For rapid and smart working, PLM software are implemented in almost every well automated and growing fashion industry. A general PLM software has different packages as per the process flow requirements of all these sections. Generally main modules in PLM software are:

- Design management with reference to creative as well as technical design, color management.
- Product data management module for efficient storage & retrieval of designs & details.
- Product manufacture management and work flow engine for efficient followup of production process.
- Marketing management module for marketing, distribution, licensing etc. of product.

Many renowned companies like Lectra Fashion PLM V2R1, Fashionware Solutions Inc, Gerber Web PDM, New generation computing e-PDM, Freeborders, unique Solutions Inc.'s, Lawson Fashion have already captured a huge chunk of fashion & apparel industry. Few renowned apparel manufacturing companies who are efficiently utilizing PLM Software are:

Figure 4.1 : Design preparation via Lectra fashion PLM [8]

- Independent computing platform for both Mac and PC users provided by Yunique plmOn™ product life cycle has motivated children's licensed sleepwear manufacturer American Marketing Enterprises Inc. (AME) to implement it across its design, technical design, product development, licensing, sales and production teams in its Manhattan headquarter. [6]
- Renowned children's wear manufacturer Gini and Jony and Colourplus has implemented Lawson's Fashion Product Life cycle Management solution. [7] More creative and rapid response to all seasonal apparels can be achieved with the software. It is an informative tool for apparel retailers and manufacturers. Web based suite helps the quick and clear flow of information. Lawson ERP solutions are improved and in depth version of previous PLM solutions.
- International women's clothing and accessories designer, manufacturer Mango is using the new software, Lectra Fashion PLM's. It is having feature like design management, creative design, technical design, color management, a new product data management module for the developer of its product life cycle management solution. [8]
- Owner and marketer of the Little Me® line of children's brand uses Yunique pmOn™ product life cycle management (PLM) and srmOn™ supplier relationship software of Yunique solutions [9] for flexible workflow and sourcing functions. It is helpful for organising a fashion line collection with in specified lead time period.
- Delta Galil Industries Ltd. has implemented FlexPLM solution of Prametric Technology Co-orporation to reduce the company's development time and automate processes to cut the lead time. [10] Proper planning and scheduling of all work in processes gives an added advantage to the production management.
- Renowned wool manufacturer and retailer Pendleton Woolen Mills, implemented the Yunique plmOn™, a product lifecycle management (PLM) software. [11] The software has proved to be helpful for quick response to seasonal demands of apparels.
- California-based Apparel Manufacturer Guess Inc. implemented Dassault Systèmes ENOVIA® Apparel Accelerator™ for sourcing and production control. [12]
- Billabong International Ltd. implemented e-PLM software solution by New generation computing system across all of the company's regions and brands to improve global sourcing and visibility. [13]

5. Conclusion

PLM technology promises quicker innovation in terms of creativity & technical designs. Intense paperwork can be easily prevented as these softwares provide better visualisation of ideas, for example Lectra software's design module. Effective cost management, improved product portfolio profitability, effective sourcing ability and supply chain flexibility are some other benefits of following PLM concept in traditional company procedures. Moreover Product life-cycle concept should

be used with careful formulation and testing as an explicit model, otherwise it may be misleading in formulation of different strategies.

References

1. Hann M. A., Jacksons K.C., "Fashion : An interdisciplinary review", Textile Progress, 1987, **16,** issue 4, p 36.
2. William D., McCarthy J. E., " *Product Life Cycle: Essentials of Marketing"*, Richard D Irwin Company, 1997.
3. Kotler P., "Marketing Management",10th edition, The Millennium Edition, p 303.
4. Vass K.,"Choosing The Strategy That's Right For Your marketing "TextileWorld.com, July/August 2006, p 22
5. Grandys E., "Production Cycle Model for Short Life Cycle" Fibres & Textiles in Eastern Europe 2010, **18,** No. 1 (78) p 8
6. Annon, "AME Implements Yunique plmOn". Apparel Magazine, Jan2008, **49,** Issue 5 , p27
7. Annon, "Gini and Jony Sees New Efficiencies with Lawson PLM", Apparel Magazine, Jan 2009, **50,** Issue 5, p28
8. Annon, "Lectra implements new PLM solution at Mango". Indian Textile Journal, Feb. 2006, **116,** Issue 5, p79.
9. Annon, " Little Me® Children's Brand Selects Yunique for PLM" , Apparel Magazine, Apr. 2007, **48,** Issue 8, p39.
10. Annon, "Delta Galil Selects PTC to Cut Lead Time," Apparel Magazine, Jan. 2008, **49,** Issue 5, p26
11. Annon, "Pendleton Woolen Mills Selects Yunique plmOn." Apparel Magazine, Jun. 2009, **50,** Issue10, p36
12. Annon, "Guess Connects Global Sourcing and PLM with ENOVIA." Apparel Magazine, Jun. 2009, **50,** Issue 10, p36
13. Annon," Billabong Selects NGC for PLM and Global Sourcing". Aug. 2009, **50,** Issue 12, p30

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Latest News in the World of Technical Textiles

Sujata Sivaramakumar Pariti
Adjunct Professor, Dept. of Fibres and Textile Processing Technology, ICT

An Adjunct Professor at Department of Fibres and Textile Processing Technology, ICT, since January 2011, Sujata Pariti, a young and dynamic personality, is a Doctorate Degree holder in Textile Chemistry. Her Doctoral Dissertation was on the topic, 'Chemical Modification of Cellulosic Polymers'. Her Master's Dissertation was on the topic, 'Studies in Chemical Processing of Textiles'. She has her Bachelor's degree, two of them, viz. B. Sc (Tech) and B. Sc, in Textile Chemistry and in Chemistry faculties respectively (all the degrees from Mumbai University, Maharashtra, India).

Before becoming an Adjunct Professor, she was a visiting faculty at ICT, for a brief period. Earlier to this she was working in Clariant Chemicals (India) Ltd., at its location in Kolshet, Thane, Maharashtra, India; in various capacities, particularly in its 'Communication' and 'Technical Textiles' Businesses.

A few topics of her research interests in subjects related to Textile Chemistry are as mentioned below:

1. *Green technology (enzymes).*
2. *Problems posed by Textile Process House Effluents*
3. *Water repellent and Flame retardant finishes for Textiles*

In her various capacities from a research student to working in a Multi-National, to a teacher in ICT, she has helped organize various seminars, conference, exhibitions and road-shows, at National as well as at International level.

She has more than 30 publications.

She is a Member of the Society of Dyers and Colorists (SDC), London, for Mumbai Region since 2001.

She can be contacted via; sujata.pariti@gmail.com and ss.pariti@ictmumbai.edu.in

After looking at the topic, the reader might not want to go ahead as the subject of 'technical textiles' has been written almost on a daily basis in a number of issues in various journals and magazines. But, rest assured you will find something new if you wish to remain on this page of this issue of JTA.

Firstly, and most importantly, we at ICT are the achievers of the *Sportech* segment of technical textiles for the Centre of Excellence (COE). My heartiest congratulations to its achievers and the industry which is going to benefit by not only this particular COE, but by all the others too, namely, Non-wovens - D. K. T. E, Composites - ATIRA, Geo-textiles – BTRA, Protective Textiles - NITRA, Medical Textiles – SITRA, etc. and my heartfelt thanks to the Ministry of Textiles, Government of India, for coming up with such a concept to satisfy the needs of the upcoming market of the diversified field of textiles such as Technical Textiles.

In continuance with the latest news in the field of technical textiles, according to a report in India's Economic Times on 25th August 2011 the country's technical textiles industry is projected to grow to Rupees 1.4 trillion ($31.4 billion) by 2016-17, with healthcare and infrastructure sectors accounting for a major chunk of the consumption.

The report quotes from a FICCI-Wazir Advisors-Ernst & Young Knowledge joint paper published last Thursday which also said that the technical textiles industry market was estimated at Rs 570 billion ($12.67 billion) in 2010-11. Quoting directly from the FICCI paper, the report said: "With an improving economy and social scenario in India, a number of enabling factors are expected to positively impact the market for technical textiles. The growth drivers are emerging at both the supply and demand sides and include government support, increased investor interest because of the large untapped market."

"Introduction of regulatory norms, India's inherent advantage as a manufacturing base and increase in retail and industrial consumption will also help the growth of the industry."

"The way forward to ensure development of the sector lies in promoting international partnerships, training, implementation of policy support, focusing on product innovation, promoting awareness creation programmes and pursuing regulations and standardization of technical textile usage."

"Two of the most important sectors where technical textile products have the potential of being used in significant volumes are healthcare and infrastructure. It is expected that technical textiles will be increasingly used in both these sectors either due to increase in awareness or government regulations," it added.

According to the Economic Times the Indian healthcare industry is currently estimated at Rs.2.25 trillion, and is expected to grow at 14 percent till 2020, to reach a size of Rs.8 trillion. "In this sector, the usage of technical textiles is worth around Rs.23 billion. It is expected that by 2016-17, this will grow to about Rs.46 billion," the report said, adding:

"Infrastructure is one of the key focus areas of the government. The expenditure on infrastructure is set to grow to nearly $456 billion representing 7.5 percent of gross domestic product in the eleventh five year plan ending March 2012 and is expected to cross the $1 trillion-mark in the twelfth five year plan."

As a result, use of technical textiles in this sector would increase substantially, the report said.

Source: Economic Times

The western Indian state of Maharashtra is to get its first technical textiles park at Ichalkaranji off Kolhapur in the state's western region. According to a report in the Business Standard on 31st August 2011, the project involves an investment of Rs 110 crore, Rs 50 crore of which will come from central and local government subsidy. The balance of Rs 60 crore will be raised through members' contributions, loans and subsidies under India's Technology Up-Gradation Fund. Prakash Awade, who is the developer of the project together with a group of micro, small and medium enterprises, told the newspaper that the proposal had already been submitted to the textiles ministry and the approval was expected shortly. "The idea is to build up a Common Facility Centre (CFC) and meet the needs of small and medium entrepreneurs in the technical textiles segment. The CFC will have all the necessary expertise to complete the job work as proposed by the micro, small and medium entrepreneurs who will be part of the proposed technical textiles park," Mr Awade told the Business Standard. According to the report, the park will be commissioned in next six months as the land was tied up in a local estate. Chief Minister Prithviraj Chavan says the proposed technical textiles park will add value to the traditional textiles sector and lead to a manifold increase in revenues. Currently, only 25% of cotton grown in Maharashtra is processed within its boundaries and the rest goes to other states which have more developed textiles industries, the report said. Chavan is said to have requested the government to set up a public sector venture capital fund to encourage entrepreneurs to explore new areas of technical textiles. The move comes at a time when the recent Ficci study shows the Indian technical textiles industry is projected to grow to Rs 1.4 trillion ($31.4 billion) by 2016-17.

Source: Business Standard

Looking at the above three 'Big' News in Technical Textile sector, we at ICT think that the academicians will be a major source of help in the building – up of the future in this field. Research has been the key driving force in this Institute since its foundation back in 1934. Also, raising concern over India's share in the US imports of technical textiles and non-woven fabric which is way behind China, industry body FICCI recently said that, the domestic industry needs research and development (R&D) support. In sync with this, the following part of this article elaborates on the need of research in any field of science and technology.

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Why R&D matters

R&D plays an important role in the innovation process. It results in the technology that brings new products and services to the market place or underpins better processes. Innovation results in high quality jobs, successful businesses, better goods and services and more efficient processes. That is why R&D matters.

Technical textiles relate both to kinds of products and to the application of textiles to particular uses. Examples of technical textiles products are high tenacity yarns, or special elastic or coated fabrics, all of which have high technology content. As far as industrial applications are concerned, textile-based articles can offer considerable performance advantages compared to other materials.

The sector of technical textile has experienced a spectacular increase during last years. Technical textiles consumption has increased worldwide by about 20% in volume, since the year 2000. Cars and the transport industry, furniture, medical applications, clothing and construction are important users of technical and industrial textiles.

Given that innovation in new materials, processes and products is an inherent feature of this sector, expenditure on research and development (R&D) is higher in this field than for 'conventional' textiles (reaching up to 8-10% of turnover, compared to the industrial average of 3-5%). In the development of fibres, yarns and fabrics, functional aspects - such as anti-bacterial, anti-static, UV protective, thermal, or biodegradable functions -

are playing an increasingly important role. Performance requirements and technical specifications determine the success of a product. Usually, technical textiles are created in a close relationship between the producer and the consumer so as to ensure tailor-made solutions to specific user purposes.

Some fields of application for technical textiles

Sector	Examples	Markets
Earthworks	Linings, netting, insulation, artificial grass ("geotextiles")	Construction companies for roads, water engineering, soil stabilization, tunnels and other earthworks
Construction	Insulation and roofing materials ("building textiles")	Building firms, architects
Agriculture	Sun protection for greenhouses, fishing nets ("agrotextiles")	Farming, horticulture and fishing
Transport	Car mats and lining, airbags, fire resistant seat covers and carpets, safety belts	Producers of cars, aeroplanes, boats
Medical and healthcare	Bandages, medical corsetry ("medical textiles")	Hospitals, nursing homes, households
Protection	Safety nets, ribbons and tapes, fire resistant clothing ("protecting textiles")	Industry, public procurement, households
Packaging	Twine and cordage, sacks and bags, tarpaulins ("packing textiles")	Industry, distribution, households
Military and public services	Fire service equipment, bullet-proof jackets, army tents, parachutes, extinguishing blankets, tubes	Military/security, forestry, offshore oil industry
Specialized clothing	Sports, skiing and leisure	Active sports, mountaineering, households
Communi-cations	Optical fibres, image conductor cables	Communication sector
Industry	Filters, drive and conveyer belts, abrasive belts	Engineering, machinery, chemicals, plastics, mining, energy, etc.
Furnishing	Interlaid scrims, braiding, shower curtains, umbrellas, parasols, deck chairs, textile wall papers	Decoration firms, households

This totally new concept of textiles has brought an interest not only in the industry, but also in academia in terms of new subjects to be indulged in and in terms of research work (some of which has already taken place even before the conceptualization of this new era of textiles) to be carried out in the same.

Mentioned below are some of the research works carried out in Department of Fibres and Textile Processing Technology, related to technical textiles:

- Synthesis of polymers, superabsorbent polymers (hydrogels), IP networks, and binders by using various tequnics (gamma radiation, ultrasonic, microwave, etc.). Modification/co-polymerization of natural polymers such as carbohydrate polymer and other biopolymer, and carbohydrate chemistry with acrylic chemistry. Synthesis of nano particle by using super absorbents (Waghmare N / Prof. (Dr.) M. D Teli).
- Polyester nano composite fibers were made to make them permanently flame retardant, anti-microbial and thermally stable. Also blends of Polyester and Polytrimethylene terepthalate were made to reduce the dyeing temperature of Polyester. (R.D Kale / Prof. (Dr.) M. D Teli).
- Polypropylene Nano Composite fibers were made to make them permanently flame retardant, antimicrobial, mosquito repellant, fragrant and thermally stable. (Dr. A Sable / Prof. (Dr.) M. D Teli)
- Sound absorbing capacity of sound barrier fabric material was found to be function of a number of complex variables such as frequency, number of fabric, air permeability, thickness, distances, GSM, etc. (Y. M Rane / Prof. (Dr.) M. D Teli)
- Textile materials as noise barrier: Different samples of woven, non-woven, coated materials with varied constructions were tested. Most of the textile material was from non conventional category such as jute, flax, mesta, ramie, banana and sisal were selected as natural filler in epoxy resin matrix. Modifications were made in the instrument and experiments were carried out to stimulate real life conditions. Effect of wet processing on noise reduction was studied. (A Pal / Prof. (Dr.) M. D Teli)
- Waste materials such as rice husk, sugarcane baggase and wooden chips were chosen as a natural filling material in composite samples. Fabric integrated composites and different sandwich samples were prepared. Efficacy of these samples in sound absorption over frequency range of 1000 Hz to 8000 Hz was studied. (D Roy / Prof. (Dr.) M. D Teli).

- Application of nanotechnology for antimicrobial property using nano-copper oxides for hygienic textile materials (N Gupta / Prof (Dr.) R.V Adivarekar).
- Simulation and engineering of composites using PP and PES. Biomimicking the natural composites available in nature e.g., sedimented rocks, trees, etc. (Muralidharan R / Dr. Usha Syed)
- Deployable Fibre Composites (in pipe-line) – Composite fibres which are deployable can be tried for prevention and spreading of diseases. The advanced lightweight fibrous materials can be integrated into self-deployable fabrics, such as tents and floatation means which will become stronger upon wetting; the list of application is endless. This project in thus focused on development of novel active fibrous materials, which respond to various stimuli by spontaneously folding – unfolding their structure (Dr. Usha Syed).

Mentioned below are some publications by Department of Fibres and Textile Processing Technology on topics related to technical textiles:

- Application of Textile and Polymeric Surfaces for Acoustic Properties, Teli M.D, Adivarekar R. V and Pal A, *Journal of Textile Association*, 65 (4), 185-188 (2004).
- Processing of Non-conventional Natural Fibres to Substitute Absorbent Cotton, Adivarekar R.V., Kanoongo N., *Asian Textile Journal*, 18 (3), 49-57 (2009)
- Waste cotton in hygiene product, Adivarekar R.V., Kanoongo N., Khurana N., *Asian Textile Journal*, 19 (2), 39-41 (2010).
- Application of herbals on cotton for antimicrobial property, Adivarekar R.V., Kanoongo N., Khurana N. and Nerurkar M., *Journal of Textile Association*, 71 (3/4), 324-330 (2011).
- Synthesis of Superabsorbent from Amaranthus Starch, Teli M.D. and Waghmare N. G., *Carbohydrate Polymers,* 81 (7), 695-699 (2010).
- Synthesis of Superabsorbent from Carbohydrate Waste, Teli M.D. and Waghmare N. G., *Carbohydrate Polymers*, 78 (10), 492-496 (2009).
- Synthesis of Superabsorbent from IBP *patent no. 2073/mum/2011,* Teli M.D. and Waghmare N. G.
- Synthesis of Superabsorbent from Cassia Gum Communicated to *Carbohydrate Research,* Teli M.D. and Waghmare N. G.
- Mixed Polymer System (Starch and Guar Gum) used for Synthesis of Superabsorbent Containing Nanoparticles, *Communicated Polymer International,* Teli M.D. and Waghmare N. G.

From the above it can be seen that there is an immense interest in this area of the New Generation Textiles known as Technical Textiles not only amongst the industrialist but also in academicians.

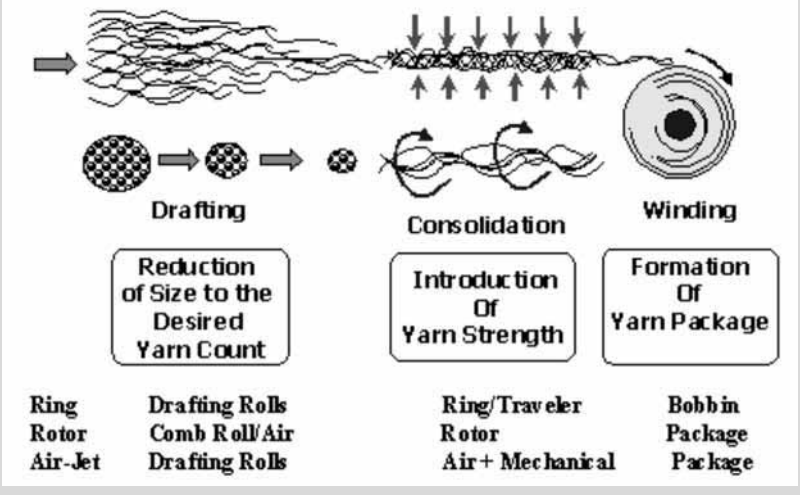
With the achievement of the Sportech COE, we at ICT shall be able to perform in bounds and leaps in this area and in turn achieve the goals set by the GOI in opening – up of these COEs.

Thus, my humble message to the Textile Industry is that, long duration and sustained efforts are necessary to be put in by this mother industry of our's, to make the institute level research more significant. It is most definitely the need of the day that, concentrated efforts of the industry and academia will lead to further growth of the textile industry.

❑ ❑ ❑

Spinning Techniques for Spun Yarns

'Spinning' refers to conversion of a large quantity of individual unordered fibers of relatively short length into a linear, ordered product of very great length. The object of spinning is to transform the single fibers into a cohesive and workable continuous yarn length.



Basic principle of spinning

Conventional Spinning Techniques:-

- **Mule Spinner** operates according to discontinuous spinning method. It is gradually being replaced by ring spinning in woolen spinning mill.
- **Cap and Centrifugal Spinners** have been mostly confined to the worsted-spinning mill and only a few still remain in use.
- **Pot Spinners** are hardly used in woolen mill of today, as most yarn is produced by ring spinning.
- **Flyer spinning** is still used for producing coarser jute yarn. The jute spinning has 3 simultaneous and essential functions: drafting (slip drafting system), twisting and winding.
- In **Ring Spinning,** roving is fed to drafting system. The twisting and winding operations are carried out simultaneously with a suitable ring/traveler combination by rotating bobbin mounted on spindle. Nowadays, most of the yarn production is by Ring Spinning because of flexibility, versatility and yarn quality. Yarn count range is upto 120Ne.

New Spinning Techniques developed after 1960s:-

- In **Compact Spinning,** all fibres are perfectly condensed and gathered parallel to each other in the compacting zone by use of additional drafting components and pneumatics on ring spinning machine. Consequently all fibres are twisted-in to create yarns that are less hairy and stronger.
- In **Rotor Spinning,** drawframe sliver is fed to an opening unit so that the fibres are separated and accelerated in a delivery tube to be deposited in the rotor groove. Twist is introduced into the yarn with

the help of rotor and navel without package rotation. Rotor yarns are more uniform due to wrapping fibers. Yarn count range is 5 to 30Ne.

- In **Friction Spinning,** one or more drawframe slivers are fed onto rapidly rotating perforated drums, where suction causes the fibers to compress and twist around one another to form a uniform yarn which is continuously removed onto a spool. The resultant yarns are bulky and have properties similar to woolen yarn. Yarn count range is 3.5 to 18Ne.
- In **Air Jet Spinning,** drawframe sliver is fed to a drafting system with air suction created by the nozzles. The air vortex created in nozzle imparts twist by the screw-threaded path in the jet. Core fibers are parallel and edge fibers are wound around the core fibers to ensure coherence. Yarn count range is 15 to 60Ne.
- In **Air Vortex Spinning,** drawframe sliver is fed to a drafting system with air suction created by nozzles. The air vortex created in nozzle imparts internal twist by wounding spirally floating fibers around the fiber core to form a vortex spun yarn. The resulting yarn structure is more similar to ring yarn than to rotor yarn. Yarn count range is 7 to 30Ne.
- **Wrap (Hollow Spindle) Spinning** system uses the technique of wrapping, a continuous filament yarn round a central core of parallel staple fiber and this system can be used for both short and long staple. Wrap spinning is considered as complementary to the ring and not a complete replacement. Yarn count range is 1 to 24Ne.
- In **Twist Spinning,** two rovings are passed through the modified drafting system, but leaves from the delivery/front roller separately. They are twisted into two singles yarns from a common spindle and are simultaneously bound together to form a composite yarn. This twist-on-twist system is generally used in worsted spinning for economic advantages.
- In **Self-twist (Rubbing) Spinning,** eight rovings are fed to a double apron drafting system adjoined by two reciprocating rubbing rollers which takes twist alternately over a short length in Z and S directions. Now, the two fiber strands with same twist direction formed by this technique are taken and twisted again in the same manner: Z twist where S twist is present and vice-versa. Yarn count range is 9/2 to 45/2Ne.
- In **Twistless (Adhesion) Spinning,** three drawframe passage is used. In 1st passage, adhesive fibers (PVA) are blended with sliver for bonding and false twisting is done by water-jet. In 2nd passage, final attenuation/drafting takes place and false twisting is done by steam-jet. In 3rd passage, wet fibers are warmed on a dryer drum for complete dissolution of the PVA fibers and wound on package. Yarn count range is 6 to 40Ne only.
- In **Electrostatic Spinning,** roving is passed through a double apron drafting system to a draft of 180-200. The fibre strand from the front roller is collected by the electrostatic field (earthing the front roller and applying a high voltage 30,000-35,000V to the twist element) and twisting is carried out by twist element. Yarn count range is 20 to 40Ne only.
- In **Disc Spinning,** the opening roller opens the strands individually, and airstream draws the separated fibers on a perforated disc. The yarn continuously receives twist imparted to it by a twisting element. This technique is still in development stage.

– By Chet Ram Meena

The Textile Association (India)

TAI - Ahmedabad Unit

15th JUNE , 2011

Shri A. D. Bhagat, Vice President, Shri V. A. Trivedi, Hon. Secretary and Shri D. I. Patel, Managing Committee Member of TAI-Ahmedabad Unit attended an Interaction Meet for strengthening Linkage between Cotton Growers and Cotton Consuming Industry held at Walchand Hirachand Hall, Indian Merchants Chamber IMC Marg, Mumbai-400 020. Shri P. D. Patodia, Chairman of Standing Committee on Cotton welcomed in the function. Three interactive sessions covered Cotton production and productivity related issues, Interaction of Textile Industry with scientists for sustainability and Improvement of Fibre Attributes and Creating Synergies through Extension Services between Farmers-Ginners-Trade and Consuming Industry. 16 eminent speakers delivered their speech on the subject matter. The interaction meet was very much useful for the cotton growers and consuming industry. Shri D. K. Nair, Secretary General, CITI, New Delhi proposed vote of thanks.

24th JUNE , 2011

Shri Sebastien Andrieux, French Trade Commissioner, Mumbai, visited The Textile Association (India) Ahmedabad Unit. On his request a meeting was organised between himself and Shri T. L. Patel, President, Shri A. D. Bhagat, Vice President, Shri V. A. Trivedi, Hon. Secretary of TAI-Ahmedabad Unit at the office of Textile Association (India) Ahmedabad Unit, Dinesh Hall, Ashram Road, Ahmedabad-380009. Basically he visited the association to discuss on business opportunities between French and Gujarat State.

27th JUNE , 2011

Shri A. D. Bhagat, Vice President and Shri V. A. Trivedi, Hon. Secretary of Textile Association (India) Ahmedabad Unit attended as special invitee an Inaugural function of Training Programme on "Textiles Committee Certified Quality Professionals" under Integrated Skill Development Scheme of Ministry of Textiles, Govt. of India organized by the Textile Committee, Ahmedabad. Mr. D. P. Jadeja, Director of Textile Committee, Mumbai welcomed in the programme while Shri Bharat Chhajer, Chairman of PDEXCIL, inaugurated the function and delivered his speech as a Chief Guest. The areas covered in the training programme were Orientation of textiles and textile progress, Textile testing and quality appraisal, Application of TQM techniques, Principles of statistics and SPC, Productivity and work study, Industrial law applicable to textiles and Export documentation and compliances. 30 trainees participated in this training programme. Textile Committee awarded certificate of "Textiles Committee Certified Quality Professionals" to the trainees after successful training.

TAI - Baroda Unit

The 63rd AGM Cum Independence Day Celebration of Baroda Unit was held over a Dinner and Entertainment. Chief Guest was our National President Shri D. R. Mehta & Guest of Honour Shri K. D. Sanghvi (National Chairman). Other Guests of Honour were Shri

Mr. R. P. Gupta wellcoming Mr. D. R. Mehta (National President, TAI)

L to R : Mr. V. A. Trivedi, K. D. Sanghvi, Rajnikantbhai Bachkaniwala, B. A. Shah & D. R. Mehta in the audience

Rajanbhai Bachkaniwala, Chairman ITME (India), Shri B. A. Shah, Shri Vijay Trivedi, Shri Madhubhai & Shri Kanubhai Patel (Ahmedaba).

Entertainment was by Dr. Kirti Sahai a welknown National Level Artist.

About 130 Members & invited Guests enjoyed the programme. On the whole it was an excellent function as appreciated by the Chief Guest & Shri B. A. Shah, Shri R. P. Gupta was elected unanimously as President of Baroda for 2011-2013 as proposed by Mr. C. K. Patel, ex-President and seconded by Prof. V. H. Kapadia, Vice-President.

TAI - Marathwada Unit

Modern Warp Preparation and Weaving

Department of Textile Technology, Shri Guru Gobind Singhji Institute of Engineering & Technology, Nanded and The Textile Association (India) Marathwada Unit jointly organized One Day Seminar on "Modern Warp Preparation and Weaving" on 25th Aug. 2011. The inaugural function was chaired by Prof. S R Kajale, Director of the institute. The Prominent persons present on the dais included Prof. A K Chakrabarti, Head Textile department, Mr. R K Ghatge, General Manager and Mr. Guruprasad Shetty, Assistant General Manager, ATE Enterprise, Mumbai along with Prof. P G Solankar, Treasurer of TAI, Marathwada Unit.

The objective of the seminar was to share latest knowledge on new technologies in warping, sizing and shuttleless weaving. Mr. Guruprasad Shetty spoke on modern Benninger warping and sizing technology, while Mr. R K Ghatge dealt regarding theoretical and commercial aspects of shuttleless weaving. The seminar received overwhelming response from various sectors of textile industry. This resulted into a special meeting between Mr. R K Ghatge and the powerloom owners after the seminar where discussion was held regarding setting of units of shuttleless looms.

Prof. V K Joshi, Secretary, TAI, Marathwada Unit, Prof. P Pramanik, Dean (T&P), Prof. P Kar, Prof. R N Joshi and Prof. M Shaikh and around 80 students participated in the seminar.

Mr. Mahendra, Mr. Tejas, Mr. Prathemesh, Mr. Amit, Ms. Pooja, Mr. Asish, Mr. Vaibhav and others helped to make this event successful.

Institute of Chemical Technology (Deemed University under Section 3 of the UGC Act 1956) Department of Fibres and Textile Processing Technology Matunga, Mumbai – 400 019.

Sportech - Centre of Excellence to Department of Fibres and Textile Processing Technology, Institute of Chemical Technology, Mumbai.

The highly coveted Centre of Excellence (COE) under the Technology Mission of Technical Textile (TMTT) in *Sportech* has been awarded to the Department of Fibres and Textile Processing Technology, Institute of Chemical Technology, Matunga, Mumbai – 400 019. The announcement to this extent was made on August 25, 2011, by the Honourable Minister of Textiles, Shri Anand Sharma on the inaugural function of the event Technotex 2011 held between August 25 – 27, 2011, at the Bombay Exhibition Centre, Goregaon, Mumbai. In this venture the major collaborators of ICT are Kemrock Industries and Exports Limited, Kusumgar Corporates Private Limited and Reliance Industries Limited. An Expression of Interest has been extended by JCT, Textiles Committee, Textile Association of India and Texan lab and they have agreed to support in every possible way with all their branches in spreading awareness and training in Technical Textiles to make this COE a grand success.

Institute of Chemical Technology (formerly known as UDCT), one of the most prestigious Institute in the country is headed by Prof. G. D. Yadav, Vice-Chancellor of the Institute. It has seven major chemical technologies, such as Textiles, Dyestuffs, Oils, Plastics, Paints, Pharma and Food. It has other major courses such as Chemical Engineering, Pharmacy, Bio-Process Technology, Chemistry, Physics, Mathematics and General Engineering. A survey was published by Professor Jude Sommerfeld of Georgia Tech; USA showing that the ICT is Number One Institute in India far ahead of several others including IITs, and it is also in top 10 in the world in Chemical Engineering. This rank has been maintained since 1970s.

Department of Fibres and Textile Processing Technology is one of the foundation departments of the Institute started at the very beginning, in the year 1934, to fulfill the fundamental and technological demands of the ever flourishing Textile Industry. This department is now headed by Prof. R. V Adivarekar. The other faculty members of this department are Prof. S.R Shukla (also the Registrar of the Institute), Prof M. D Teli (also the Dean, Students Affairs and HRD of the Institute), Dr. Usha Syed, Dr. Sujata Pariti and Mr. R. D Kale.

The Vision of this Department is to be the world class centre of excellence in teaching and in research, in the chemical processing of fibres, textiles, apparels and the key areas of technical textiles with ecological, social and ethical responsibilities; meeting the crucial needs of trained manpower and technological solutions of Indian textile industry.

The Head of Department, Prof R. V Adivarekar, in his message said that, "The Textile Department, over

decades has proved to be the most preferred destination for aspiring textile technologists from across the country. The department consistently attracts the finest faculty and the best of students for its Undergraduate, Postgraduate and Doctoral programmes. In this new era of globalization, industries plan to leverage their competitive advantage for sustainable growth leading to quantum leaps in the economic development of the nation. Keeping this in focus, we at Institute of Chemical Technology (ICT), since inception (1934), nurture the budding technologists and enlighten potential leaders, shaped by its Vision, Mission and Values. I thank Ministry of Textiles for the opportunity given to us. With the tradition of Institute working hand-in-hand with the Industry and Research Associations, we assure our sincere efforts to make this COE in Sportech a COE with distinction".

The graduate (B. Tech.) and post graduate courses of M. Tech. and Ph.D. (Tech.) attract a large number of students and so far more than 2250 graduates and 500 postgraduates have passed out from this Department. The faculty of the Department has good interaction with the industry. The department has been recognized as Centre of Advanced studies in "Physicochemical aspects of Textile, Fibres, Polymers and Dyes" presently in Phase VII, since 1962. The department also played an important role in evaluating TUFS under Ministry of Textiles, GOI. The faculty is engaged in high quality fundamental as well as applied research and they have got over 1000 publications in Indian and International journals as well as reputed fellowships to the credit from recognized institutions in India and abroad.

The Office of the Textile Commissioner is the apex government body facilitating the holistic growth of India's diversified and broad based textile industry. Technical Textiles is expected to be a booming opportunity for developing economies in Asia both from a production perspective as well as consumption opportunities in a technologically evolving economy. Thus, Technical textiles holds significant potential in India and the government has taken steps to promote this industry by the establishment of COEs in the country.

The Sportech segment comprises of technical textile products used in sports and leisure. The technical textile products covered under Sportech are; Sports Composites, Artificial turf, Parachute Fabrics, Ballooning fabrics, Sail cloth, Sleeping bags, Sport nets, Sport shoes components, Tents and Swimwear.

This Sportech segment of technical textiles can generate employment opportunities, international market, import substitutions, high unit value realization in sportswear and also develop sporting potential of our country in the global arena. Further, the Expert Committee's Report and Baseline survey on Technical Textile Industry reveal that there is scope to develop products which are 100% imported and having high unit value realization. There exists opportunity for the existing textile manufacturers to diversify into Sportech area and grow the business.

The Institute working hand – in – hand with the Industry will thus make this COE in Sportech a grand success.

ADVERTISEMENT INDEX

Oerlikon Textile exhibiting at ShanghaiTex 2011

***Remscheid / Shanghai, 6 June 2011* – Innovations for increased productivity and energy efficiency are the key themes selected by Oerlikon Textile to present the comprehensive product portfolio of its five brands at ShanghaiTex 2011 from 14 to 17 June 2011 in the Shanghai New International Expo Centre at information booth C 10 in hall E 1.**

Just a few weeks in advance of ITMA in Barcelona, the most important textile machinery exhibition in the world to be held at the end of this September, Oerlikon Textile – part of the Oerlikon Group – is showcasing its offer in Asia, the key growth market for textile machinery and systems. "Our presence here in Shanghai is extremely important for us to be able to present the advantages of our products and services locally to our customers," states Thomas Babacan, CEO of Oerlikon Textile and COO of OC Oerlikon. Oerlikon Textile is concentrating specifically on the following products of its five brands:

Oerlikon Barmag: ultimate quality texturing and spinning
The Remscheid/Germany-based market leader for filament machinery and systems boasts an extensive catalogue of technical highlights. By far the most important is the new automatic eAFK texturing machine that combines proven technology from previous models with a flexible, modular machine structure and offers increased productivity with reduced personnel requirements. The innovative WINGS spinning system is now also offered for FDY. And the new multi-threaded automatic winding head for high-strength special yarns means considerably less energy consumption and space utilisation, as well as reduced investment and maintenance costs.

Oerlikon Schlafhorst: innovations for more economically efficient spinning and yarn packages
Zinser ring spinning machines increase raw material efficiency and process reliability with ImpactFX compact technology. The fully or semi-automatic Autocoro has set the standard for automation in rotor spinning systems for some time. The Autoconer winding machine also offers various automation levels to further reduce personnel requirements.

Oerlikon Neumag: focusing on perfect BCF yarns and synthetic staple fibres
The S+ generation of machines is the flagship of this leading supplier in the manufacture of highly developed BCF carpet yarns. The BCF machine offers all the benefits of previous technologies as well as significantly higher processing speed and performance.And in the production of synthetic staple fibres, the 300 tonnes-per-day unit sets the benchmark in the manufacture of polyester staple fibres with the largest capacity for an individual line anywhere in the world.

Oerlikon Saurer: a step ahead of the field in embroidery and twisting
The Volkmann FT is the two-for-one twisting machine of the future for staple fibre yarns. The Volkmann carpet cabler reduces operating costs in the carpet yarn sector. With the Volkmann GT-series ring spinning machines, technical applications are now possible as well as up-twisting glass filaments. The Allma CC3 (also a two-for-one machine) and CC4 cabling machines are a byword for quality, economic efficiency and low energy
consumption. And the Epoca 6 generation offers perfection and maximum productivity in shuttle embroidery.

Oerlikon Textile Components: premium components for every application
The world market leader in the manufacture of premium textile components has a range of products that is optimally tailored to customer needs and includes all quality-relevant components for spinning applications. These high-quality and reliable products are marketed under the following established lines: Accotex and Texparts (staple fibre spinning), Daytex, Heberlein, Temco (filament spinning) and Fibrevision (monitoring systems).

Strategic Portfolio Streamlining in Oerlikon Textile Segment

Oerlikon Neumag adjusts its product portfolio

Pfäffikon/Remscheid/Neumünster, 8.8.2011 – Oerlikon Neumag will in the future focus on its main business activities like BCF, Staple Fiber and selected Nonwoven Equipment. On August 5, 2011 Oerlikon Neumag signed

all necessary documents to sell its Carding business (retroactive with effect from April 1, 2011) to the Zhengzhou Hi-Tech Non-woven Technology Co., Ltd, China, a subsidiary company of the Chinese Hi-Tech Group Corporation (formerly China Hengtian Group Co., Ltd.)., one of the leading textile technology groups in China. This transaction is expected to close in the 3rd Quarter 2011. "We are focusing our organization on areas where we are strategically well positioned. There is clearly better development potential for the Carding business and its employees within the Hi-Tech Group due to the growing importance of China market for Carding business and the well established organization and presence of Hi-Tech group in the related business fields in China," said Thomas Babacan, Segment CEO Oerlikon Textile and COO Oerlikon Group.

In the technological field of Carding, the Business Unit Oerlikon Neumag produces special installations and components for nonwovens production, employing about 250 people at three locations in Germany, Austria and Italy. The Carding business of Oerlikon Neumag is independent from the other product lines and does not fit anymore to the business strategy of Oerlikon Textile as it was not able to achieve the targeted profitability levels from Oerlikon Group over the past several years. Therefore, Oerlikon Textile conducted a divestment search process for a new owner with a strategic interest, the Carding capabilities and the ability to manage the turnaround of Oerlikon Neumag's Carding business. After detailed evaluations, a sales agreement with Hi-Tech Group has been achieved. The parties agreed not to disclose the sales price. In the course of executing the sales agreement the respective employees are planned to be transferred to the Hi-Tech Group's local affiliate, too, however with German, Austrian and Italian labour law respectively continuing to apply according to statutory law. All affected employees will be informed appropriately by their site management.

Hi-Tech Group, one of the leading textile technology groups in China, has excellent access to the Asian and especially the Chinese markets as well as a strong infrastructure. In the past Oerlikon Neumag and Hi-Tech Group have cooperated successfully in selected Carding business opportunities by complementing high technology competences of Oerlikon Neumag with certain products of the Hi-Tech Group. "The combination of a large market and local supplier access, competencies in Carding and a wide range of products of the Hi-Tech Group together with the leading technologies of Oerlikon Neumag's Carding unit will create valuable synergies for customers. In addition, Hi-Tech Group is also committed to continuing Carding activities and employment in Europe", said Oerlikon Textile CEO Thomas Babacan.

Mr. Zhang Jie, Chairman of Hi-Tech Group, comments: "We are very confident that the synergies between the acquired Carding unit and our existing nonwoven business will bring benefits to all parties involved."

Being the only major textile machinery manufacturer in China Hi-Tech Group is one of the strongest and largest textile machinery supplier in China and the second largest in the world. Having been in the textile machinery business for over sixty years, Hi-Tech Group enjoys an excellent reputation for its quality products and strong financial strength in the Chinese market. So within the next three years after the acquisition, Hi-Tech Group will make more investments into European locations to enrich the R&D ability and will reduce costs by optimizing resource allocation worldwide. After the acquisition, the Carding unit will be an independent business division and continue its dedication to the traditional markets as a base for high technology products. In addition, Chinese Hi-Tech Group Corporation will ensure that the Carding Division will serve its existing and future customers in the same manner, with quality products still being made in Europe.

After the transaction Oerlikon Neumag will focus on its main business activities like BCF, Staple Fiber and selected Nonwoven Equipment. As a result, the site Neumünster, Germany, is not affected by the sale of the Carding business. "In addition to many operational improvements of Oerlikon Neumag during 2010 and 2011, this strategic step contributes by systematically increasing the profitability of the Segment Oerlikon Textile. Oerlikon Neumag can now fully concentrate on its main business and we ensure that the Carding business is placed with a strategically appropriate parent company in future," says Oerlikon Group CEO Michael Buscher.

OC Oerlikon Management AG,
Pfäffikon Telephone +41 58 360 96 96
Churerstrasse 120 Fax +41 58 360 91 96
P.O. Box www.oerlikon.com
CH-8808 Pfäffikon SZ

Headed for the Next Benchmark

Tomorrow's customer solutions for today's filament manufacturers

Remscheid, May 27th 2011 – To be a "solutions supplier" means to make life easier for customers and to make their success a top priority. Oerlikon Barmag, the world market leader in the field of spinning installations for man-made fibres such as polyester, nylon, and polypropylene as well as for texturing machines, meets this challenge. More than 1,600 employees around the world work every day to create innovative technologies that set new standards – for the customers' progress.

New Yardstick for Efficient Filament Production: WINGS FDY

The spinning installation WINGS (Winding INtegrated Godet Solution), which integrates the drawing unit into the winder and thus enables a low building height, improves the energy balance by about 25 percent even for POY production (polyester, polyamide) and is easier than ever to operate. Now Oerlikon Barmag is offering the WINGS technology for FDY (Fully Drawn Yarn), too. This was achieved by modifying the FDY process and adapting it to a machine that can be operated from the floor, as well as developing and improving various components. The result: The drawing unit and winder can be operated by one person; production sequences, slew rate and energy consumption reach a significantly better standard than conventional FDY systems. This results in even more efficient and profitable FDY production with the proven yarn quality. Around 5,000 WINGS FDY positions have been sold so far, and the first have been installed already. "WINGS FDY is well on its way to becoming what WINGS POY already is: a benchmark for filament production. Our competitive advantage has grown with this innovation," ensures Stefan Kross, head of the Oerlikon Barmag business unit.

Evolution in Texturing: eFK

Oerlikon Barmag's fundamental principle is innovation through evolution: The modular texturing machine eFK is the advancement of its successors such as FK6-1000, MPS and Cocoon. It retained proven elements such as the winder, the pneumatic yarn placer, the ease of handling and the energy efficient godet technology; but with the new modular design, the system moves to the next step in technology, with greater efficiency and ergonomics. The eFK aims to meet essential market requirements at a good cost-benefit ratio: A wide range of variations and options allow adaptation to nearly all production needs having to do with texturing, including those of DTY (Draw Textured Yarn) products. And at the ITMA Barcelona 2011 the next milestone will be introduced: The automatic texturing machine eAFK for even greater quality, efficiency and productivity.

Entering the Carbon Age: WinTrax Fibre Winders

Whether automobiles, airplanes, wind turbines, racing bikes or tennis racquets – light and super-stable carbon fibres are the material of the future for more and more applications. An example: The weight of heavy batteries is balanced with chassis made of carbon fibres in the production of electric vehicles. With the WinTrax, Oerlikon Barmag has developed a winder designed for economic winding of high-quality carbon fibres. Flexibility, perfect package composition, easy operation, minimal maintenance – these benefits have made both the manual and automatic models of WinTrax a worthwhile investment, with the Asian and Russian markets leading the way.

Cutting Edge: Technical Yarns

Oerlikon Barmag considers itself the market leader in the field of technical yarns, too. Various solutions are amongst the most productive and flexible concepts in the global marketplace. The range of applications is wide, reaching from tyre cord, tarpaulin, conveyor belts and geo-textiles, to airbags and safety belts. Regarding space saving, the equipment is state-of-the-art: The new 6LA spinning pack makes a technical yarn machine 25 percent more compact than systems with conventional metal powder filtration – with more than three times the filter area. And with its own engineering, Oerlikon Barmag offers solutions along the entire production chain for the trend geo-textiles.

Emphasis is Always on the Customer: From R&D to Support and Service

Making customers successful with innovations – at Oerlikon Barmag this begins with a clearly defined long-term development strategy tailored to the customers and market, concrete concepts regarding machine technology of the future, and the shortest possible research and development phase. The Oerlikon Barmag technical training centre in

Remscheid contributes by acting as a greenhouse for the leading technologies of tomorrow. Customers can use it, too. And with its engineering services, the company also creates optimal solutions along the entire textile supply chain for each customer and provides comprehensive Support and Service. But there is one thing that always stays the same, according to Stefan Kross: "The motto: 'Time to market' always applies."

Facts & Figures

Name:	Oerlikon Barmag
Head office:	Remscheid
Locations:	Remscheid, Chemnitz (Germany), Beijing, Suzhou, Wuxi (China)
No. of employees:	approx. 1.600
BU leader:	Stefan Kross

About Oerlikon

Oerlikon (SIX: OERL) is a leading high-tech industrial group specializing in machine and plant engineering. The Company is a provider of innovative industrial solutions and cutting-edge technologies for textile manufacturing, drive, vacuum, thin film, coating, and advanced nanotechnology. A Swiss company with a tradition going back over 100 years, Oerlikon is a global player with more than 16 500 employees at over 150 locations in 36 countries and sales of CHF 3.6 billion in 2010. The Company invested in 2010 CHF 239 million in R&D, with over 1 200 specialists working on future products and services. In most areas, the operative businesses rank either first or second in their respective global markets.

For further information visit:
www.barmag.oerlikontextile.com

For further information please contact:

Susanne Beyer
Corporate Communications
Tel: +49 2191 67-1526
Fax: +49 2191 67-70 1526
Susanne.beyer@oerlikon.com

André Wissenberg
Marketing and Corporate
Communicationsions Oerlikon Textile
Tel: +49 2191 67 23 31
Fax: +49 2161 2847 2331
andre.wissenberg@oerlikon.com

A.T.E. conducts a seminar at Ramco Group

Mr Laxmikant Rathi, Vice President – Accessories & Exports, A.T.E. Enterprises, addressing the senior technical executives at Ramco Group.

A.T.E. has been organizing a series of lectures and seminars for dissemination of information on the latest developments and trends in textile technology. As a part of this initiative, A.T.E. has recently conducted a one day in house seminar at Ramco Group, Rajapalayam, Tamil Nadu, on the theme of "latest developments in spinning accessories".

The seminar covered recent developments in card clothing. It highlighted the latest developments in Trützschler Card Clothing (TCC) with the latest "Novostar plus" raw material and "FG" profile and 1.75 mm height cylinder wire. The speaker stressed the fact that with consistent performance and minimum or no maintenance, TCC wire is being increasingly preferred for all makes of high production cards.

The seminar also dwelt on the need and importance for value addition in spinning and highlighted the salient features of SKAAT fancy yarn attachments to produce specialty yarns, just the kind of products that are growing in demand for use in fabrics such as denim, shirting, knit and home textiles.

Considering the overarching importance of quality, a seminar is incomplete without covering the decisive role played by testing equipment. In the testing equipment section, MAG testing equipment unquestionably takes centre stage for its high quality in testing fiber, yarn, fabric and garments to conform to various international standards. The seminar in particular focused on products like Elewrap, G-trash, Digimic and Abra tester from MAG. The Ramco group

appreciated most of the products like Abra tester, which was jointly developed by MAG & SITRA.

The event was attended by more than 30 senior technical staff of Ramco group, including Mr V Raju, Senior GM – Ramco Group, Mr D Raviraja, DGM – Sri Ramco Spinners, Mr Muthuraj, DGM – Sudarsanam Spinning Mills, Mr S Shanmugavel, GM – Sandhya Spinning Mills, Mr A Balamurugan, DGM – Sri Vishnushankar Mills, Mr Mohanarangam, DGM – Group Quality Control Dept, apart from maintenance & QC managers.

The Ramco group management appreciated A.T.E.'s concerted efforts in updating the textile industry of latest developments in textile engineering.

Synthetic Rayon Export Promotion Council (SRTEPC)

INTEXPO – Unique Indian Textile Exhibition in Malaysia

Keeping in view the emerging opportunities for India's Textile exports to the ASEAN region, The Ministry of Textiles has announced the holding of combined Indian Textile & Clothing Exhibition – "INTEXPO" in Kuala Lumpur, Malaysia from 22-24 November 2011. With The Synthetic Rayon Export Promotion Council (SRTEPC) as the Lead Council and participation of leading Textile councils and organisations, INTEXPO is one of the pioneering efforts made by Indian Textiles Industry to showcase the entire range of Textiles, Garments and accessories on a common platform in the ASEAN region.

The Exhibition is being organized in the context of the India-Malaysia Comprehensive Economic Cooperation Agreement (CECA) which has come into effect from 1st July 2011. "The Agreement is likely to throw up myriad trade opportunities for both sides and would give a boost to India's 'Look East' Policy. Trade between the two countries reached $10 billion in 2010-11, an increase of 25% from the previous year. It is expected that the implementation of this Agreement will boost bilateral trade to US15 billion dollars by 2015. Malaysia's ASEAN 'plus' tariff concessions to India are on 140 items including cotton garments, Man-made staple fibres and apparel articles which all are of considerable export interest to India." said Smt. Rita Menon, Secretary to the Government of India, Ministry of Textiles.

INTEXPO will be co-located with INTRADE 2011 – Malaysia's largest trade event organized annually by the Malaysian External trade Development Corporation. An elaborate publicity campaign has been drawn up to publicize INTEXPO in Malaysia and the neighbouring ASEAN markets. About 200 leading buyers from various ASEAN countries will also be hosted by the organizers. The Exhibition has the active support of the Indian High Commission in Kuala Lumpur, the Malaysian Authorities and the various Textile/Trade Associations of Malaysia like Malaysian Textile Manufacturers' Association, Malaysian Indian Chamber of Commerce & Industry, etc.

About 100 Indian leading textile companies are expected to participate in INTEXPO. The Expo offers a unique opportunity for the Indian companies to display their entire range of products, meet leading buyers from Malaysian and other neighbouring countries and conclude profitable business deals.

Textiles plays an important role in the Indian economy. India is today the largest exporter of yarn in International markets, largest producer of Jute, 2nd Largest producer of Silk, 3rd Largest producer of Cotton and Cellulosic Fibre / Yarn, 5th Largest producer of Synthetic Fibres/Yarn and 23% of the World's Spindle Capacity in installed in India. INTEXPO will help International customers appreciate India's supply capabilities and enable Indian exporters to meet new clients from all over the world.

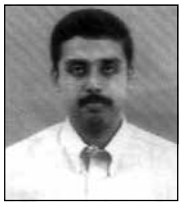
Textsmile

Power of Maths: One box wasn't opening.
Lawyer came, applied all Laws but it didn't open
Chemist came, applied all reactions but it didn't open.
Physician came, applied all forces but it didn't open
Then, Mathematician came and said "let us assume the box is open"

TMMA Elects New Office Bearers

Mumbaii: S. Hari Shankar has been elected as the Chairman, Textile Machinery Manufacturers' Association (India) JMMA) for the year 2011-2012. He has been the Member of its Executive Council since 2001-2002. Hari Shankar is Whole-time Director of Lakshmi Card Clothing, C'tore since 1997.

Prakash Bhagwati has been elected as the first Vice-Chairman for the year 2011-2012. He has been the Member of its Exec. Council since 1998-1999. He is Chairman of InspirOn Engineering Pvt. Ltd., Ahmedabad.



Jayaraman Anand, has been elected as the Second Vice-Chairman for the year 2011-2012. He has been the Member of its Exec. Council since 2006-2007. He is the Managing Director, Veelay Lakshmi Engineering Works Ltd., Coimbatore.

Pratik Rajnikant Bachkaniwala has been elected as Hon. Treasurer for 2011-2012. He has been a Member of its Exec, Council since 09-2010. He is Director, Himson Textile Engineering Pvt. Ltd., Surat.

LRT - A Ring Traveller Specialist

To be competitive in today's market you need a partner who understands your needs and the market environment. THINK LRT. – We help you to stay ahead of your competition.

Lakshmi Ring Travellers (Cbe) Limited (LRT) offers you distinct advantages by offering consistent quality at competitive prices. Coupled with worldwide sales and service network you can expect nothing but the best in terms of quick deliveries and efficient after sales service. Not surprisingly, LRT is the largest manufacturer of Ring Travellers in the world catering to the requirements of over 4500 spinning mills in 45 countries worldwide.

LRT is part of the well known Lakshmi Machine Works (LMW) group. LMW is one of the largest textile machinery manufacturers in the world manufacturing the complete range of textile products. As part of this dynamic group LRT has enormous resources – technology, expertise and experience at its command.

LRT has a modern production facility which ensures consistent quality. Raw materials are procured from the best sources in the world. LRT houses state of the art testing facilities for measuring hardness, friction, micro structure analysis and surface finish.

LRT has a wide range of travellers to meet the spinning requirements of any count or material. This makes LRT a One stop source for all their customers.

Lakshmi Ring Travellers are manufactured as per the specific requirements of the industry. Today, high speed spinning machine require equally high speed travellers. And LRT, by virtue of their strong R & D and a highly involved commitment to the industry provides products that keep pace with the growth of the industry.

LRT has received the export excellence award in accessories sector from Indian Textile accessories and machinery manufacturers' association (ITAMMA) in 2010 for highest overall exports in accessories sector from India.

Over the years LRT has developed many profiles and finishes and today LRT can boast of providing the best products available anywhere in the world. Express finish which was recently developed by LRT is in great demand due to its very high performance In terms of Traveller life and yarn properties.

Looking forward to meeting you in ITMA 2011 at Hall No 2 , Stall No C161.

Product Focus at ITMA 2011
EXPRESS Travellers – Setting new Bench marks in Performance

Lakshmi Ring Travellers (Cbe) Limited (LRT) has introduced EXPRESS Travellers, a technologically advanced product which will be in display at ITMA 2011.

Express Travellers is a breakthrough Travellers which has set industry benchmark in performance of Ring Travellers. This is a result of years of R&D in this sophisticated field of Ring Travellers by LRT.

Express Travellers are manufactured with unique process for better and uniform microstructure. Further

to that an advanced coating has been done with fine dry lubricants. This combination facilitate in attaining:

Higher speeds: In order to cater to the spinner's requirement of higher productivity, Express Travellers run at maximum spindle speeds, more than any other Travellers available in the market today. Better Glidability: Due to better gliding properties of this Traveller in the ring the heat generated is less thereby improving the yarn properties. This property of Express Traveller gives better smooth running of Traveller on rings.

Lesser heat generation: The heat generated during running of Travellers reaches 300°C and this has to be dissipated in milliseconds into the air and through the Traveller. Due to improvement in metallurgical structure, Express Traveller creates lesser heat and hence lesser Traveller burn out.

Improved wear resistance & hence longer life: Express Travellers have excellent wear resistance, hence has longer life . The Hardness of Express Travellers is the same as the existing finishes.

Enhanced corrosion protection: Due to advance coating, the Traveller is protected from corrosion.

Achieve maximum speed in synthetics quickly: Generally in synthetic and blends, the slow speed running time after Traveller changing is a must. The time duration of changes is depending upon the spinning parameters. With Express Travellers, minimum slow speed duration is possible after Traveller change which improves the productivity of the mills.

UGC Sponsored National Seminar on "Apparel Merchandising Management"

Theme	:	Apparel Merchandising Management
Date	:	12 & 13' January 2012
Venue	:	College Auditorium Dr. B.M.N. College of Home Science, 338, RA. Kidwai Road, Matunga, Mumbai - 400019.
Organisers	:	Department of Textile Science & Apparel Design
Convenor of the Seminar	:	Dr. Shilpa P. Charankar
Contact	:	Organising Secretaries Mrs. Veena Verma - 9821112111 Mrs. Alka Pant -9892806673

Dr. Bhanuben Mahendra Nanavati College of Home Science
338, R.A. Kidwai Road,
Matunga, Mumbai - 400019.
Tel:022- 24095792 Fax: 022 - 24026511
Email: smesedu@gmail.com, veenaver@gmail.com
Website: www.bmncollege.com

World Cotton Research Conference – 5, 2011

Date	:	November 7-11, 2011
Organized by	:	ISCI, Mumbai in collaboration with ICAC, Washington under the auspicious of ICAR, New Delhi
Venue	:	Renaissance Mumbai, Hotel & Convention Centre, Powai, Mumbai
Registered Delegates	:	Overseas -150 Indian – 450
Facilities for exhibition stalls	:	30 (Rs.1.5 lakhs each) (20 already sold out)
Sponsorship	:	Rs. 20 lakhs, 15 lakhs, 10 lakhs & 5 lakhs
Advertisement	:	Rs. 1 lakh, Rs.75,000/-, Rs.50,000/- & Rs.25,000
Contact	:	Tel: 022-24127273
Mobile	:	9423075781 (Dr. K.R. Kranthi) 9967496634 (Dr. R.H. Balasubramanya)
Web-site	:	http://www.wcrc-5.com

Formulation of Regulations in Respect of Safety Industrial Work-wear (Heat & Flame) prepared by Center of Excellence (Protective Textiles), NITRA

Government of India firmly believes that without safe, clean environment and healthy working conditions, social and economic growth cannot be achieved and that safe and healthy working environment is recognized as a fundamental human right.

The changing job patterns and outsourcing of work are posing problems to management of occupational safety and health risks at workplaces. New safety hazards and health risks will be appearing along with the transfer and adoption of new technologies. In addition, many of the well-known conventional hazards will continue to be present at the workplace till the risks arising from exposure to these hazards are brought under adequate control. While advancements in technology have minimized or eliminated some hazards at workplace, new risks are emerging in their place which needs to be addressed. Particular attention needs to be paid to the hazardous operations and of employees in risk prone conditions such as persons working in close vicinity of fire and high degree of radiant heat in industries such as Iron and Steel foundries, Nonferrous foundries, Boiler rooms, Ceramic, Glass, Rubber & Chemical plants, Brick-firing, Electrical utilities, Mining sites, Laundries and commercial kitchens.

The furnaces and molten metal create a hot working environment resulting in dehydration, heat cramps, heat exhaustion and heat stroke; may also develop eye cataracts from IR & UV radiation which emit when pouring white hot metal. The workers may come into contact with molten metal splashes and electromagnetic radiation. Splashes, sparks, radiant heat and radiation from molten metal can result in serious burns and eye damage. Therefore it is important that such workers are provided with properly designed and guarded Personal Protective Equipment (PPE).

A recent survey of 17 well organized large primary Aluminum and Steel foundries across India conducted by CoE (Protech), NITRA for safety practices followed by them to protect their workers against various hazards revealed that some of them provide to their own workers fire retardant chemical coated cotton work wear in addition to other PPE; while for subcontract workers other PPE is provided by the contractors but not the protective work wear. It is worthwhile to mention here that the subcontract workers are the ones who work in very high risk areas but they are not provided with any sort of safety protective work wear and are exposed to severe risk of major accidents which may cause death. Many of the factories seem to be ignorant on the safety practices since there are no strong directives from government and insurance companies. The labour unions are also completely ignorant of the various options available for protection. It appears from the survey that many of them are not aware of the technological developments that have taken place in the production of work wear which protect from radiant heat and flame.

From the above survey, with high level of confidence, one could infer that the safety aspect of workers working in medium, small and tiny factories must have been dismally poor.

In view of prevailing unsafe working conditions in the industries, there is an immediate need to closely scrutinize the existing industrial acts and amend them to ensure that the Indian workers as in the case of developed countries like EU and USA are well protected against various types of hazards and high risk environments. Simultaneously BIS will have to revise some of the standards and develop new standards based on the technological developments. Once these sets of measures are undertaken by the competent authorities, they should be strictly enforced through an efficient and effective mechanism as Government of India firmly believes that safe and healthy working environment is the fundamental human right of every citizen of this country.

This report is prepared by CoE (Protech), NITRA at the instance of Ministry of Textiles, GoI to address the issues related to workers?? safety while working in hazardous and high risk environments. The report dealt with issues related to workers working in the close vicinity of fire and high degree of radiant heat.

The first section of the report deals with the harmful effects of occupational heat on human body and measures to control it. The types of hazards and safety & health measures to be observed by three major industries?? Iron & Steel, Oil & Gas and Chemical are also given in this section.

An overview of directives and enforcement mechanisms pertaining to PPE in EU, UK, USA, Japan, Australia, Canada, China, South Africa and Brazil and the approach for standardization of PPE by ISO, EU and USA and the standards developed by these organizations are described in second and third sections respectively.

The present Indian scenario with regard to workers' safety, GoI initiatives to create 'green jobs', the goals, objectives and action programs formulated by Ministry of Labour and Employment under National Policy on Safety of Workers are highlighted in Section four. The Section also brought out a list of 16 legislations which are to be amended. Draft amendments in all the 16 legislations are also suggested. The standards (technical regulations) on protective work wear against heat, flame and electrical arc are also included in the Section. Wherever IS standards are not available it is suggested to adopt ISO/EN standards. Standards proposed to be incorporated in 16 legislations are given below:
ISO 11611: Building and etc.Act, 1996,
Dangerous Machines Act, 1983
ISO 11612: Boiler Act, 1923,
Contarct Labour Act, 1970
ISO 14116: Dock Workers Act, 1986
ISO 17491: Plantation Labour Act, 1951
ISO 17491: ISO 14116: Chemical Accidents Rules, 1996
ISO 11612, BS EN 61482-1-2: Iron Ores Mines etc. Act, 1976, Mines Act, 1952
Limestone and Dolomite etc. Act, 1972, Fatal Accidents Act, 1855, Mines and Minerals Act, 1957, Biomedical Waste (Management & Handling) Rules, 1998
ISO 17491, ISO 11612,
BS EN 61482-1-2: Manufactures, Storage etc. Act Chemical Rules 1989
ISO11612 BS EN 61482-1-2,
ISO11611: Factories Act, 1948
ISO11612 BS EN 61482-1-2,
ISO 11611, ISO 17491: Industrial Employment (SO) Act, 1946

The action plan to implement the suggestions made in the above section is given in Section 5. The action plan begins with vetting of the suggestions given in the report by all stakeholders i.e. policy makers (central & state governments); industry (manufacturers, & end users); BIS, Legal experts, Trade Unions, Test Houses, Insurance companies, others such as R&D institutions and universities. Further to give wide publicity to the intentions of the Ministry of Textiles and seek public opinion it is suggested that the report may be uploaded in the ministry's web site and circulate the report to all chambers of commerce and trade associations and leading print and electronic media. BIS should give top priority to prepare the required standards and it should be impressed upon the Ministry of Consumer Affairs, Food and Public Distribution to bring the protective industrial work wear under ISI label. The four ministries i.e. Ministry of Textiles, Ministry of Labour and Employment, Ministry of Law and Justice and Ministry of Consumer Affairs, Food and Public Distribution should join together to push the proposal to the Parliament Secretariat for necessary action for tabling before the august houses. The action plan also includes conducting a series of workshops, seminars and training programs by CoE (Protech), NITRA in association with Ministry of Textiles and all stake holders. The programs will focus on the issues like sensitizing the user industry to adopt safe work practices, promote manufacture of state of art safety work wear and educate the stakeholders on standards, quality evaluation and latest developments.

HOHENSTEIN

Hohenstein India successfully organized an information seminar about Oeko-Tex® and Eco Passport Certifications in Ahmedabad on 20.07.2011

In recent years, there has been a great increase in awareness about the importance of human friendly textiles and subsequent growth in demand for such products in the market. In the context of such development, Hohenstein India Pvt Ltd, which is the official certification body for Oeko-Tex® Standard 100 in India, conducted a seminar at Country Inn & Suites, Ahmedabad on 20th July, 2011. This was done to engage and foster better interaction with members of the textile and dyes industry regarding Oeko-Tex® and current trends in textile quality & technical compliance.

The objective of holding this seminar was to increase awareness about quality standards and to discuss means of greater adoption of standardisation in the Indian textile industry. The goal was also to discuss the technicalities involved and to clarify doubts and suspicions in the presence of key personalities of the textile industry. A brief overview of other services offered by Hohenstein was also presented at this seminar.

Oeko-Tex® is a product certification with exclusive focus on the human ecology aspect of textile products and processing. Being certified for Oeko-Tex® Standard 100 allows for the use of the label "Confidence in Textiles – Tested for harmful substances". This wording generates confidence in end users and they tend to choose Oeko-Tex® certified articles since the label signifies safety against substances that are harmful to human beings.

Hohenstein India Pvt. Ltd. is a subsidiary of Hohenstein Institutes, Germany and the official representative of International Oeko-Tex® Association in India. Hohenstein is a premier German research institute having wide ranging interests in testing, evaluation, research, inspection, auditing, certification etc. for a wide range of products and services in Textiles like fibres, garments, home-textiles, accessories, dyes/ chemicals, technical textiles etc.

In the opening session, Mr. Vinay Chavan (Marketing Executive) presented some brief thoughts on the history of Hohenstein Institutes and their philosophy. Hohenstein Laboratories have different facilities available in various fields. Chemical testing, clothing technology (fit & workmanship), consumer tests, function and care etc. are some of them. Hohenstein is also pioneer in providing various certifications and quality labels like Oeko-Tex® Standard 100 and Oeko-Tex® Standard 1000, Eco Passport certificate, UV protection, Personal Protective Equipment, RAL, Monitored Hygiene in Hotels, Testing of Medical Compression Hosiery, Skin Friendly, Barrier Textiles, Thermal Insulation etc.

The Branch Manager for Ahmedabad office, Mr. Sumit Gupta (Asst. Manager Technical Compliance) presented about Eco Passport, which was well received by the members of the dyes and chemicals industry. The Eco-Passport can be issued for textile dyes and auxiliaries. It serves as a neutral proof of these products' suitability for the production of textiles that are harmless to human health such as Oeko-Tex® certified articles.

In the second session, Mr. Gupta presented the details about Oeko-Tex® testing and the technicalities involved in the testing and certification process. The test criteria, limit values, requirements as well as the impact of Oeko-Tex® certification on international business were also discussed in details. It was highlighted that Oeko-

Tex® test criteria also complies with the relevant chemicals listed in Annexure XVII of REACh. The limit values are also upgraded every year to meet the latest developments in the field of human friendly textiles as well as the legal requirements.

Oeko-Tex® standard 100 Certification is applicable for all types of textile items including fibre, yarn, fabric, garments, home textile items, accessories like sewing threads, embroidery yarns, wash care labels, buttons, zippers, interlining fabrics, buckles etc. The number of buyers insisting on Oeko-tex certification has been consistently increasing since 1992, the year this concept was incorporated.

Since Oeko-Tex label is a widely recognized marketing tool worldwide, there are certain regulations regarding the use of the same. The last presentation in the seminar highlighted the correct use of label in marketing aids. The correct use of the label helps the manufacturers to enhance the salability of their certified products and can act as an additional marketing tool.

The interactive Q & A session that followed the presentations was very lively and the various queries of the participants relating to a wide range of issues pertaining to the textile industry were resolved by Mr. Gupta and Mr. Chavan. The organizers were also available for personal discussions and more specific issues were addressed personally.

Contact addresses:

Hohenstein India Pvt. Ltd.
604-B, Regency Plaza, Above Gloria Restaurant, Near Madhur Hall
Anand Nagar Cross Roads, 100 Feet Road, Satellite
Ahmedabad- 380015. INDIA
Telefon/Phone: +91 79 40373090
Telefax: +91 79 26854510
Mobile: +91 9898475339
E-Mail: g.sumit@hohenstein.in
Homepage: www.hohenstein.in

Hohenstein India Pvt. Ltd. (Mumbai Office)
3rd Floor, Asha House, 28 Suren Road,
Andheri-Kurla Road, Mumbai 400 093, INDIA
Telefon/Phone: +91 22 26823561
Telefax: +91 22 26823418
E-Mail: jacob.k@hohenstein.in
Homepage: www.hohenstein.in

A.T.E. – aiming high in synthetic segment

Spreading its wings beyond its traditional strong area of short staple and cotton textiles, and after extending to technical textiles a few years ago, A.T.E. has now set-up a new Synthetic Machinery Division.

A.T.E. which has a formidable presence in textile engineering with end-to-end solutions from ginning to garment and technical textiles, is aiming to emerge as a key player in the synthetic segment as well, which is growing rapidly fuelled by increasing consumption of synthetic fibre and filament in apparel, functional and technical textiles applications.

A.T.E. already represents Fleissner (Germany) a part of the Truetzschler Group for supplying polyester and carbon staple fibre making lines, so it is making its debut into the synthetic sector on a strong footing. The company plans to tie-up with other world class manufacturers as well to be able to supply a complete range of machinery.

Fleissner staple fibre line

THE TEXTILE ASSOCIATION (INDIA), MUMBAI UNIT

Organises Half Day Seminar on

INNOVATION IN TEXTILE PROCESSING

Mumbai Unit

Date : Thursday, 13th October 2011 **Time :** 03.00 p.m. to 08.00 p.m. (Followed by **Cocktail & Dinner**)

Venue : Dombivli Gymkhana, P-9, MIDC, Phase-I, Dombivli (E) – 421 201 Dist: Thane.

We are pleased to inform that The Textile Association (India), Mumbai Unit is organizing a Half Day Seminar on "Innovation in Textile Processing" on Thursday, 13th October 2011 at Dombivli Gymkhana, P-9, MIDC, Phase-I, Dombivli (E) – 421 201 Dist: Thane.

Dombivli is one of the leading Textile Processing Cluster covering Dombivli, Badlapur, Ambernath and New Mumbai territories. It is engaged in processing 100% cotton (Woven / Knits / Hosiery) to larger extent in addition to Polyester / Cotton, Polyester / Viscose blended fabric and cotton, viscose, Polyster yarn dyeing. Today this cluster is catering mainly to domestic market and to certain extent to overseas market – Dress Materials, sarees and processing for garment industry. It carried out toll manufacturing for many major textile companies. Although dyeing is major in Processing, printing is also done to considerable extent. Although there is significant development in this cluster it is the need of the hour that the processors should update in the field of infrastructure, innovative processes, environment, pollution control, safety and modernisation to enable them to meet the challenges in domestic as well as global market.

Keeping in view these requirements, The Textile Association (India), Mumbai unit has planned a half-day seminar at Dombivli.

The topics were specially selected after discussions and understanding the requirements of Dombivli processors. The Seminar will cover the practical applications as well as the new developments in the same fields. The seminar will be addressed by the experts.

TAI Seminar:
The TAI, Mumbai unit have set high tradition of organizing very successful conferences/seminars. To create awareness in the Dombivli region TAI, Mumbai Unit decided to hold the Half Day Seminar "Innovation in Textile Processing".

Chief Guest: Mr. S. Balaraju, Joint Textile Commissioner, Ministry of Textiles, Govt. of India,

Topics to be covered:
- Cotton / Polyester Blends - Exhaust Dyeing – Changing Market Trends
- Low Temperature Bleaching – The New Trend
- Digital Printing
- Efficient Effluent Treatment System
- Innovative Printing Styles on 100% Cotton & Blended Fabrics

PANEL DISCUSSION: "Prospects of Upgradation of Textile Processing Cluster covering Dombivli, Ambernath, Badlapur & New Mumbai region".

Moderator: Dr. G. S. Nadiger, Research Advisor, BTRA

The Panel Discussion will be an interactive open house session wherein participants' queries will be answered by the expert panel.

Your participation in this seminar by way of sponsorships, Advertisements and delegates would provide a common platform to meet the expert's from industry as well as the exchange of views on the technological developments in the field of textiles will be highly valuable.

We appreciate your support extended so far to The Textile Association (India), Mumbai Unit and it will be our pleasure to invite you to be part of the event to contribute towards the betterment of the Textile Industry.

V. C. GUPTE	**R. G. MALVANKAR**	**A. K. NARKAR**	**R. R. Mehta**
Chairman	Vice Chairman	Jt. Hon. Secretary & Convener	Jt. Convener

Delegate Fees: ■ Members of TAI: Rs. 300 /- ■ Non Members: Rs. 500 /-

For more information please contact: **Hon. Secretary**

THE TEXTILE ASSOCIATION (INDIA), MUMBAI UNIT

Amar Villa, Behind Villa Diana, Flat No. 3, 3rd Floor, 86 College Lane,
Off Gokhale Road, Near Portuguese Church / Maher Hall, Dadar (W), Mumbai – 400 028
Tel: 022- 2432 8044 / 2430 7702 Fax: 91-22-2430 7708
E-mail: taimu@mtnl.net.in / taimu@bom3.vsnl.net.in / taimumbaiunit@gamil.com
Website: www.textileassociationindia.com

7th International Conference on Apparel & Home Textiles

30 Sept. & 1 October, 2011

At India Habitat Centre, New Delhi

Conference Theme

"Make Competition Irrelevant"

The conference allows us to access the collected wisdom, learning and conclusion of the large resource pool which is globally available.

The global apparel manufacturing industry is expected to grow more than ever in times to come. According to an estimate, the global apparel industry will reach a value of US $ 1800 billion by the end of 2011. New business models and competitive strategies are used to enhance profits and growth.

The conference is intended to cover all aspects of the apparel industry, including the problems of small-scale enterprises in the developing world, the barriers which are hindering the growth of this industry, the strength and weakness of the manufacturers in different regions, globalization issues, resource and manpower scarcity, quality of the product, trade laws, adopting new techniques to improve productivity, managing global supply chain and finally changing apparel industry trends with ever-changing fashion.

The conference is expected to foster networking, collaboration and joint effort among the conference participants to advance the theory and practice as well as to identify major trends in apparel manufacturing.

The Convention will be a great opportunity for international trade fraternity to know the dual strengths that India can offer, not only as a great supplier base, but also as a fashion destination for international brand.

Sustainable Development is a thematic area in which OGTC has been working for dissemination of knowledge to eradicate barriers and Raise awareness in the sector.

Eminent Sparkers form Bangladesh, Hong –Kong, India, Sri-Lanka, UK, USA will be presenting papers on topics of interest to Garment Exporters and Garment Manufactures.

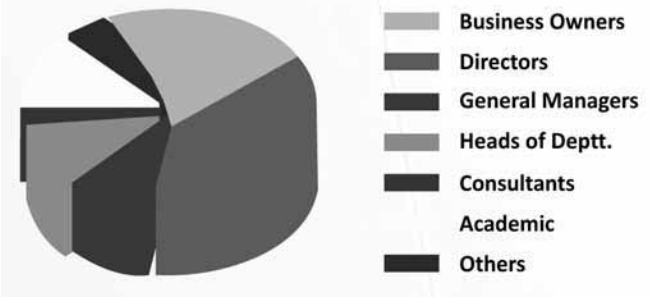
Conference also provides a unique platform to academicians and students in the field of Modeling and Fashion Designing to present the Fashion perspective as they see it. The faculty and students of Department of Fabric and Apparel Science of Lady Irwin College will present the Fashion Show.

OGTC Path Breaker Award for 2010 was conferred on Shri. R.C.M. Reddy MD and CEO, IL & FS for his significant contribution in the Skill Development Programme for Garment Industry and his vision and Guidance for setting up Textile Parks in the Country.

The conference is being sponsored by Apparel Export Promotion Council which is the Apex Body of Garment Exporters of India.

A few quick facts about last year's version ICAHT-10 of the conference: Who will you meet when you attend the OGTC event of 2011?

Last year, the seniority of our delegates was as follows



Key Issues to be Addressed in ICAHT- 11

1) Building Global Competitiveness
2) Carbon Responsible / Carbon Footprint
3) Human Trafficking
4) Innovative Marketing
5) Lean Manufacturing
6) Change Management
7) Product Development & Forecasting
8) Quality as a Culture
9) Responsible Fashion
10) Innovative Finance
11) Supply Chain Management

Who Should Attend

The garment industry owners, their CEO's, industry professionals, academicians, representatives from industry associations, researchers, consultants, service providers, final year and post graduate students etc.

ICAHT-11 Programme at A Glance

September 30, 2011

- **Inauguration**
  - **OGTC Path Breaker Award** to Mr. Manfred Haebig, Director, Private Sector Development at Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
  - **Key Note Address**
  - **Technical Sessions**
  - **Fashion Show** by Students of Lady Irwin College

October 1, 2011

- Special Skill Parallel Workshops
- Summing up.

Invited Speakers

Speaker	Title of Presentation	Country
Amit Kumar & Bimal Arora	Responsible Fashion: Theory and Practice	India
Arvind Sinha	Doing Business With China	India
Bruce Berton	Marketing Strategies to Make Competition Irrelevant	USA
Charles Dagher	Adapting Business assets to Business Needs	Canada
Gunish Jain	Sustaining Change.	India
Habibur Rehman	"Exploriing potential to ease competition: an assessment for the South Asian apparel exporting countries"	Bangladesh
Keerthi Abe	Sew Easy - Success of I E is the success of an Apparel Company in Asia	Sri-Lanka
Lal Sudhakaran	Business Excellence-People Management	India
Paul Collyer	Approach to Skill Development in Garment Industry	UK
Rosey Hurst	Better Businesses and Better Jobs - the future for the Indian Apparel Industry	UK
Sandra McNabb	How Manufacturers Can Utilise Marketing Principles to Counter Competitive Forces.	UK
Sharad Mehra	Garments- Towards Sustainable Viability	India
Yoram Burg	3D Virtual Prototyping - Advanced Technologies Role In Outpacing Competition	USA

Workshops

Speaker	Title of Presentation	Country
Charles Dagher	Structuring Business Assets to Business needs	Canada
GIZ	Renewable Energy	Multiple
James Hoerig	Business Improvement through Shop Floor Control Technology (RFID)	USA
MD. Tell	Garment Finishing/ Product Development / REACH	India
OPTITEX, M & 5, CONSULTANTS	Buyers perspective of Actions on Sustainability & Virtual Fit	Multiple
Payarn Shoghi	HR Leadership without Title & Talent Management	India
Priyanka	Child Labour	India
Roger Thomas	Incentive Systems	South Africa

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1. (A) Members of OGTC Rs. 3000/-
   (B) Textile Association (I)
   (C) Noida/Gurgaon/Apparel Export Cluster
   (D) ATDC Faculty
2. Others Rs. 5000/-
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For Further Details Contact:

Mr. R.C.Kesar,
Conference Chairman 09810091812
Dr. M.L. Gulrajani,
Co-Chairman 011-26514033
Mr. M.K.Mehra,
Conference Advisor 09868200116
Dr. Seema Sekhri,
09868375777
Convener Papers Committee

Conference Secretariat

Y-29. Okhla Industrial Area, Phase II,
New Delhi-110020 (INDIA)
Ph. (91)11- 41609550, Fax (91)11- 26383532
Email. ogtc@airtelmail.in, ogtc@rediffmail.com
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67th All India Textile Conference

Conference Theme

Textile & Clothing-Emerging Global Scenario

4th & 5th February, 2012

at Habitat World, India Habitat Center, Lodhi Road New Delhi

Host : The Textile Association (India)-Delhi

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Email: 67aitc@tai-delhi.org Website: http://www.tai-delhi.org

INDIAN EXHIBITORS – ITMA 2011

1	ADGUMS	H4-A161
2	AIRX	H2-C177
3	AKSONS ENGG	H2-C105
4	ALIL	H2-C270
5	ALMAC	H5-B129
6	AMOTO, INDIA	H1-B150
7	ARVIND RUB - WEB CONTROLS LTD	H6-B130
8	ASHTON	H2-B152
9	ATJ / ATT	H3-B194
10	BAJAJ	H2-C274
11	BAJAJ INDUSTRIES	H2-B155
12	BASANT STEWARTS	H2-B140
13	BATLIBOI - INDIA	H2-C138
14	BLUE MOON MACHINES	H4-C112
15	BODAL CHEMICALS LTD	H4-B120
16	BTRA	H5-D189
17	CENTURY INKS	H6-C147
18	COLOURAGE	H7-A139
19	CONFIDENT ENGINEERING INDIA	H6-D160
20	CVC	H2-B165
21	DFU PUBLICATIONS	H6-D165
22	DHALL GROUP - INDIA	H6-B112
23	DHARA ENGINEERING WORKS	H6-C133
24	DKTE	H5-D187
25	EEPC INDIA	H4-4UL2
26	EMBEE	H7-B115
27	ENERCON - TEXPAC	H2-C121
28	EXILANT TECHNOLOGIES	H1-B156
29	EXOLLOYS ENGINEERING	H4-A166
30	GAYATRI HEALD	H3-C121
31	GAYATRI TEXTILE MACHINES	H2-C169
32	GURJAR	H5-A131
33	ICC	H2-C238
34	INDIAN TEXTILE JOURNAL	H3-B197
35	INSPIRON	H2-D105
36	ISC TEX-TECH P. LTD.	H2-C101
37	ITAMMA	H4-4UL3
38	JAY CHEMICAL INDUSTRIES LTD	H4-A173
39	JAYDEEP INDUSTRIES	H3-B167
40	JAYSYNTH	H4-B111
41	JEYALETSHMI	H2-C261
42	JIVANLAL	H2-C260
43	KAAVYA TECH	H3-C125
44	KEPRA IND	H4-A158
45	KITL	H7-B108
46	KUESTERS CALICO	H6-D147
47	LAKSHMI CARD CLOTHING	H2-C240
48	LEDL	H2-C252
49	LMW	H2-C248
50	LOHIA	H2-C210
51	LRT	H2-C161
52	MAG	H2-A165
53	MAKSTEEL	H3-C165
54	MAYUR REEDS AND HEALDS	H3-B185
55	MDIL	H4-A167
56	MECHANO	H3-C105
57	MIKADO	H3-B171
58	MOKSHA	H2-C159
59	MRS BEARINGS	H2-C253
60	MRT	H7-A132
61	MSB COTS AND APRONS	H2-B159
62	NAVAL	H2-C224
63	NPK - WINDING DRUMS	H1-B155
64	NYTRA BELTS	H2-C104
65	OKOSU	H2-C107
66	OM CORPORATION	H3-C167
67	PARAMOUNT	H2-C271
68	PARAS INTERNATIONAL	H3-C168
69	PEASS	H2-D121
70	PERFECT	H2-C136
71	PERFECT	H2-C209
72	PERFECT BELTS	H2-C256
73	PINCO (INDIA)	H2-C103
74	PRADEEP	H3-B169
75	PRASHANT GAMATEX PVT. LTD.	H3-C201
76	PRECITEX	H2-C165
77	PREMIER	H2-C171
78	PRERNA	H1-A156
79	PROCON - TRANSFORMER & CHOKES - IN	H7-C140
80	RABATEX INDUSTRIES - INDIA	H3-C117
81	RAN	H4-A123
82	RIMTEX	H2-B124
83	RINGMANN	H2-C162
84	ROYAL INDUSTRIES	H3-D114
85	RRIL	H5-C130
86	SAPRU MACHINES	H1-A143
87	SAREX CHEMICALS	H4-B109
88	SAVIO TEXCONE	H2-C115
89	SB DYESPRINGS (INDIA)	H4-D111
90	SCREEN O TEX	H7-A141
91	SEMITRONIK	H6-C117
92	SHEEBA	H4-B146
93	SIDDHI GROUP	H2-C170
94	SIEGER	H1-B120
95	SIMTA MFG CO.	H2-C163
96	SKAAT	H2-C174
97	SLES	H3-D159
98	SOFTECH	H2-C204
99	SPI EQUIPMENTS INDIA PRIVATE LIMITED	H4-C111
100	SPINCAN	H2-C237
101	SUMANLAL & CO	H2-B163
102	SUNNY TEXCONE	H2-B154
103	SUNRISE	H1-B149
104	SUPERTEX	H2-C108
105	SWASTIK GROUP INDIA	H7-A133
106	TECO	H6-C142
107	TECOYA TREND	H3-B195
108	TEX TECH INDUSTRIES, INDIA	H2-C122
109	TEXTILE EXCELLENCE	H3-A126
110	TEXTILE GRAPH	H3-B199
111	TEXTRONICS	H1-B107
112	**TAI – THE TEXTILE ASSOCIATION (INDIA)**	**H5-D191**
113	THE TEXTILE MAGAZINE	H6-D166
114	THE X-AXIS	H2-B120
115	TIMES INTERNATIONAL	H3-C226
116	TMMA	H4-4UL4
117	TST	H3-D179
118	TT	H3-B151
119	UNIQUE GROUP	H3-C145
120	UNITECH	H2-C123
121	WEAVETEX ENGINEERS	H4-C128
122	WINDWELL	H1-B135
123	WINTEX	H2-C191
124	YAMUNA	H4-D104
125	ZBPL	H2-C208

CONGRATULATIONS !!!

Mr. Anil Gupta

Mr. Anil Gupta is recently appointed as Special Director on the Board of BIFR for Sick Industries. In this joyous moment The Textile Association (India) – Central Office congratulate him for scaling new height. TAI is honored and feeling proud for this assignment.

Anil is a Textile Technology Graduate from TIT Bhiwani (Panjab University, Chandigarh).He is Fellow of Institution of Engineers and a recognized Chartered Engineer. He is awarded with Doctorate of Science in Management (accredited) by Dublin University, California, USA

Mr. Anil has born on September 9, 1950, based in Delhi and worked with Mafatlal Group, Birla Group at senior Managerial Positions. He has wide experience in Marketing of Capital Equipments and Manufacturing of Textiles (Yarn and Fabric).

He has rich experience of managing large Industries, rationalization of work force and to achieve results. He is instrumental in reduction of power cost & other expenses & experienced in Gas/FO based Captive Power Plants.

He is well acquainted with the latest development in Textile Machinery. At present he is on the board of First Winner Industries Ltd, Mumbai (A Textile Mill having 150 shuttle-less looms and setting up a readymade garment unit), -Pee. Cee Cosma Sope Ltd., First Winner LifeStyle Ltd & Ram & Shyam Textile Industries Ltd.

He has also served at senior positions (President/Sr. President) with East India Syntex Ltd and Hanil Era Textiles Ltd a 100% Export Oriented Unit having 100000 spindles and OE machines. He was also associated as Management Adviser with Pasupati Spinning and Weaving Mills. He was also on the board of H.P. Spinning Mills Pvt. Ltd. and was Advisor with K.C. Fibres Ltd.

Anil is widely travelled to U.S.A., Europe, Russia, South East Asia, Middle East, Bangladesh, Pakistan, Nepal and in India.

He has organized and attended various National and International conferences and Exhibitions. Attended a conference on Textile Quality Control, The Winning Formula in the 21st Century at Singapore and also participated in Apparel Asia 2005. He has attended ITMA, CITME & OTEMAS (International Textile Machinery Exhibitions).

Anil is a Past President of The Textile Association (India) Delhi. Anil is associated with TAI Delhi since 1980. He has served the association as GC member, Hon. Secretary, Vice Chairman, Chairman & President.

He was also awarded Service Memento in 1998 &, Service Gold Medal in 2008 by the then Minister for Textiles, Govt. of India & Textile Commissioner of India respectively. Life member of Indo French Technical Society, Member (97-98) of Capital Goods Committee of CII.

Anil was appointed Citizen Warden in (98-99) by Lt Governor of Delhi. He was President of Rotary Club of Delhi Rajendra Place and a *Paul Harris Fellow.* He visited Pakistan as leader of Rotary International Youth Exchange Team of Distt 3010. He is a life member of Indian Red Cross Society & Iskcon.

TEXAS TECH UNIVERSITY

Texas Tech's Fibertect® Appears on New Innovations Timesaver List In National Guard Magazine

Fibertect®, a decontamination technology developed by researchers at Texas Tech University, was one of seven new innovations featured in National Guard magazine that already is proving its worth to improve National Guard response time to domestic incidents.

The July cover article, "New Gear," described how the Georgia Guard tested Fibertect® and found that it cut down on time used to set up decontamination shower tents and scrub affected people with water and decontamination solutions. When fashioned into a mitt, Fibertect® could be used to quickly wipe away contaminants.

"To be recognized as an innovative product for our national defense is a milestone in our chemical countermeasures research at Texas Tech," said inventor Seshadri Ramkumar, an associate professor of environmental toxicology at The Institute of Environmental and Human Health (TIEHH). "The need for decontamination wipes, such as the kind we've created here at TIEHH, were a top priority for the Department of Defense. Years ago, we began the research, developed a product and met a top national security issue. The uses for Fibertect® continue to expand."

Using the Fibertect® decontamination mitts, Georgia's CERFP members reported the dry decontamination removed 80 to 90 percent of contaminants they were likely to encounter in the field, the article stated. CERFP stands for Chemical, Biological, Radiological, Nuclear and High Yield Explosive Enhanced Response Force Packages.

After testing, one sergeant with the Georgia Guard urged the National Guard Bureau to add Fibertect® to the CERFP's equipment inventory.

Currently, the Fibertect® wipe is under production by Hobbs Bonded Fibers of Waco and distributed by First Line Technology in Chantilly, Va. The wipe tested features an activated carbon core sandwiched between absorbent layers.

"This recognition provides validation that Fibertect® is a decontamination platform that has the potential to replace current technologies, which are expensive to maintain and deploy," said Amit Kapoor, president of First Line Technology. "Fibertect®, however, is an affordable solution proven effective in response to decontamination disasters and this recognition from National Guard Magazine shows that Fibertect® has the potential to help countless organizations protect their communities."

Suvin gets "the big name"…. Werner International, USA.

Consolidation and collaboration, these are two buzz words to be adopted in order to be competitive and successful in our business areas. India has very good infrastructure and production facilities. However, to have an edge over competition we need to control our operating cost and add value and improvise our productivity, quality at much lower operating costs such as power cost, labour cost, saving on wastage etc.

Werner International is a globally renowned consulting firm since 1939 providing services to textile and apparel industries from cotton seed cultivation, textile manufacturing to retail sector, including mergers and acquisitions and marketing tie-ups. Werner has achieved excellent results and has reached to the unique position almost with no competition in the field of productivity and efficiency improvement due to its excellent training programs and systems.

Suvin Advisors Pvt. Ltd., a Pavitra Group Company, with well-experienced and dynamic team is providing following services:

- Management consultancy services
- Project management consultancy services
- Construction management consultancy services

In line with collaborative approach & partnering with the best in the specialization, Suvin has joined hands with Werner. The collaboration will immensely benefit the Indian textile industry by providing value added services such as bench marking assignments, modernization studies, technical audits, mergers & acquisitions and strategic tie-ups.

With global knowledge base and proven track record of Werner for decades, along with in-depth knowledge of Suvin, this collaboration would facilitate value added returns to the investors. Suvin & Werner with their profound knowledge base have come together to meet the dynamic demands of the rapidly expanding global and domestic industry at competitive levels.

Press Conference on 28th July, 2011
Attendees:

Werner	-	Mr Alain Mathieu, Mr Manohar Kanitkar
Suvin	-	Avinash, Mukund, Prashant, Girish, Nilesh, Parinita and Shaila
Press	-	Indian Textile Journal - Mr. Joseph Journal of The Textile Association – Mr. Soma Textile Excellence – Mr Gregory of Textile Excellence Colourage – Mr. Radhakrishnan

Textiles volumes are shifting South-East Asia

Rising costs in China are sending more buyers to South-East Asia

"Fashion is a form of ugliness so intolerable that we have to alter it every six months. "Oscar Wilde's quip now sounds hopelessly out of date. Fashions change far more often than twice a year. And the rage trade is as footloose as its customers are fickle. It goes wherever clothes can be made cheaply and reliably. Until recently, that meant China. But as Chinese wages soar, buyers are looking elsewhere. South-East Asia could be the next big thing.

China still dominates the business. It supplies nearly half of the European Union's garment imports and 41% of America's. But more orders are shifting to lower-wage economies such as Cambodia and Vietnam, where garment factories are mushrooming. Vietnam is already the second-largest supplier of clothes to America.

The new tigers are still cubs. They often have to import fabrics from China to stitch into clothes, so their transport costs are high. For buyers in a hurry, it is hard to beat China's mix of scale, speed and flexibility; Suppliers in South-East Asia are all clearly behind. There are capacity issues and also volume of scales not available, therefore it is very difficult to ignore China. Over a period of time last many years very huge capacities are built in China.

One way to catch up would be to knit together textile and garment producers in the Association of Southeast Asian Nations (ASEAN) to create a regional supply chain. Vietnam does not produce denim, but Indonesia does, and its denim can be exported tariff free within ASEAN to sew into jeans. This sort of partnership, promoted by USAID, America's aid agency, is attractive to fashion buyers who prefer an integrated, one stop service. It is also a step towards the single market that ASEAN is supposed to turn into by 2015.

The idea has been knocking around for a while, but has been given a jolt by China's rising wages. Since mid – 2010 the price of American garment imports has risen by around 10%, partly because of high cotton and oil prices but also because of Chinese wage inflation.

Last year leading American fashion retailer, vowed to cut the share of Asian goods it sourced from China from half to one third, within 18 months. Other global brands are following suit. Every company is serious about it and considering alternative source of supplies then China ultimately reduce the depends on China.

ASEAN manufacturers are forming alliances. For example, owners of textile mills in Bangkok, ships his pre-dyed fabrics by road to neighboring Cambodia, where another factory cuts and sews them into summer blouses for Benetton, an Italian brand.

To compete with China, ASEAN needs to make it easier to move goods around. New roads and railways, plus faster customs clearance, all help. But infrastructure bottlenecks can delay shipments. This is a no-no situation for fast fashion. Winter frocks delivered the spring are worthless. Timely delivery is the only success formula for fashion.

China still has plenty of cheap labour in northern and inland cities, far from the overheated coastal boomtowns. But as it grows richer, wages will rise in the hinterland, too. Its factories will continue to churn out clothes, but they will increasingly shun simple items, such as polo shirts.

Even Chinese firms are starting to outsource low end clothes manufacturing to Vietnam and Cambodia, and India. India can also be a major alternative but in India there is a volume problem and composite manufacturer who have all facilities under their control are very few. Therefore shipment delays are possible from India.

Hence the ASEAN situations are heading for change where the capacities will be distributed at various locations at various countries.

Sourced and Compiled by
Mr. Arvind Sinha
CEO & Chief Advisor
M/s. Business Advisors Group
Cell : 9820062612
Email : arpsinha09@gmail.com

TEXTILE MACHINERY MANUFACTURERS' ASSOCIATION (INDIA)

Citation of the Export Excellence and R&D Awards 2010-11

The Association's Export Awards Scheme covers the following categories of Awards Merit Certificates viz.

1) Apex Export Award
2) Segment Export Awards for each of the major Sectors of the
   Textile Machinery Industry i.e.
   (i) Textile Machinery Sector
   (ii) Parts and Accessories Sector
   (iii)Instruments Sector
3) Special (Category-wise) Export Awards
4) Two Awards for Small Scale Sector – One for Exporters of Textile Machinery the other for Exporters of Parts and Accessories
5) Certificate of Merit to Merchant Exporters

The Association also presents Research and Development Awards for indigenous development of new technology/processes under different categories in the field of Textile Machinery Industry.

1) EXPORT EXCELLENCE AWARDS:
The Association received eleven nominations for Export Excellence Awards These nominations were evaluated by the Awards Committee of the Association and selected the winners

a) ***Apex Export Award :***
Winner of the Award is : **Lakshmi Machine Works Ltd., Coimbatore**
During the year 2010-11 Lakshmi Machine Works Ltd. exported Textile Spinning Machinery and Parts to the tune of Rs.221.68 Crores which formed 15% of the total turnover. The countries to which they have exported to are China, Indonesia, Bangladesh, Turkey, Tanzania, Sri Lanka, Thailand, Egypt etc.

Recipient of the Award is : Mr. C. Arunachalam, General Manager-Exports of the Company

b) Segment Export Awards :
i) Machinery Sector :-
Winner of the Award is: **Kusters Calico Machinery Ltd., Vadodara**
During the year 2010-11 Kusters Calico Machinery Ltd. exported Textile Processing Machinery to the tune of Rs.12.29 Crores which formed 45% of the total turnover. The countries to which they have exported to are Turkey, Indonesia, China, Bangladesh etc.

Recipients of the Award is : Mr. Dipak N. Shah, Director and Mr. Venkat Reddy, Managing Director of the Company

ii) ***For Parts & Accessories Sector :***
Winner of the Award is: Inspiron Engineering Pvt. Ltd., Ahmedabad
During the year 2010-11 Inspiron Engineering Pvt. Ltd. exported Textile Machinery Parts and Accessories to the tune of Rs.10.89 Crores which formed 23% of the total turnover. The countries to which they have exported to are Germany, Italy, Netherland, Spain, Indonesia, Brazil, Bangladesh etc.

Recipient of the Award is : Mr. P.K. Bhagwati, Chairman of the Company

C) Special Export Awards :-
i) Spinning Machinery Sector :-
Winner of the Award is: Kirloskar Toyoda Textile Machinery Pvt. Ltd., Bangalore
During the year 2010-11 Kirloskar Toyoda Textile Machinery Pvt. Ltd. exported Spinning Machinery to the tune of Rs.29.20 Crores which formed 19% of the total turnover. The countries to which they have exported to are Japan, Vietnam, Bangladesh etc.

Recipient of the Award is : Mr. T. Parabrahman, Managing Director of the Company

ii) Weaving Machinery Sector :-

Winner of the Award is: Peass Industrial Engineers Pvt. Ltd., Navsari

During the year 2010-11 Peass Industrial Engineers Pvt. Ltd. have exported Weaving Machinery to the tune of Rs.13.75 Crores which formed 23% of the total turnover. The countries to which they have exported to are Indonesia, Nepal, Vietnam, China, Bangladesh, Iran, Turkey, Philippines etc.

Recipient of the Award is : Mr. P.V.K. Nambiar, General Manager of the Company

iii) Processing Machinery Sector:-

Winner of the Award is: **Dhall Enterprises & Engineers Pvt. Ltd., Ahmedabad**

During the year 2010-11 Dhall Enterprises & Engineers Pvt. Ltd., have exported Processing Machinery to the tune of Rs.8.28 Crores which formed 31% of the total turnover. The countries to which they have exported to are Bangladesh, Thailand, Australia, Nigeria and United Kingdom.

Recipient of the Award is : Mr. Sachin R. Chopra, Director of the Company

iv) Parts and Accessories Sector:-

Winner of the Award is: **Lakshmi Card Clothing Mfg. Co. Pvt. Ltd., Coimbatore**

During the year 2010-11, Lakshmi Card Clothing Mfg. Co. Pvt. Ltd. have exported their products Card Clothing and Card Room Accessories worth 14.11 Crores which formed 14% of the total turnover. The regions which they have exported to are Africa, Asia, Europe, Far East, Middle East, South America and CIS.

Recipient of the Award is: Mr. R. Jagadeesan, Vice President-Corporate Administration of the Company

v) Jute Machinery Sector :-

Winner of the Award is: **Lagan Engineering Co. Ltd., Kolkata**

During the year 2010-11, Lagan Engineering Co. Ltd. has exported Jute Machinery worth 11.88 Crores which formed 50% of the total turnover. The country which they have exported to is Bangladesh.

Recipient of the Award is: Mr. Anirudh Kajaria, Managing Director of the Company

vi) Small Scale Sector –Textile Machinery

Winner of the Award is: **Palod Himson Textile Machines Pvt. Ltd., Surat**

During the year 2010-11, Palod Himson Textile Machines Pvt. Ltd., have exported Textile Machinery worth 3.80 Crores which formed 29% of the total turnover the countries which they have exported to are Thailand and Pakistan.

Recipient of the Award is: Mr. Pratik R. Bachkaniwala, Director of the Company

2) RESEARCH & DEVELOPMENT AWARDS:

Although 5 nominations were received for R&D Awards of the Association, the Jury selected four nominations were eligible for the Award for the year 2010-11.

First R&D Award winner is: **Lakshmi Machine Works Ltd., Coimbatore** Awarded for their development of **"Ring Frame LR9"**

"Ring Frame LR9" is a versatile machine with 1632 Spindles. The drafting drive is designed in a rugged manner and along with T-Flex is capable of handling draft resistant synthetic fibres. Due to enhanced torque handling, the yarn quality produced is uniform and consistent even through start and stop of machine. The placement of suction at both ends of the machine gives optimum suction and power reduction. LR9 benefits the customers in waste reduction, capital cost reduction, value addition, power, labour and space requirement.

The quality and the performance of the product were accepted by the customers and have good sales record.

Recipient of the award is Mr. S. Rajasekarn, Senior Manager-R&D Department of Lakshmi Machine Works Ltd.

Second R&D Award winner is: **Meera Industries Pvt. Ltd., Surat**
Awarded for their development of TPRS Twister (twisting plying reverse twisting system)

The quality of the yarn manufactured through TPRS Twister has better quality because of reverse twisting is taking place under the uniform tension of individual pre-twisted yarn. Hence the placing of yarn during final twist is most uniform than any other process. TPRS twister benefits the customers in operational cost, capital cost, space reduction, labour advantage and expenses on bobbin will be saved since the yarn will be manufactured directly from cops to final package.

The quality and the performance of the product were accepted by the customers and has good sales record.

Recipient of the award is Mr. Dharmesh V. Desai, of Meera Industries P. Ltd.

The jury decided to give 3rd R&D Award to two contestants they are:-

Kusters calico Machinery Ltd. Vadodara
Awarded for their development of "Twin Shaft Chemical Applicator" for bleaching chemical application and

Veejay Lakshmi Machine Works Ltd., Coimbatore
Awarded for their development of "Precision Propeller Assembly Winder"

Kusters Twin shaft Chemical applicator for bleaching chemical application is developed mainly keeping in view the very high chemical consumption and wastage in convention applicators. Twin Shaft has trough with lowest chemical holding capacity (23ltrs.) thereby least chemical wastage and highest pick of chemical by the web. Fastest chemical replenishment and minimal liquor exchange in the application trough and at the same time a maximum add on.

The quality and the performance of the product was accepted by the customers and has good sales record.

Recipient of the award is Mr. Dipak N. Shah, Director and Mr. Venkat Reddy, Managing Director of the Company.

Veejay Lakshmi Machine Works Ltd., Coimbatore developed "Precision Propeller Assembly Winder" to produce 8" traverse parallel wound package. It can prepare higher dense packages to ensure optimum utilization in Two-for-One Twisting. More than 30% increase in feed package weight when compared with equivalent 6" feed package. It helps to produce longer length of knot-free yarn at downstream process especially in Two-for-One Twister. This product benefits the customers in space saving, energy saving, more productivity and reduction in labour requirement.

The quality and the performance of the product were accepted by the customers and has good sales record.

Recipient of the award is Mr. R. Jagadeesan, Vice President-Corporate Administration of the Company of Lakshmi Card Clothing Mfg. Co. P. Ltd., Coimbatore received the award on behalf of Veejey Lakshmi Engineering Works Ltd., Coimbatore

srtepc

Synthetic Rayon Export Promotion Council (SRTEPC)

INTEXPO – Unique Indian Textile Exhibition in Malaysia

Keeping in view the emerging opportunities for India's Textile exports to the ASEAN region, The Ministry of Textiles has announced the holding of combined Indian Textile & Clothing Exhibition – "INTEXPO" in Kuala Lumpur, Malaysia from 22-24 November 2011. With The Synthetic Rayon Export Promotion Council (SRTEPC) as the Lead Council and participation of leading Textile councils and organisations, INTEXPO is one of the pioneering efforts made by Indian Textiles Industry to showcase the entire range of Textiles, Garments and accessories on a common platform in the ASEAN region.

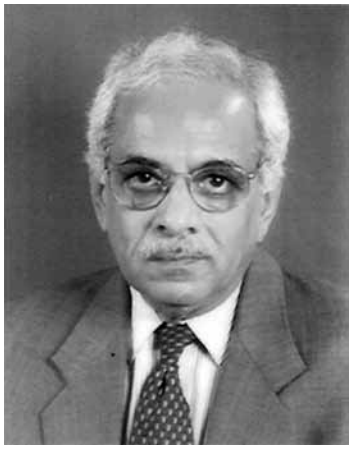
The Exhibition is being organized in the context of the India-Malaysia Comprehensive Economic Cooperation Agreement (CECA) which has come into effect from 1st July 2011. "The Agreement is likely to throw up myriad trade opportunities for both sides and would give a boost to India's 'Look East' Policy. Trade between the two countries reached $10 billion in 2010-11, an increase of 25% from the previous year. It is expected that the implementation of this Agreement will boost bilateral trade to US15 billion dollars by 2015. Malaysia's ASEAN 'plus' tariff concessions to India are on 140 items including cotton garments, Man-made staple fibres and apparel articles which all are of considerable export interest to India." said Smt. Rita Menon, Secretary to the Government of India, Ministry of Textiles.

INTEXPO will be co-located with INTRADE 2011 – Malaysia's largest trade event organized annually by the Malaysian External trade Development Corporation. An elaborate publicity campaign has been drawn up to publicize INTEXPO in Malaysia and the neighbouring ASEAN markets. About 200 leading buyers from various ASEAN countries will also be hosted by the organizers. The Exhibition has the active support of the Indian High Commission in Kuala Lumpur, the Malaysian Authorities and the various Textile/Trade Associations of Malaysia like Malaysian Textile Manufacturers' Association, Malaysian Indian Chamber of Commerce & Industry, etc.

About 100 Indian leading textile companies are expected to participate in INTEXPO. The Expo offers a unique opportunity for the Indian companies to display their entire range of products, meet leading buyers from Malaysian and other neighbouring countries and conclude profitable business deals.

Textiles plays an important role in the Indian economy. India is today the largest exporter of yarn in International markets, largest producer of Jute, 2nd Largest producer of Silk, 3rd Largest producer of Cotton and Cellulosic Fibre / Yarn, 5th Largest producer of Synthetic Fibres/Yarn and 23% of the World's Spindle Capacity in installed in India. INTEXPO will help International customers appreciate India's supply capabilities and enable Indian exporters to meet new clients from all over the world.

Sad Demise



Late Shri Sushil Sain

We deeply regret to inform you that our very senior member & Past President of The Textile Association (India), Shri Sushil Sain passed away in his illness on 09th July 2011 at Mumbai at the age of 70 years.

Mr. Sushil Sain was no stranger to anyone in the cotton textile Industry. He is an alumni of the Victoria Jubilee Technical Institute (VJTI), a Fellow of the Textile Association (India), Fellow of the Textile Institute Manchester. He was also a Fellow of few more Institutes.

He has been the Chairman of the Board of Textiles Studies of the (VJTI) for two terms and he was also a paper setter for the final year B.Text students and paper corrector.

He worked 14 years in the private sector in various capacities achieving the position of Manager and still looking for avenues to rise in life. Young and dynamic Mr. Sain was offered by one of his mentors a position of Chief Executive Officer of one of the mills of the NTC (SM) Ltd.

Within days of his joining he brought about substantial changes leading to improvement in the operation margins. Soon he was requested to take charge of a second mill. It was in a shocking state on every single parameter. The main scenario was as follows: "Had the mill been shutdown and the workers been offered NO WORK but were paid FULL WAGES, the mill would have made LOWER LOSESS".

He tackled this mill and improvements were substantial. Seeing his performance within three months, he was summoned to Delhi Head quarters for an interview and was appointed as Director {Technical}

His mentor and boss Mr. D.P. Kelkar thereafter referred him to Delhi Headquarters. Within about 6 to 8 months. He was summoned by the high profile Public Enterprises Selection Board (PESB).

He was selected as Chairman Managing Director and was called upon to take dual charge of Calcutta corporation charge of temporarily, controlling 18 textile mills, located at West Bengal, Assam, Bihar and Orissa etc and Bombay.

He was then only 36. This assignment lasted one year until the new incumbent was appointed in 1978. He successfully managed to come out with flying colors the interference by the local communist parties and instead he was invited to join the Board of Directors of the state owned mills.

Biding his time for a position in Mumbai, He set up a power house of 4.5 mega Watts, a central testing chemical lab, a training school for learners and for up gradation of skills of existing workers as the plan was to go in for higher qualities of fabrics. A divisional office was put up which was close to the textile mills to enable the staff to save time of travel and all in the spacious Apollo mills.

Sometime later Sain was asked by Delhi to assume charge as Chairman Managing Director NTC (SM) Ltd. He was soon asked to assume dual charge and was appointed as the CMD NTC (MN) Ltd also. It was a rather a big responsibility of managing 22 textile mills having nearly about forty five thousand workers. The dual charge responsibility ceased when a new incumbent was appointed after about a year.

While peace prevailed came the Dr. Datta Samant Strike. This ruined the entire industry in Mumbai.

It was decided by the union government through an Ordinance by the President of India in October 1983 to take over management of 13 sick mills. The Nationalization would take place later

The names of these were released only at midnight. Mr. Sain and his team conducted midnight operations very smoothly with the help of the Police Commissioner and completed the physical takeover by dawn.

The late Mr. V.P. Singh the then Commerce Minister was personally present in Mumbai seeking feedback

every 30 minutes. These 13 mills, like Tata's, Finlay, Kohinoor, and others among the list were allotted to Mr. Sain's corporation making the total to 35 large mills having a labor strength of forty five thousand taking the grand total to ninety thousand, was no small job.

Mr. Sain and his team reopened the mills gradually with police 'bandobast' and mills were back with vengeance, to better performance. He was popular with his staff and workers, easy to meet but a hard task master.

He installed excellent systems (MIS) without which management would have been impossible as computerization was not so popular and expensive. He built an excellent Management team.

He also took up short Foreign Assignments of the Common wealth as a textile expert. In his personal capacity these were highly remunerative.

Mr. Sain looked at his future growth and found not many alternatives. He would have to shift to Delhi to take up the position of Managing Director of the Holding Company which was offered to him but held no attraction.

By then he was 45 years old.

It was Sain's feeling in the process of meeting officials that government was hard put to provide huge finances for modernization and also fund the losses Both these items only confirmed that growth in NTC was not possible

This money would never be forthcoming. The idea of selling land arose at that time which has taken more than 20 years to fructify.

In the year 1986 his performance was his best in a long time.

He decided to leave NTC and join Mr. Nanik Rupani a childhood friend in telecom operations and continue putting up new textile mills and to bring home new agencies in the telecom sector, two diverse fields!

He opened an office supported by his childhood friends at Nariman Point and engaged the services of his old colleagues and associates

His team added Project Management, turnkey jobs to Management consultancy.

By that time he was deep into telecom. He has been a pioneer bringing in video conferencing equipment to the country.

From 1994 at the age of 52 he was keeping indifferent health which restrained him from work however, with medication he was reasonably well till 1997. He and his team setup from scratch the country's largest acrylic, cotton and blended yarn manufacturing facilities.

He was a consultant to various reputed group of companies to set up new projects. He also set up composite textile mills and socks factories in collaboration with large Korean and Japanese companies.

He shut his Nariman Point office after completing his textile contracts fully in 1998 and continued part time from his telecom office till 2004. A man with two occupations !

Mr. Sain was very actively associated with The Textile Association (India), Mumbai Unit and also with Central. He was President in 1987-1989 and then Member of Trustees in 1991 to 2010 of TAI Mumbai Unit. He was Vice President during 1989 to 1991 and then President in 1993 to 1995 for TAI Central. He was also a member of Trustee of TAI Central.

Mr. Sain was awarded with a prestigious "Honorary Membership Award" for his distinguished contribution towards the development of Textile Industry of India in the year 1986 during 43rd All India Textile Conference held at Mumbai,

He was also felicitated with "Lifetime Achievement Award" during International Seminar on Organic Textiles held on 12th March 2010 at Mumbai.

We the members of The Textile Association (India) offer our heartfelt condolence for the death of Mr. Sushil Sain.

We pray almighty to bestow eternal peace to the departed souls. We also pray almighty to give all the courage to his family to withstand irreparable loss.

LRT to Strengthen its Market Leadership With Express Travellers

Lakshmi Ring Travellers (CBE) Limited (LRT), the Global leader in the manufacture of Ring Travellers, will focus on Express Travellers at ITMA 2011. Express Travellers is a breakthrough Traveller which has set industry benchmark in performance of Ring Travellers. This is a result of years of R&D in this sophisticated field of Ring Travellers by LRT, says Mr. J. M. Balaji, Head- Marketing. LRT.

At ITMA, LRT would be displaying the entire range of Ring Travellers and Application tools. Mr. Balaji says, "As LRT is the largest manufacturer of Ring Travellers in the world, the main focus at ITMA would be to connect with the customers better and provide solutions to our customers to further enhance the productivity and quality of yam by understanding the customer needs better".

Express Travellers are manufactured with unique process for better and uniform miaostructure. Further, an advanced coating has been done with fine dry lubricants. This combination facilitate in attaining higher speeds, better glidability, lesser heat generation, improved wear resistance & hence longer life, enhanced corrosion protection and helps in achieving maximum speed in synthetics quickly.

LRT, part of the LMW Group, started its operation in 1974. LRT has two units manufacturing Ring Travellers., one in Hosur and another in Anamallai, near Coimbatore. The company is currently expanding its capacity by setting-up a new plant. "We are presently expanding our manufacturing facility by setting up a new plant in Coimbatore. The plant should be operational by end of this year. We foresee a good growth in future and hence to meet the customer requirements in time we are expanding our facilities", added Mr. Balaji. LRT is clearly the dominant player in the ring traveller segment with a 76% market share in the Indian market and 30-7011/o market share in most of the other countries in which it operates. Currently 300/a of LRT's business is from exports to over 40 countries and Travellers manufactured by the company is working in over 45 Million spindles worldwide. "Our objective is to be the preferred source for Ring Travellers in all countries we operate in. At present we are either number I or 2 in most of the export markets-, says Mr. Balaji. LRT has a joint venture with CAIPO Automazione Industriale SRL for manufacturing Stub & Core Yarn Systems in India. In a short span of 3 years Lakshmi Caipo has established market leadership for slub and core yams in India with over 250,000 spindles running with Lakshmi Caipo slub and core attachments. Stub & core yam has gained worldwide acceptance as Fashion yam especially in denims, home furnishing fabrics, shirting's, women fabric and knitting segment. In fact, variations of Stub Yarn are the basic inputs for fabric in almost all the denim products in the market. The international market for slub yarn is currently pegged at around 2-3% of all yarn produced in the world. The demand is expected to grow in double digits in the next few years.

Value added products like Stub yarn commands a good premium compared to the normal Yarn. In today's highly competitive market where the margins are very thin for the normal yams, it is more profitable for the spinners to venture into Fashion Yarns. India by default has a huge potential to supply Fashion Yarn to the world market. In the near future India will be one amongst the leading suppliers of Stub & Core Yarn to the global market.

TRÜTZSCHLER NONWOVENS

MAN-MADE FIBERS NONWOVENS

ITMA 2011
Barcelona / Spain
September 22-29, 2011
Hall: 2; Booth: B131

Trützschler Nonwovens will be showing its latest innovations in Man Made Fibre and Nonwoven Machinery at the ITMA, which is the most important exhibition for Trützschler Nonwovens.

In addition to many new innovations, which are particular to increase productivity while reducing energy consumption, we introduce two revolutionary new machine developments:

Streamliner
During the ITMA 2011 exhibition in Barcelona Trützschler Nonwovens GmbH will present for the first time the **"Streamliner"**, its latest development of a new drum dryer generation.

The new dryer generation achieves specific evaporation capacities going far beyond the commonly achieved values. For our customer this means a significant increase in productivity.

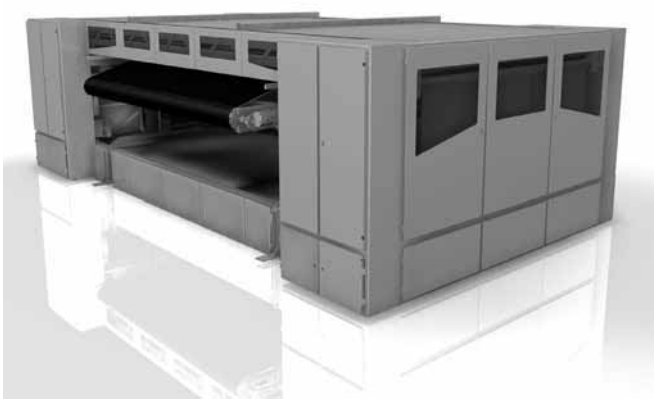
The energy efficient machine design features an optimized airflow with low pressure loss, an optimal fresh air supply using the temperature-dependent density change, as well as a heating system with optimized flow technology. In addition, energy efficiency is increased by external air treatment and possibilities of heat recovery.

With this innovative web drying system Trützschler Nonwovens has set the benchmark for this market segment.

Crosslapper
The increased requirements for throughput and availability have led to ever increasing
line speeds in the past.

To be able to use the carding speeds available today, it is necessary to increase also the performance of downstream equipment. In particular the crosslapping lines are operated at the limit of their capacities, limits which are, if at all, difficult to be pushed with conventional technology. However, we have succeeded to overcome these limitations with our new crosslapper EKLB439 both in terms of productivity as well as in terms of quality.

New solutions secured by patents provide the basis for this breakthrough. Apart from the new fleece guidance this includes the mastery of dynamic factors influencing the process materials and the machine.



In its present position, Trützschler Nonwovens is able to meet any future challenges of the nonwoven market. Their continued business success is based on a clear focus on the market, the end products and the customers.

FAVIMAT+ WITH ROBOT2

DRAPETESTER

Textechno at the ITMA 2011 in Barcelona

At the ITMA 2011 in Barcelona, Spain, TEXTECHNO Herbert Stein GmbH & Co. KG will be present to introduce newest testing instruments for fibres, yarns, and fabrics.

The visitors shall see several new and innovative testers of Textechno:

STATIMAT DS represents a new generation of the Textechno automatic tensile testers for yarns. As a highly integrated measuring instrument it offers a symbiosis of the three most important test methods for yarns and threads: tensile test – evenness test – count measurement. Numerous novelties regarding testing technology and technical realization are united with a new design philosophy.

Textechno's '**Cotton Control Line**', first shown at the ITMA 2007, is widened by several new instruments, which will all be exhibited at the show. The focus will be on the enhanced fibre length- and strength tester **FIBROTEST**, the new evenness tester **COVATEST**, as well as the microdust-, neps- and trash analyzer **MDTA 3**, now available from Textechno.

With new outstanding features the automatic single-fibre testing system **FAVIMAT+** combines now six test methods in one instrument. Together with a new developed infeed system the FAVIMAT+ makes a further great step in automatic single-fibre testing.

Another highlight is the new automatic drapability tester **DRAPETEST** for technical- and non-crimp fabrics. This instrument allows to automatically characterize drapability and to detect the formation of defects during draping and forming. The tester combines the measurement of the force, which is required for forming, with an optical analysis of small-scale defects such as gaps and curls by means of image analysis. An optional sensor can determine large-scale defects such as wrinkles.

Joint booth of the Textechno Group: Hall 2, booth 117/118 and Mr. Gupta of World Traders will assist you.

FIBROTEST

World Traders Mfg. Co.
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Fax: +91-22-22872534

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PARAMOUNT organizes 1st TEXTILE CONFERENCE in PANIPAT

The 1st. TEXTILE CONFERENCE on "How to Grow your Business by Focus on Quality Control" was held in PANIPAT, on Friday the 29thJuly 2011, at Hotel GOLD. The conference was full of Excitement, Fun and Knowledge Sharing.

PANIPAT, "The City Of Weavers and Handlooms", is one of the strongest Pillars of INDIAN TEXTILE INDUSTRY, which provides employment to more than 90,000 people directly and indirectly.

The conference was organized by **PARAMOUNT GROUP**, the **PIONEER and LEADERS, in Textile Testing &Quality Control Instruments, Since 1964**. It was a worthwhile opportunity, wherein all the attendees, "**Interacted with Zeal and Enthusiasm, Gained lot of new ideas, acquired useful knowledge,** and at same time, **Experienced lot of Fun and Excitement as well".**

Mr. Manjit Singh Saini, CEO of Paramount Group, in his keynote address and presentation, emphasized on the "Importance of QUALITY and the Q.C. LABS". He interestingly, through his presentation, kept the audience spellbound, and brought home the fact, that strong focus on Quality brings in abundant benefits to an Exporter. Among the number benefits were not only increased Sales and profits, but gaining WIN-WIN relationships with the buyers and also securing your Peace of Mind!

The mood at the conference was made colorful with number of games played, Interactive Discussions and Question &answer sessions. Lot of worthy knowledge was exchanged during deliberations.

Overall, the conference was a huge success, which is further substantiated by the wonderful and encouraging remarks by the attendees:

"Nice Presentation and Lively Evening" by Mr. Abay Tandon of M/sFaze Three Ltd.;
"INTELLIGENT THOUGHT and PLANNING" by Mr. Manish of M/s Mahajan Overseas**;**
"The Presentation on QUALITY CONTROL & LABS was very Good & ENTERTAINING" by Mr. Rajiv Sharma of M/s Harison &Halraj;
"Nice Presentation; Lively get together" by Mr. Vijay Manchanda of M/s Pan Overseas.

Overwhelming **Interaction, Feedback** and **Active Participation** from the audience made the Conference a Huge HIT.

The Luckiest person of the evening was **Mr. RAJIV SHARMA** of **M/s Harisons and Halraj, who** won a **NOKIA MOBILE PHONE** from the Lucky Draw conducted by PARAMOUNT.

Due to the Overwhelming response, PARAMOUNT is planning to conduct several such Seminars in Various Cities in India.

To Register for the Seminar in your Area
Contact Ms. Dimple at +91 999 999 1118 OR send email at pr@paramountinstrments.com
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6th National Conference

texcellence'11

a conference focused on textile and allied sector

THEME : INDIAN TEXTILES AND CLOTHING SECTOR : MAXIMIZING GROWTH & VALUE ADDITION

Dates : AUGUST 4-5, 2011
Venue : AHMEDABAD MANAGEMENT ASSOCIATION, AHMEDABAD

EVENT REPORT

SUPPORTED BY

The Textile Association (India) Ahmedabad Unit

Textile Machinery Manufacturers Association (India)

Confederation of Indian Textile Industry

Indian Textile Accessories & Machinery Manufacturers' Association

The Gujarat Dyestuff Manufacturers Association

The Synthetic & Rayon Textiles Export Promotion Council

ORGANISER

TEXTILE REVIEW

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We help spin yarn that weaves fabric of mutual reliance & goodwill

'Texcellence'11', the 6th National Conference focusing on Textile and Allied sector was held here on 4th and 5th August'11. The same was successfully organized by 'Textile Review', the prime monthly publication of 'SAKET PROJECTS LTD. in Co-operation with ATIRA (Ahmedabad Textile Industry Research Association) and AMA (Ahmedabad Management Association). The hot theme was 'Indian Textiles and Clothing Sector – Maximizing Growth & Value Addition.' Top experts from Textile and apparel sectors from all over the country gathered at the AMA auditorium to share their valuable knowledge. Jam-packed audience of experts and delegates including many student delegates was there not only to listen to them, but also question them on scores of issues concerning the Textile Industry.

At the inaugural session, the guests of Honour were Mr. B.B. Swain, Industries Commissioner of Gujarat Government and Mr. Anand Parekh, President (Textiles), Reliance Industries Ltd. Mr. J. S. Negi, Director of Pradeep Overseas Ltd. as well as Mr. T.L. Patel and Mr. Vijay Trivedi, President and Secretary, respectively of Textile Association of India (TIA – Gujarat) were present.

The conference began with the welcome address by Mr. D.L. Pandya, conference convener and then thorough discussion took place on present status, future development and scores of challenges for this age-old giant industry.

The Industries Commissioner Mr. Swain opened the discussion by showing flowers that Gujarat has always been in forefront of the industrial revolution in India, particularly the textile industry. The growth and vibrancy of the textile industry in the State is visible from the record 142 Memorandums of understanding (MOUs) signed at the last 'Vibrant Gujarat' Conference, which totally amounted to about Rs. 26,000 crore and possibility to employ around 21% of the state's total employment. Mr. Anand Parekh spoke eloquently on the challenges faced by the Indian Textile Sector. He said clearly that the previous 18 months were the most turbulent times witnessed by the textile sector, mainly by the volatility in prices of cotton. These prices have flared up from Rs. 21-22000 per candy to Rs. 65,000 per candy. This, along with re-introduction of excise duty, has created all the uncertainty in the prices of fibre. This has affected the innovation, expansion, initiatives in this field. Nobody knows in what direction prices will move. Another major worry is the reduced availability of labour and that too at a premium. Pinching of labour in textile industry is because of the opportunities available in number of other industries.

INAUGURAL SESSION

INAUGURATION
ShriB.B.Swain,IAS
Industries Commissioner, Office of the Industries Commissionerate, Gandhinagar

GUEST OF HONOUR
ShriAnandParekh
President (Textiles Division), Reliance Industries Ltd.

SPECIAL ADDRESS
ShriJ.S.Negi
Director & Technical Advisor, Pradip Overseas Ltd., Ahmedabad

GUEST
ShriT.L.Patel
President, The Textile Association (India), Ahmedabad Unit

VOTE OF THANKS
ShriVijayTrivedi
Hon. Secretary, The Textile Association (India), Ahmedabad Unit

Inspite of all this, Mr. Anand Parekh was confident that many new opportunities too have emerged. These are the possibility of attracting large foreign direct investment (FDI), opening up the retail sector and the economic agreements signed between India and other countries. Industry has to see the present scenario make all the effort to re-establish and itself.

The next speaker Mr. J.S. Negi of Pradip Overseas Ltd wondered why the Textile is the last basket of the capital market. Why there are

upsanddownsofthecyclesforthisindustry?Inavoiceof disappointment, he said that the policy of the union GovernmentwasnotconduciveforthTextileIndustry.Issues aremanythatneedpromptattentionfromallconcerned.

TheInaugurationsessionwasoverwithvoteofthanksfromShri VijayTrivediofTAI.

thegrowth.Exportsinthissectoraregrowing,butnottothe extentofotherexports.ForTechnicalTextiles,thereareallthe chancesofdoublingthegrowthwithGovernmentinitiatives.

Mr.GirishLuthra,Director,GujaratEco-TextileParkLtd(Surat) deliberatedon'sustainableclusterDevelopment',whileMr .A. K. Chaphekar, Asst. Director, Regional Office of the Textile Commissioner, Ahmedabad, spoke of various government schemes for growth and development of Technical Textiles. Another speaker Mr. Kiran Panchal of Modern Denim Ltd. (Ahmedabad) outlined the necessity of forward and backward integration for sustainability. Mr. Navneet Krishnan of Clariant India Ltd. (Mumbai) enlightened on the trends in processing technologies.

SESSIONI:EMERGINGTEXTILEMARKET:OPPOR TUNITIES&CHALLENGES

ShriNayanParikh
NayanParikh&Consultants, Ahmedabad

ShriGirishLuthra
Director,Gujarat Eco-TextileParkLtd,Surat

ShriA.K.Chaphekar
Asst.Director,RegionalOfficeofthe TextileCommissioner,Ahmedabad

ShriKiranPanchal
PresidentMarketing(Apparels), ModernDenimLtd,Ahmedabad

ShriNavneetKrishnan
Manager-KayAccountMgmt.&Apparel &Interiors,ClarianIndiaLtd.,Mumbai

SESSIONII:INDIAEMERGESASGLOBALHUBOFTEXTILES

ShriKiranPanchal
PresidentMarketing-Apparels,ModernDenim Ltd,Ahmedabad

ShriRahulBhajekar
ManagingDirector, TaxanlabLaboratories P.Ltd,Mumbai

Dr.N.N.Mahapatra
V.P.(TechnicalMarketing), HindprakashLonsen IndustriesLtd,Ahmedabad

ShriD.R.Mehta
President,Textile AssociationofIndia, Mumbai

Soonthereafter,successivethreeregularsessionspickedup the thread. The first session on 'Emerging Textile Market: Opportunities and Challenges' was chaired by Shri Nayan Parikh(NayanParikh&Consultants,Ahmedabad),'wheredo we stand? He begun with this poser and then himself answeredthatIndiaishaving4percentshareinglobaltradeof Textilesandstandsfourthin Textileandclothingtradeglobally. ChinaisNo.1.Lotmanychallengeswehavetofacefordoubling

SESSIONIII:TEXTILEINDUSTR Y SUPPLYCHAIN:TODA Y&TOMORROW

ShriD.R.Mehta
President,TextileAssociation ofIndia,Mumbai

ShriSharadTandon
CEO,StandonConsulting, Mumbai

Dr.AtanuGhosh
IndianInstituteof Management,Ahmedabad

Thesecondinterestingsessionwasonthe subject–'IndiaEmergesasGlobalHubofTextiles'.Here,the ModratorMr.KiranPanchalexplainedhowIndiahasmastered clothingmanufacturingintheworld.'MadeinIndia'brandhas becomepopularanditshouldbewidelyusedinEuropeandin our Country too. Mr. Rahul Bhajekar, Managing Director of TaxanlabLaboratoriesPvt. Ltd.(Navi Mumbai),reviewed GOTS andRestrictedsubstanceslistsfortheEUandUSmarkets.Dr.N. N.Mahapatra,VicePresident(Tech.Marketing),Hindprakash LonsenIndustriesLtdofAhmedabadgaveideaofscoresof NewFibresusedinTextileIndustry.

Thethirdsessionon'TextileIndustrysupplychain:Todayand Tomorrow'wasmoderatedbyMr.D.R.Mehta,President,TAI (Mumbai).Hemaintainedthatinspiteofglobalrecession,India ismovingfast.Thereisnomucheffectonitseconomy.Here thereisverybigmarketforbestqualitytextilemachineryand equipments.HeemphasizedthatIndiancottonshouldhaveits own logo as 'Egyptian Cotton.' Mr. Sharad Tandon, CEO, Standon Consulting (Mumbai) explained how to turn challengesintoopportunitiesfortheindustry.Anotherspeaker Dr. Atanu Ghosh of Indian Institute of Management

SESSIONIV:TEXTILEINDUSTR Y:PRODUCTIVITY&TECHNOLOGYIMPROVEMENT

Dr.ChandanChatterjee
Director,CED&General Manager,iNDEXTb,Gandhinagar

ShriH.D.Shrimali
Addl.IndustriesCommissioner, IndustriesCommissionerate,Gandhinagar

ShriGautamShah
D.G.M.Processing, RaymondLimited,Valsad

ShriKamalShah
GeneralManager(Marketing), PrashantGroupofIndustries,Ahmedabad

ShriSumitSharma,
RegionalManager,TheGerman Engg.Federation(VDMA),Kolkata

SESSIONV:TECHNICALTEXTILES: OPPORTUNITIES&CHALLENGES

ShriSharadTandon
CEO,StandonConsulting, Mumbai

Dr.GirishKazi
Physician&Clinical Cardiologist,Surat

ShriAmitAgarwal
Chairman&CEO, CTMTechnicalTextiles Ltd.,Ahmedabad

ShriPareshPatel
ManagingDirector, SurgicotfabTextilePvt. Ltd.,Ahmedabad

(Ahmedabad) spoke on Developing Exports through Improvements in Competitiveness.

TheFourthSessiononthesecondday oftheConferencewasonthesubject 'Productivity&TechnologyImprovementinTextilesector.'Thesessionwas moderatedbyDr.ChandanChatterjee,Director,CEO&GeneralManager (Project&Technology)INDEXTb,Gandhinagar.Heinformedaboutlargest numberofincentivesindifferentformsgivenbytheGujaratGovernment.The mainproblemisthatofavailabilityofpeopleandtheirproductivity.

TheAdditionalIndustriesCommissionerofGujaratMr.H.D.Shrimalihere gave good idea of the Industry Motivation & Support by Government of Gujarat.Therewereanotherthreespeakers,Mr.GautamShah,D.G.M.-Raymond Ltd (Valsad) discussed the important subject of 'Employees EngagementSurvivalMantraforTextileIndustries'.Mr.SumitSharmafrom Kolkata's German Engineering Fedration (VDMA), gave idea of 'German TextileMachineryIndustry',whileMr.KamalShahofAhmedabad'sPrashant GroupofIndustriesthrewlighton'WeavingPreparatoryMachinery'.

The Fifth and the Last interesting Session was on 'Technical Textiles – Opportunities&Challenges'.ThesessionwaschairedbyMr.SharadTandon, wherewholediscussionwasverylive.Dr.GirishKazi,Physician&Clinical CardiologistfromSuratgaveveryinterestingtalkon'MedicalTextiles'.Mr. AmitAgarwal,Chairman&CEOofCTMTechnicalTextilesLtd.(Ahmedabad), explained the vision of the newly formed body 'Indian Technical Textiles Association'andwhatdoesitholdforMicro,SmallandMediumEnterprises ofTextilesphere.Mr.PareshPatel,MDofSurgicotfabPvt.Ltd.(AHD)also touchedthe Subjectof MedicalTextiles.He deliberatedon theopportunities of Medical Textiles in the Healthcare industry. According to him Surgical marketislargestgrowingSegmentamongallthemedicalTextiles.

AlltheaboveSessionswerefollowedbyliveQuestion–Answerperiods, whichremainedveryhotandveryinteresting.

REVIEWS

Iamverymuchthankfultoyouforinvitingmeasa sessionchairmanandalsoaspeakerforoneofthe importantsession.Itakethisopportunitytoconvey oursincerethanksforthecourtesyandhospitality extended to us during TEXCELLENCE 2011. I have great pleasure in congratulating you for your dynamic, excellent and focused leadership in organizingthismagnificentevent.Itwasindeeda matterofimmenseprideformetogetassociated with you. Sir, you and your team has set an unparalleled and enviable standard of organizationalexcellenceforwhichwelacksuitable wordstoexpressourappreciationandgratitude. Please convey my sincere appreciation to all the membersofyourteamforworkingtirelesslytomake theTEXCELLENCE2011agrandsuccess.

DRM ehta
President,TextileAssociation(India)

Asusual,itwasindeedmypleasuretorepresent clariantatTexcellence2011.Itwasnicetoseemany speakersfromtheGovt.andtextileministrylevelat theforum.Thishelpstounderstandtheirviewson theindustryandwhataretheplansforthefuture. AlsofeelthattheconferencecoveredtheentIre gamutofpeoplewhoarepartofthetextileindustry.

NavneetKrishnan
ClariantChemicals(I)Ltd

Wewouldliketocongratulateyouforexcellentevent management.Howeverwewouldliketoexpress ourfeedback. Inallthefunctionwasverygood, informativeandwellconducted.Thanks.

P.S.Kulkarni
JayChemicals

Wewouldliketocongratulateyouforthe excellent arrangementsandinformativelecturesduringthe courseof2days.

SumitSharma
VDMA

Thanks for giving opportunity to speak in the conference.

Dr.NNM ahapatra
HindPrakash


DELEGATES


REGISTRATION


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INTERACTIONWITHSPEAKERS

INDIA

7th International Conference on Apparel & Home Textiles

Theme – "Make Competition Irrelevant"

Date: 30th September & 01st October, 2011
Venue: Habbitat World, India Habitat Centre, Lodhi Road, New Delhi –
Organizer: Okhla Garment and Cluster
Contact: Mr. R.C. kesar, Conference Chairman – 9810091812
Mr. M.K. Mehra, Conference Advisor – 9868200116
Okhla Garment and Textile Cluster
Y-29, Okhla Industrial Area, Phase II, New Delhi - 110 020 India
Tel.: +91 11 41609550, *Fax:* 0+91 11 26383532
E-mail: ogtc@airtelmail.in, ogtc@rediffmail.com
Website: www.ogtc.in

International Symposium on Functional Colorants – 2011

Date: *14-15 October, 2011*
Venue: *ICT, Matunga, Mumbai, India*
Contact: Prof. N. Sekar, Ccol PSDC
Professor in Tinctorial Chemistry
Department of Dyestuff Technology,
Institute of Chemical Technology (ICT)
N.P. Marg, Matunga,
Mumbai – 400 019 (MH) India
Tel.: +91 22 3361 1111, 3361 222,
M.: +91 9867958452
E-mail: nsekar11@gmail.com,
n.sekar@ictmumbai.edu.in

UGC sponsored National Seminar on "Apparel Merchandising Management"

Date: 12 & 13th January 2012
Venue: College Auditorium of Home Science, Dr. B.M.N. College, 338, R.A. Kidwai Road, Matunga, Mumbai – 400019.
Organisers: Dept. of Textile Science & Apparel Design
Convenor of the Seminar:
Dr. Shilpa P. Charankar
Contact: Organising Secretaries
Mrs. Veena Verma - 9821112111
Mrs. Alka Pant – 9892806673
Dr. Bhanuben Mahendra
Nanavati College of Home Science
338, R.A. Kidwai Road, Matunga,
Mumbai – 400019.
Tel : 022-24095792, *Fax :* 022-24026511
Email: smesedu@gmail.com, veenaver@gmail.com
Website: www.bmncollege.com

67th All India Textile Conference

Theme: "Textiles & Clothing – Emerging Global Scenario"

Date: 04 & 05th February 2012
Venue: Habbitat World, India Habitat Centre, Lodhi Road, New Delhi –
Organizer: The Textile Association (India)– Delhi Unit
Contact: Mr. Ashok Juneja, Conference Chairman,
Mr. R. Dudeja, Conference Secretary
The Textile Association (India) – Delhi Unit
401, Gagan Deep, 12, Rajendra Place,
New Delhi – 110 008 (India)
Tel.: +91 11 2575 0224, *Fax:* +91 11 2573 6456
E-mail: taidel@bol.net.in
Website: http://www.tai-delhi.org

INDIA ITME 2012 – 9th International Textile Machinery Exhibition

Date: *02-07th December 2012*
Venue: Bombay Exhibition Centre,
Western Express Highway, Goregaon (E),
Mumbai, India
Contact: Executive Director
India International Textile Machinery Exhibitions Society
76, Mittal Tower, B Wing, 7th Floor,
Nariman Point, Mumbai – 400 021 India
Tel.: +91 22-2202 0032, 2282 8138, 2285 1579
Fax: +91 22-2285 1578
E-mail: contactat@india-itme.com
Website: http://www.india-itme.com

Half Day Seminar on "Innovation in Textile Processing"

Date: Thursday, 13th October 2011
Time: 03.00 p.m. to 08.00 p.m.
(Followed by Cocktail & Dinner)
Venue: Dombivli Gymkhana, P-9, MIDC, Phase-I, Dombivli (E) – 421 201 Dist: Thane.
Organizer: The Textile association (India) – Mumbai Unit
Contact: Hon. Secretary
The Textile Association (India),
Mumbai Unit
Amar Villa, Behind Villa Diana,
Flat No. 3, 3rd Floor,
86, College Lane, Off Gokhale Road ,

Near Portuguese Church / Maher Hall,
Dadar (W), Mumbai – 400 028 India
Tel: 022- 2432 8044 / 2430 7702
Fax: 91-22-2430 7708
E-mail: taimu@mtnl.net.in / taimu@bom3.vsnl.net.in / taimumbaiunit@gmail.com
Website: www.textileassociationindia.com

International Seminar on "Value Addition in Home Textiles & Apparels – The Way Forward"
Date: Friday, 20th January 2012
Venue: Inter Continental The Lalit Mumbai
Sahar Airport Road, Andheri (East),
Mumbai 400 059, India
Organizer: The Textile association (India)–Mumbai Unit
Contact: Hon. Secretary
The Textile Association (India), Mumbai Unit
Amar Villa, Behind Villa Diana, Flat No. 3,
3rd Floor, 86, College Lane, Off Gokhale Road,
Near Portuguese Church / Maher Hall,
Dadar (W), Mumbai – 400 028 India
Tel: 022- 2432 8044 / 2430 7702
Fax: 91-22-2430 7708
E-mail: taimu@mtnl.net.in / taimu@bom3.vsnl.net.in / taimumbaiunit@gmail.com
Website: www.textileassociationindia.com

ABROAD

ITMA 2011 – International Exhibition of Textile and Garment Machinery
Date: 22 to 29th September, 2011
Venue: Fira de Barcelona Gran Via, Spain,
Organizer: CEMATEX
PO Box 248, Newcastle upon Tyne,
NE7 7WY, United Kingdom
Tel.: +44 7967 477305,
Website: http://www.itma.com

ITMA Asia & CITME 2012 ***(Asia's most prestigious textile machinery industry event)***
Date: 12-16, June 2012
Venue: *Shanghai New International Expo Centre (CNIEC), Shanghai,*
Contact: CEMATEX (European Committee of Textile Machinery Manufacturers)
PO Box 248, Newcastle Upon Tyne,
NE7 7WY UK – United Kingdom
Tel.: +44 7967 477305,
E-mail: info@cematex.com

11th Asian Textile Conference (ATC-11)
Theme: Knowledge Convergence in Textiles for Human & Nature
Date: *01 to 04 November, 2011*
Venue: Daegu Exhibition and Convention Center (EXCO), Daegu, Korea
Organizer: Federation of Asian Pofessional Textile Association (FAPTA)
Contact: *Prof. Jun Young LEE*
Tel.: +82 31 2907319, *Fax:* +82 31 290 7272
E-mail: info@atc11.org, jylee@skku.edu
Website: http://www.atc11.org

Every effort is made to ensure that the information given is correct. You are however, advised to re-check the dates with the organizers, for any change in schedule, before finalizing your travel plans.

Revised Advertisement Tariff
w.e.f. 01-01-2012 (Jan–Feb 2012 & onwords)

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Technical specifications

Size of Magazine	:	29 cm × 21 cm
Print Area	:	26 cm × 19 cm
Frequency	:	Bi-monthly
Print Order	:	5,000 copies +
Print Process	:	CTP

Mail at –

THE TEXTILE ASSOCIATION (INDIA)

Pathare House, R. No. 6, 2nd Floor, Next to State Bank of India, 67, Ranade Road, Dadar (W), Mumbai - 400 028.
Phone: (91-22) 2446 1145, Fax: (91-22) 2447 4971
E-mail: taicnt@mtnl.net.in, jb.soma@gmail.com, www.textileassociationindia.org