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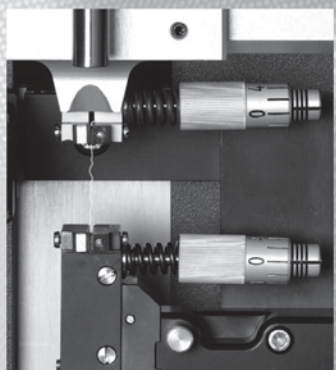
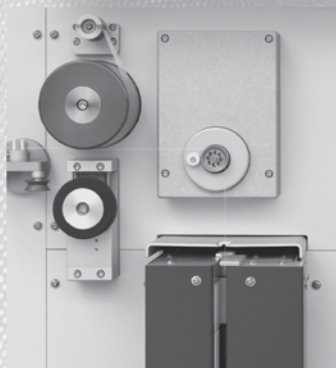
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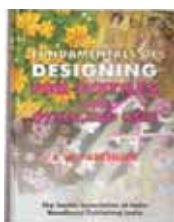
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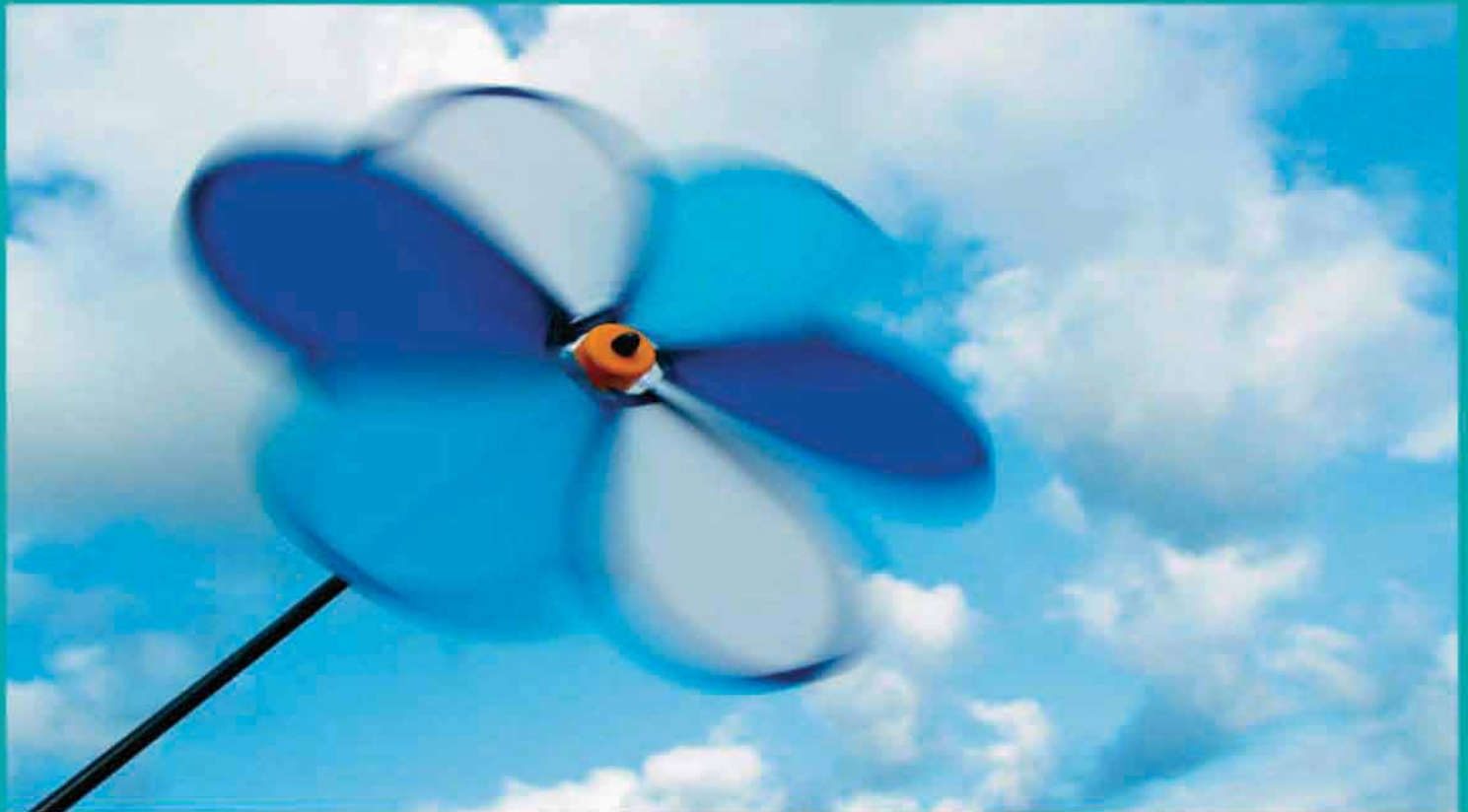
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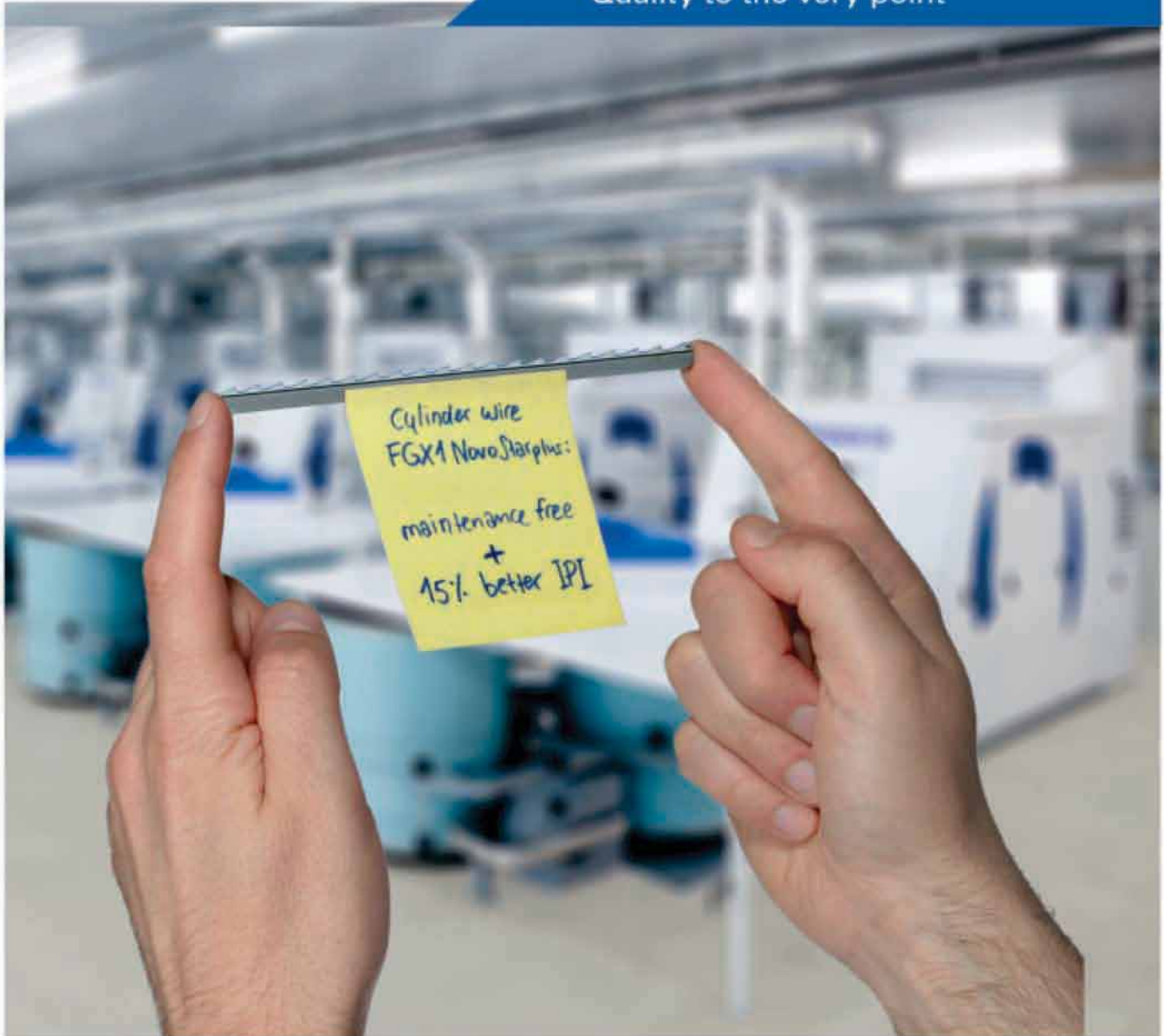
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Editorial

Kya Desh Ubal Raha Hai ???

Remember the advertisement of Tata Tea where a female says “Ye desh ubal raha hai??”

Husband : Har din scam, ghotala... khatam ho gaya desh.. Finish.. Chai pila do yaar..

I am completely in agreement to this when I look back at the events that have taken place in India in the year 2011.

The biggest change or revolution for India begun with the campaign started by Anna Hazare against corruption. Hazare's campaign has inspired millions among India's new middle class, fed up with having to pay constant bribes to officials. The fight is still on for a constructive Lokpal bill but hopes of it improving the system of work for the general public of India is high.

On the economy front, India's liberalisation began with a bang in 1991, but two decades on the unreformed parts of the economy are becoming a drag on growth. In the first quarter of 2011 GDP grew at an annual rate of 7.8% whereas in 2005-07 it managed 9-10%. Latest estimates are as low as 6 – 6.5%. The economy may still be slowing naturally, as the low interest rates and public spending that got India through the global crisis are belatedly withdrawn.

At the same time, the surge in inflation that began last year and was first caused by food prices has spread more widely. While the increase in the prices of vegetables, particularly onions has already drilled holes in the family budget, sugar now sets to leave a bitter taste. With this, the common man's cup of tea is to taste sour in this freezing winter. Primarily, the government dragged its feet for too long in first recognising the existence of the problem of shortage and need to augment supplies. After the problem snowballed in terms of escalating prices, the way it was handled left much to be desired. The evolving situation in India, the world's largest sugar consumer, remains the focal point of the global price rally. Almost same row of events goes with other essential commodities.

Foreign direct investment into India has been subdued for a year (though it did pick up in May). The most recent industrial-production figures have been soft, showing an annual growth rate of 5.6%, about half that of 2010. FDI has been touted as the magic wand that will transform "under-developed" India into an advanced nation with a "modern" infrastructure. Lately, Government had to suspend the policy reform of permitting FDI in multi-brand retail, even though it was with a number of conditions safeguarding the local players. Almost all the opposition political

parties opposed it because it might take away the means of livelihood of the 15+ million local small retailers and street hawkers.

Not all is doom and gloom. Some well-run states, such as Gujarat, continue to motor along; some former basket-cases, such as Bihar, are creating a strong record of reform. Exports are roaring, with engineering doing particularly well, helped by special economic zones, which are freer of red tape than the rest of India and account for 22% of all exports.

The Indian rupee touched a new low of 53.3 versus the dollar. The free fall of the Indian rupee that was started in the later half of this year has seen the rupee weakening by almost 25%- a clear sign of troubled times ahead. This implies that we have a net trade deficit when it comes to our trading partners and in turn implies that a depreciating rupee versus the dollar is going to severely affect the balance sheet of the country. There seems to be no relief as still petroleum prices are at the mercy of government which is dependent on its allies. This comes at a time when the finance minister of India has said that a fiscal deficit of 5% will be hard to meet this year.

*Wife : Haan.. Aur jab ublega tabhi to aayega isme josh, dum..
Padegi mithaas aur fir badlega rang..*

Husband : Oye hoye.. chai aise banti hai?

Although we see many issues in today's date, we even see the kind of churn going on for them and the enthusiasm in every true Indian to correct what is going wrong. And so we can say – Aaj desh ubal raha hai..

*Wife : Desh aise banta hai..
Desh ubal raha hai, aayega josh, dum, mithaas... badlega desh ka rang..*

Hoping that this new year our nation develops in all aspects and we give in our best to this development.

Wish you all a Happy & Prosperous New Year!!!

Prof. R. V. Adivarekar
Editor, JTA



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Reduction in the Cuts and Defective of the Worsted Suiting Fabric

R S Tomar*
Raymond Ltd.,

Abstract

In the present study, we are continually studying the each and every cause of faults which are responsible for the increase in C & D %, up to mending stage in our plant. For improving the c&d we are putting our efforts in all directions i.e Technical reasons or manual failure.

Key words

Fabric Defects related to Yarn spinning, Weaving, Mending

1. Introduction

Textile manufacturing process consists of the sub processes of spinning, weaving, dyeing, chemical processing. Faults visible in fabric can be back traced to either of these processes. Hence fabric defects have been categorized as spinning, weaving, dyeing & processing faults and also mending faults arising due to mistakes in the fault removal or mending process. The treatise describes major contributing fault with visual aids wherever possible.

- We are continually studying, manual reason for that we have educated the person who are directly involved on the job by calling and showing them the faults in the fabric or in the Yarn repeatedly and continuously make them understand in simple language and with the help of visuals also. Visuals are displayed at their work place and the defects and identified reasons are highlighted and this way we create a high level of awareness among the people and also make them accountable.
- Sampling method and checking system is studied, revised, developed and the responsibility is fixed and non conformity material will not run casually in any case.
- All major contributing defects are taken care and

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reasons are found out, systems are developed, routine checking, corrective and preventive actions are taken & also focus on improvement areas are identified.

- Focus is given on Faults which are contributing Higher C & D % in the fabric.
- Special care has been taken for House keeping so that yarn or fabric may not get spoiled and mixing of yarn with similar shades, different blends material different yarn counts, different Twisted Yarn (S & Z) Single Twist Yarn and Double Twisted Yarn does not take place.

2. Faults which are contributing Higher C&D %

2.1 Spinning Defects

Un-even Yarn i.e Count variation, Thick & Thin places or spinners doubles etc. is mainly caused due to not proper Drafting Arm Pressure, Loose Apron, Bad condition of Cots at Roving and Ring Frame, piecing of sliver is not proper at Final Gilling by the operator at breaking of sliver or at the time of Running out of material.

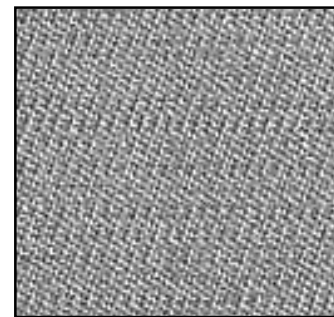


Figure 2.1 : Un-even Yarn in the fabric sample

Fibre contamination is caused either during running of the material on m/c or at the time of material/shade change on m/c, too many shades of same count running on same m/c., no separation of dark or light shades during running on same m/c, wrong Planning of A/C in the department i.e Supply Duct and Return Duct are on the top of the m/c in the ceiling or contamination already present in the raw material like poly propylene because of packing materials, raw material i.e. wool containing vegetable matters etc. In this case, nothing can be done except to remove during Mending.

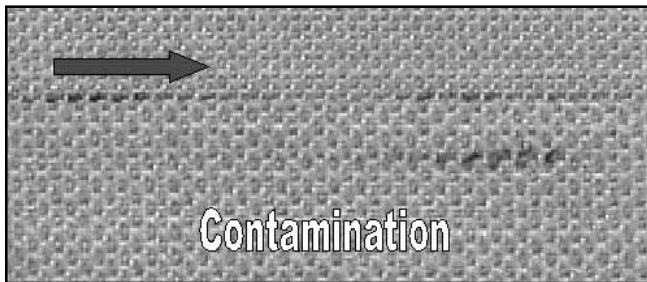


Figure 2.2 : Fibre Contamination in fabric

Loose Twist - Twist variation, Bullets etc. causes due to operator's mistake or waste accumulated at the spindle of Two For One Twisting m/c. Bullets are caused when the initial start yarn length of the feed yarn package on TFO m/c i.e bunching length which do not have twist is not removed manually.

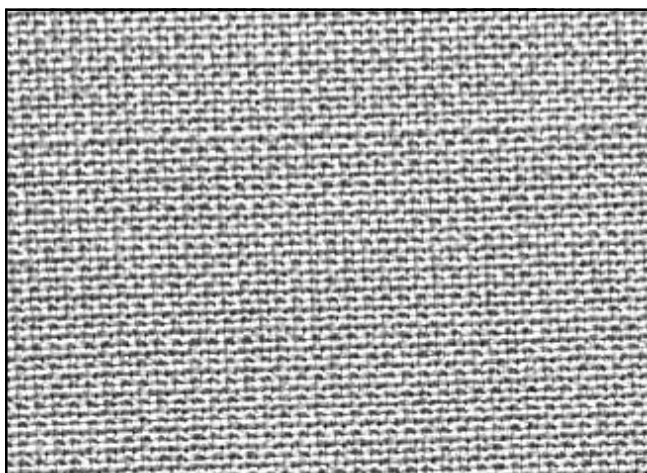


Figure 2.3 : Low Twisted Yarn in weft direction

3. Weaving Defects

Starting Marks : This is a very subjective decision by the percher if light Let off is there For this we have to avoid the stopping of M/c due to Weft break or Warp breaks because in case if m/c stops then starting marks is seen in the fabric. It is more visible in case of light

weight than medium or heavy weight quality. As a precautionary measure, we have to change the stopping points which helps in reduction of starting marks. Also, replacement all of Mechanical Let off to Electronic Let off on these m/c is required.

Loom Abrasion is caused due to Temple Ring or Temple cover. Abrasion is also caused due to burrs on Cloth support, if any things struks on emery rolls. All Blunt spikes rings of temples are changed and covers are also checked for burrs They are made smooth and are chrome plated. Cloth support is also checked and made smooth, if found not proper are changed. Grey white piece strips are checked in UV light and after strip dyeing to confirm for Loom Abrassion.

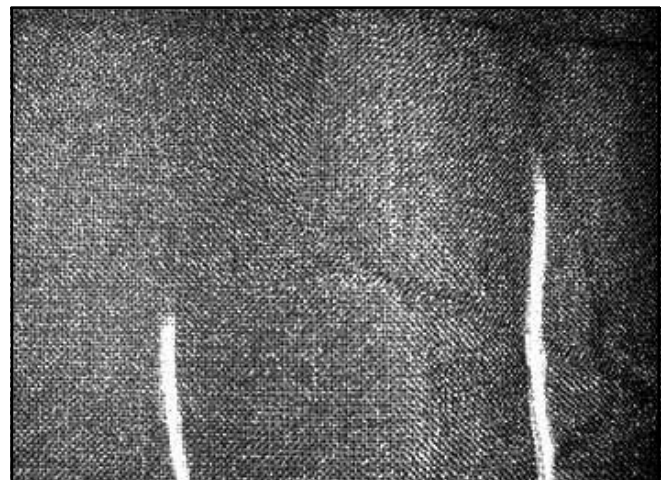


Figure 3.1 : Temple cover abrasion

Defective Selvedge: At the start of beam gaiting, the Jaquard Monogram and selvedge ends are properly checked for any abnormalities in selvedge. Improper Selvedge Tuck -in or loops at the edge of selvedge, Tails out or Weavy selvedge to be looked in to so that fabric woven is perfect as selvedge is the decoration of the fabric.

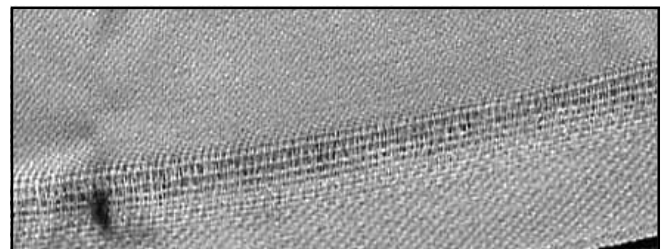
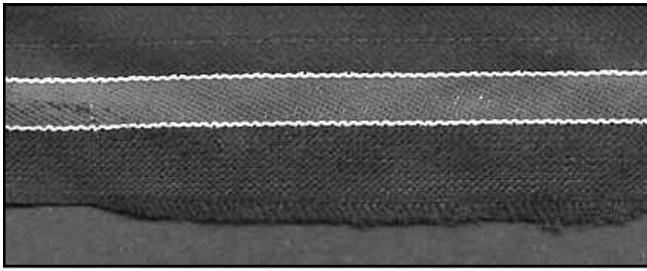
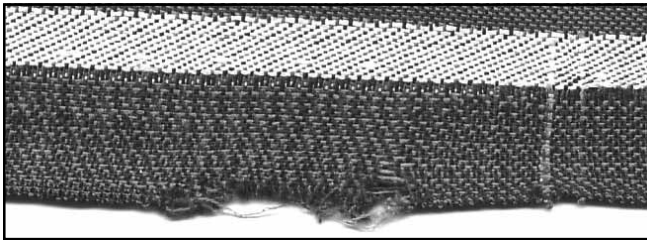


Figure 3.2 : a) Defective Selvedge



b) Defective Selvedge



c) Defective selvedge

Tight Ends: To ensure that there is no bundle kept at the back of the beam of the Weaving M/c which is used in place of the missing ends because there is a variation in tension as compared to the ends of the beam and these ends behave as Tight ends or also to ensure that there should not be any cross ends in the warp sheet or any type of entanglements of warp ends. Warping is also a focus area to avoid the tight ends. To ensure from warping for Tight Ends, Creel Tension has to be checked for each yarn package and it should be within the acceptable limit.

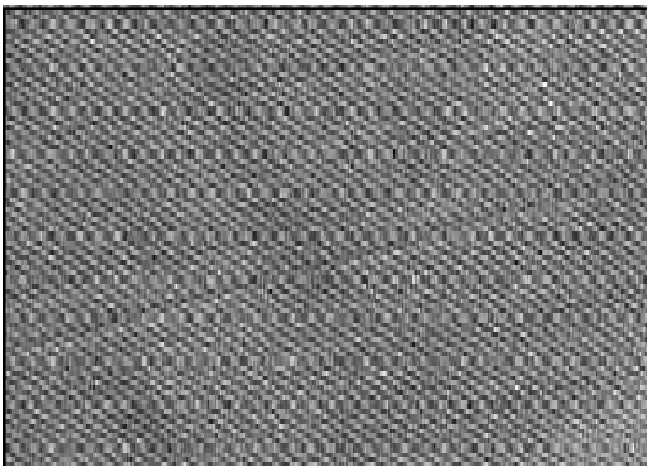


Figure 3.3 : Tight end in the fabric

Broken Picks: Awareness is created among the operator so that broken picks may not go in bigger length in the fabric. Mainly it is due to the Faulty gripper which should be checked at the time of Beam gaiting. Mixing of Projectiles running is one for the same.

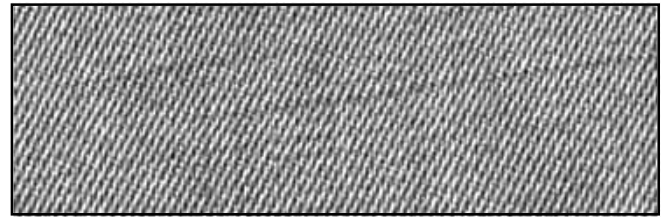


Figure 3.4 : Broken Picks in fabric

4. Mending Defects

Wrong Mending: This defect is the failure of mending work i.e mending is done to save the fabric to go as fresh but some times the defect is of serious nature and after making attempts it can not be made as original and looks different or shining and hence fabric can not pass as good, Some fabric are very delicate nature such as Polyester, viscose where if attempts for repair done it shows and fabric does not pass as good.

For improving Mending work, we identify that the needle which were being used by the mender is creating shining because it ruptures and abrades the yarn surface. A suitable needle is found which is having a ball point at the tip & which is not abrading the yarn when used, hence avoiding shining in the yarn after finishing of the fabric. Also, we avoid the use of Pincher Rubber for relaxing the filled yarn which is attended by the Mender. This technique helps a lot for improving the quality of Mending. Also, we identified certain weak menders those who poorly perform in terms of their C&D %. We educate them and Training is further provided so that they improve their performance.

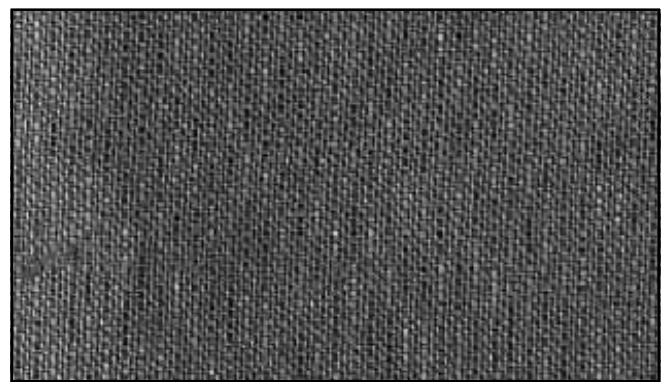


Figure 4.1 : Wrong Mending

Pin Hole : During Mending if the mender does not push back the Warp or Weft knots at the back surface of the fabric than those knots during shearing operation in Finishing creates pin hole. if knots are also not properly pulled or hand knot is having bigger tail which

is still interlaced in the fabric, it may cause pin hole in the fabric.

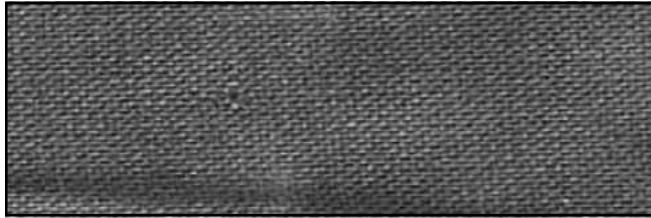


Figure 4.2 : Pin Hole in the Fabric

5. Regression Analysis

The study was carried out from Sulzer & Picanol Weaving M/c. Though sulzer m/cs are quite old m/cs. still the weaving m/cs run with a installed efficiency of 85% and weaving Defects 1.8%

Preventive maintenance are being done as per schedule of the manufacturer, and each Loom is assessed in terms of C & D % and accordingly identified looms are focused for the particular maintenance work.

Mending Defects are also significantly reduced and in similar way, each mender is assessed in terms of their production and C & D % and accordingly identified menders are focused and need based training is provided to have a continual improvement in their mending performance.

Reference

Handbook of Worsted Wool and Blended Suiting Process.



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Application of Synthesized Disperse-azo Dyes on Silk Fabric- A New Vista of Silk Dyeing

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Abstract

The dyeing of silk fabric has been carried out using four synthesized disperse-azo dyes. It has been observed from the study that the synthesized dyes can be applied successfully on silk fabric and thus has tremendous potential towards dyeing of blended silk fabric with synthetic fibres. Experimental results also reveal that dyeing phenomena is controlled by the irreversible thermodynamics of the process which is further governed by the ratio of inorganicity (I) and organicity (O) ratio of the dyestuff, dye molecules chemistry, entropy, enthalpy, partition or dye-fibre interaction coefficient (K) at molecular level and heat of adsorption. The dye-fibre interaction coefficient (K) has been calculated for four different dyes at three different percentages of shade and temperatures. Experimental results show a linear relationship between material to liquor ratio and K-value and slope (L) of the dyeing curves at thermodynamic equilibrium. All the synthesized dyes showed good washing, rubbing and light fastness properties except Dye-II due to its high molecular weight.

Key words

Disperse-azo dyes, inorganicity and organicity ratio, dye-fibre interaction coefficient (K), thermodynamics.

1. Introduction

The demand of blended silk fabric is increasing day by day due to constant increasing price of silk fabric. This has made the conjugation of silk and synthetic fibres more popular in the market. The dyeing of these blended fabrics becomes less cost effective as they require different classes of dyestuff which involved high energy consumption due to their lengthy process sequence. Keeping this industrial problem in mind it has been thought to develop a suitable class of azo-disperse dyes for dyeing of these blends with the same sort of dyestuff in one bath which will not only lower the cost of production but also reduce down the energy consumption. Literature survey over the last decade reveals very little information about the synthesis of disperse-azo dyes and their application of silk fabric. Yildiz and

Boztepe [1] and Dixit et al [2] examined the exhaustion of several disperse dyes for domestic silk fibre. However; they did not determine the affinity of adsorption and discuss the causes of differential absorption among the dyes. Chakraborty et al [3, 4] synthesized, characterized and applied dispersed-monoazo dyes on wool, silk and nylon fabrics and examined their microbial activities. But, so far no study has been carried out regarding the dyeing mechanism of silk with disperse-azo dyes based on thermodynamic parameters.

The present paper deals with the application of synthesized disperse-azo dyes on the basis of thermodynamic parameters of silk dyeing.

2. Materials and Methods

2.1 Material

Degummed and bleached silk fabric (1/1 plain weave, 62 ends/cm, warp count 22d, 54 picks/cm, weft count 34d, 60 g/m²) was used. The material was soaked in Iodet T (non-ionic detergent 1g/l) for 30 minutes at 80° C.

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2.2 Dyes

The disperse-azo dyes used in the study are listed in Table 2.1.

Table 2.1: Synthesized disperse-azo dyes with molecular weight and structure

Dye	Molecular weight	Structure
4-methoxybenzeneazo-2'-naphthol (Dye-I)	243.22	
2-nitrobenzeneazo-2'-naphthol (Dye-II)	300.32	
2-nitro-2'-hydroxy-4'-methyl azobenzene (Dye-III)	270.29	
2-nitro-2',4'-dihydroxyazo benzene	272.17	

2.3 Dyeing of silk

The dye (0.2g) was pasted with 2 ml ethanol and then 80 ml of boiling water was added and stirred to achieve a clear solution. The resulting dye solution was made up to 100 ml with boiling water. The dye bath was prepared with the dye solution (20 ml), acetic acid (2 ml of 10 %), Glauber's salt (2 ml of 20 %) and water (16 ml). The silk fabric (2 g) was immersed in separately prepared dye bath at constant temperatures of 70°, 80° and 90° C. Dyeing was continued until the equilibrium was reached. The pH was adjusted to 4-5 with acetic acid. The dyed material was then taken out of the dye bath, washed with cold water twice for 10 minutes, soaped with Iodet T (2 g/ l) in a bath containing water (material to liquor ratio, 1: 20) at 50° C for 20 minutes followed by thorough washing with cold water and drying [5].

2.4 Measurement of dye uptake

The dye uptake of the silk sample was measured by double beam UV-VIS spectrophotometer. 1g of silk sample was dissolved in 70 % (w/w) sulfuric acid and made 50 ml with further addition of acid. To determine

the wavelength of the dyestuff, a dilute solution of dye was prepared with the acid. Maximum wavelength was determined with the help of optical density reading. Spectrophotometer was then set for the fixed wavelength of particular dyestuff. The optical density of the stripped dye solution was measured. Then the same experiment was repeated at least for 5 concentrations of the dye solution for drawing the calibration curve. A curve of concentration (mg/l) versus optical density was then plotted which gives a straight line and with the help of calibration curve, dye concentration in mg/l was read out and percentage of dye in 100g of fabric was calculated.

2.5 Measurement of affinity of adsorption

The affinities of adsorption (-Δμ°) of dyes on silk fabric were determined by using the equation

$$-\Delta\mu^\circ = RT \ln (K/V) = RT \ln [D]f / V [D]s;$$

Where, R = gas constant, T = absolute temperature in kelvin = (273+t), V = volume term = 0.28 lit/kg, [D]f = dye uptake i.e. dye adsorbed by the fabric and [D]s = the concentration of unabsorbed dye.

2.6 Measurement of heat of adsorption and entropy change

The standard heat of adsorption (ΔH°) and entropy change in the dye adsorption (ΔS°) were calculated by using the formula:

$$\Delta\mu^\circ/T = (\Delta H^\circ/T) + C$$

Where, C = molar concentration and Δμ° = ΔH°-TΔS° which is derived from the second law of thermodynamics (Gibb's free energy equation).

2.7 Measurement of fastness properties

The fastness to light and washing were assessed according to British standard 1006-1978 and IS 765-1979. The rubbing fastness was tested using a Crock meter (Atlas) AATCC-1961.

2.8 Calibration of intrinsic partition coefficient

The dye uptake of silk fabric (C) and the relative concentration of dye in fibre can be expressed as a function of dimensionless quantity Bt (i.e. time scaled rate constant) for various degrees of exhaustion (E).

The exhaustion % (E) can be defined as

$$E = [100/ 1 + (r / K)] \%$$

Where, r = the liquor ratio = $V_b = [m_b \rho_f / m_f \rho_b]$, V_b , V_f = volume of the bath and the fibre, M_b , m_f = mass of the solid phase of the bath and the fibre, ρ_b , ρ_f = density or concentration of the bath and density of the fibre.

Table 3.1: Thermodynamic parameters for adsorption of synthesized disperse-azo dyes on silk fabric

Dye	pH	Temp(°C)	K (lit/gm)	$\Delta\mu^{\circ}$ (kcal/mol)	ΔS° (kcal/mol)	ΔH° (e.u.)	Inorganicity Organicity
Dye-I	4-5	70	0.539	5.36	-11.02	-14.01	0.71
		80	0.378	5.12			
		90	0.241	4.79			
Dye-II	4-5	70	0.134	4.68	-8.27	-11.27	0.52
		80	0.089	4.19			
		90	0.068	4.04			
Dye-III	4-5	70	0.322	4.87	-9.47	-13.83	1.05
		80	0.243	4.75			
		90	0.153	4.68			
Dye-IV	4-5	70	1.284	5.71	-9.89	-13.01	0.79
		80	0.848	5.62			
		90	0.581	5.43			

Again, $B = [LRQ/n_{\alpha}]$ and $K = [C_{f,\alpha} / C_{b,\alpha}]$ where, L = proportionality factor or phenomenological coefficient as dyeing is considered to be a thermodynamics of irreversible process (TIP), R = linear constant, Q = surface area of the interfaces between the bath and the fabric, n_{α} = amount of dye present in the fabric during thermodynamic equilibrium, $C_{f,\alpha}$ = the concentration of dye within the silk fabric during thermodynamic equilibrium at an infinite time period and $C_{b,\alpha}$ = the concentration of dye in bath and inside the fibre at equilibrium.

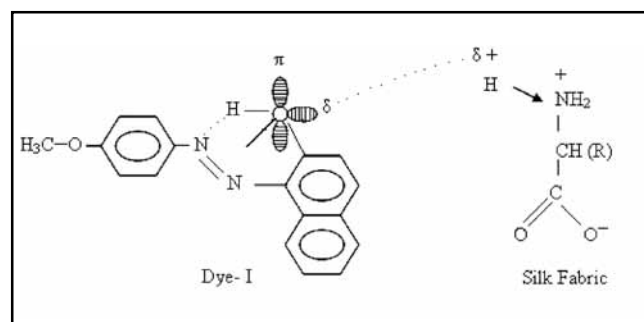
3. Results and Discussion

3.1 Effect of temperature on the thermodynamic parameter in silk dyeing

Each azo-dye is characterized by arylamine substrate with different functional groups and phenolic substrates having differences in aromatic moiety. The data reported in Table 3.1 corresponds to the variable degree of the parameters experimentally observed.

Since dyeing process involves in true sense the bounding attachment between functional groups of dyes and active functional groups of fabric surface molecule ($-\text{OH}$ groups or $-\text{NH}-\text{CO}-\text{R}$ group) through covalent or ionic mechanism, there must be loss in heat or enthalpy at constant pressure. Hence, the negative value of ΔH and ΔS (degree of randomness decreases) are obtained. The magnitude of $\Delta\mu^{\circ}$ is positive due to fact that $\Delta H^{\circ} \ll T\Delta S$. The differences in the values of

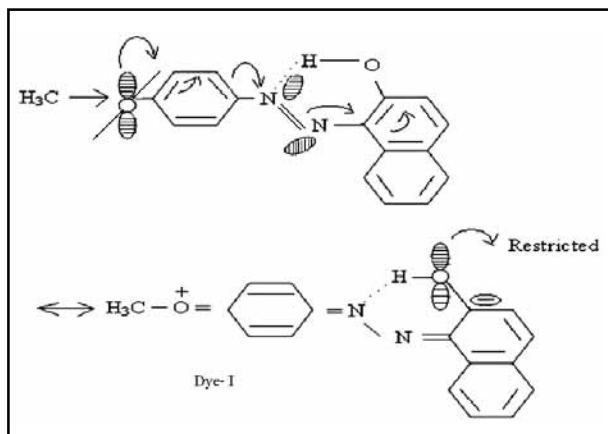
$\Delta\mu^{\circ}$, ΔH° , ΔS° can be rationalized from the differences in bonding strength between dye and fabric. It is known that phenolic OH has some +R effect and as a result a dye has intramolecular H-bonded structure.



Since, phenolic O has some positive charge due to +R effect and also amino H of the silk fabric is also positive, we expect some repulsive interaction between the two centers and so there should be considerable weak attachment between them and hence ΔS should not be too negative. But high negative value of ΔS (-14.01) is observed, possibly due to partial flow of π electron cloud from methoxy O (for its +R effect) to phenolic C attachment to O.

H of the polypeptide chain can so be strongly bound to phenolic O by H bonding. Highest negative value of ΔH° for Dye-I is also quite relevant to the bond structure description given above to this dye.

$\Delta\mu^{\circ}$ slowly decreases with increase in temperature, as mentioned in the Table 3.1. The variation of $\Delta\mu^{\circ}$ with



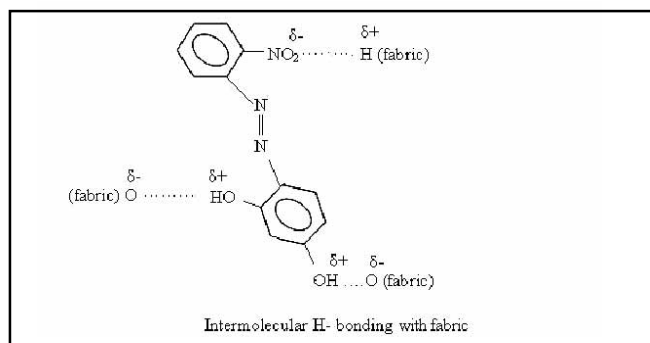
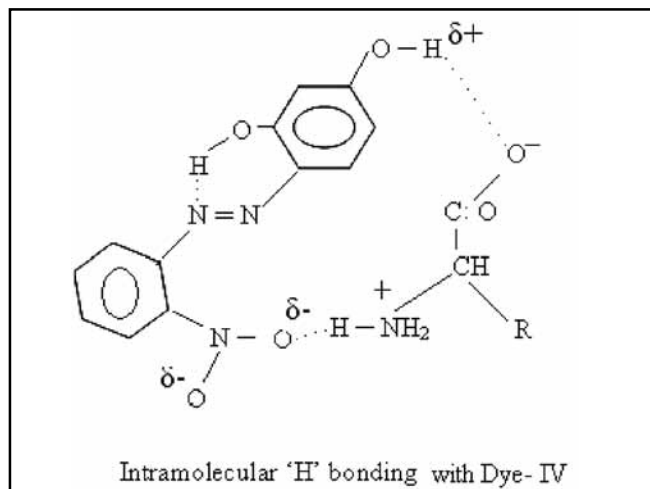
temperature is known from Gibbs-Helmholtz equation: $\Delta^0\mu^0 = (\Delta G^0 / n)$; $\Delta\mu^0 = \Delta H^0 + T [\delta (\Delta\mu^0) / \delta T]$ With slow increase in temperature, the rate of change of temperature co-efficient of affinity of dyeing slowly increases, but at the same time ΔH^0 decreases steadily resulting slow decrease in μ^0 . The decrease of ΔH^0 with temperature is associated with gradual weakness in H- bond strength.

In terms of above justification, the data reported in Table 3.1 against Dye-I, it is possible to clarify the same for other dyes.

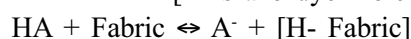
In dye-II, the specific difference in the structure lies in the placement of -NO₂ group at O- position to amine fragment instead of -OCH₃ at P- position of Dye-I. This -NO₂ group has strong - I and - R effect. The consequence is that the electron density around benzene moiety is not only reduced, but also naphthalene moiety has some electron deficiency which will reinforce some withdrawal of π electron cloud from phenolic oxygen. This may reduce the bounding attachment between phenolic 'O' and the H centre of the polypeptide chain. Low negative values of ΔH^0 and ΔS^0 are inconsistent with this theoretical concept. Thus cumulative affects of ΔH^0 and ΔS^0 appear in $\Delta\mu^0$ (= 4.68).

On moving to Dye-III, the -CH₃ group of + I effect is introduced in the phenolic part and the naphthalene fragment is changed to benzene moiety leaving amine substrate remains unchanged. Thus we expect again an increase in negative value of ΔH^0 and ΔS^0 and positive value of $\Delta\mu^0$.

In dye-IV, compared to dye-III, only one extra -OH group is placed instead of CH₃. It means that an extra + R effect is created but + I effect is suppressed to some extent. The consequence is that the total effect is almost unaltered which is consistent with the comparable data for $\Delta\mu^0$, ΔH^0 , ΔS^0 in Dye-IV.



to such an extent that direct H⁺ transfer to fabric-carboxy oxygen is possible.



This ionic interaction will help to increase the solubility of dye in fabric which will decrease the wash fastness property of dyed fabric. This phenomenon is in accordance with the increase in $\Delta\mu^0$ and decrease in $-\Delta H^0$ and $-\Delta S^0$.

3.2 Interpretation of the inorganicity and organicity (I/O) ratio

The inorganicity (I) and organicity (O) individually are not quantitative physical parameters. But the I/O has some significance from statistical point of view. Quantitatively, the parameter I and O has no fruitful meaning but an increase in ionic character, hydrophilicity, number of inorganic elements or functional groups relating to acidity, basicity, oxidisibility and reducibility etc. obviously increase value of I and O ratio, which in turn will partly reduce the dye affinity to fabric. Again an increase in covalent character, hydrophobicity, number of alkyl groups or organic functional groups or 'C' elements relating to increased scope of electrophilic substitution, neutral character to acid-base be-

havior etc. will decrease the I and O ratio and consequently the dye- affinity will increase.

Taking azo-benzene as the standard reference, where I/O is taken to 1.00, we can compare this with the synthesized dyes (dye- I, dye- II, dye- III and dye- IV). In dye-I, the group OCH_3 being an organic functional group is introduced at p- position of amine substrate and we expect some π cloud flow from the oxygen to benzene ring which results in slight increase in organicity (O) decrease in I/O below 1 (0.71) as shown in Table 3.1. The phenolic -OH group has almost equal I and O and hence its effect to I/O is not considered.

In dye- II, a sudden change has occurred as $-OCH_3$ at p- position is replaced by $-NO_2$ at p- position. $-NO_2$ is an inorganic functional group, yet it has strong - I and - R effect and we expect a considerable π cloud transfer from benzene ring to NO_2 group. This will increase largely the O value which results in much less value of I/O (= 0.52).

In dye-III, one extra $-CH_3$ group is introduced at m- position to phenolic substrate that largely hinders the π cloud transfer from nitro aryl benzene ring to $-NO_2$ group. As a result the O value is suddenly reduced. This increases the I/O value (= 1.05).

In dye-IV, CH_3 group in phenolic substrate is replaced by -OH group which has + R effect. The cumulative effect of two -OH groups will eventually increase again the O value resulting in decrease in I/O (= 0.79).

3.3 Relation between I/O and dye affinity

Highest dye affinity is observed when I/O = 0.79 in case of dye- IV but, it is lowest in case of dye- II when I/O = 0.52. It means that I/O value is optimized when dye affinity is maximized. The maximum value of $\Delta\mu^0$ indicates thus an equilibrium point and we expect a gradual increase in $\Delta\mu^0$ with increase of I/O from 0 to 0.79 and a decreasing trend thereafter.

To understand this unusual variation of $\Delta\mu^0$ with respect to I/O, knowledge of bonding environment of both dye and fabric is required in relation to thermodynamic factors.

3.4 Interpretation of K values

Table 3.1 reveals that dye-I, II, III and IV shows gradual decrease in K value with 10° increase in temperature from $70^\circ C$. Again at $70^\circ C$, K value is maximum with dye-IV, which is controversial; otherwise it is maximum at dye- I and minimum at dye-II, which is in keeping with I/O value.

Table 3.2: Values of K at different values of E and M: L

E value	K value	
	At M:L :: 1: 10	At M:L :: 1: 20
1	0.101	0.202
2	0.204	0.408
4	0.416	0.833

Moreover, Table 3.2 suggests that with increase in the values of E and M:L, the value of K gradually increases. These are consistent with adsorption isotherm graphs for each dye. Adsorption isotherm may be of two types namely chemisorptions and physical adsorption. The 1st type is given by Langmuir and 2nd type is given by van der Waals', modified by (a) Langmuir and adjusted by (b) Nernst. Langmuir adsorption isotherm is expressed by $\log(x/m) = \log k + 1/n (\log C)$ or roughly dye-uptake is a function of $\log(x/m)$, where x/m denotes the amount of dye molecule per unit mass of fabric. Log C is a function of concentration of dye in solution. The optimum pH maintained during dyeing processes is 4-5, a slightly acidic pH at which ionification of phenolic OH is restricted to increase the adsorption of dye in fabric.

From graphical point of view Langmuir adsorption isotherm gives a straight line by plotting dye- uptake in fabric against concentration of dye in solution at 70° , 80° and $90^\circ C$.

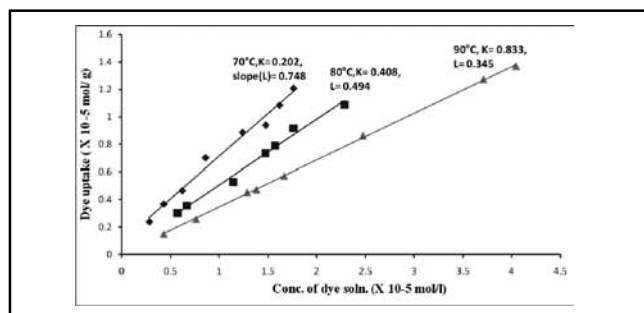


Figure 3.1: Adsorption isotherm of dye-I for silk (at pH 4-5)

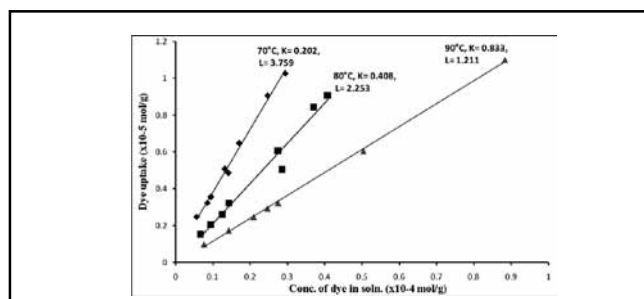


Figure 3.2: Adsorption isotherms of dye- III (at pH 4-5)

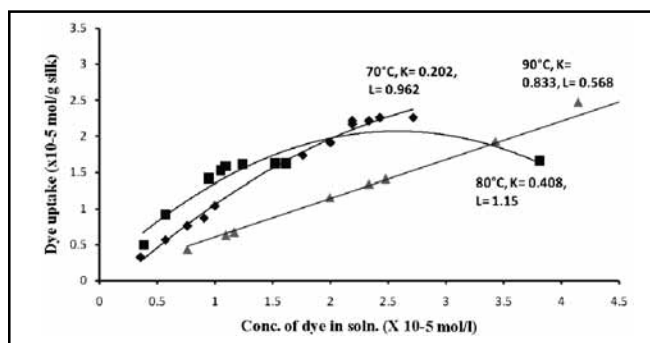


Figure 3.3: Adsorption isotherms of dye- II (at pH 4-5)

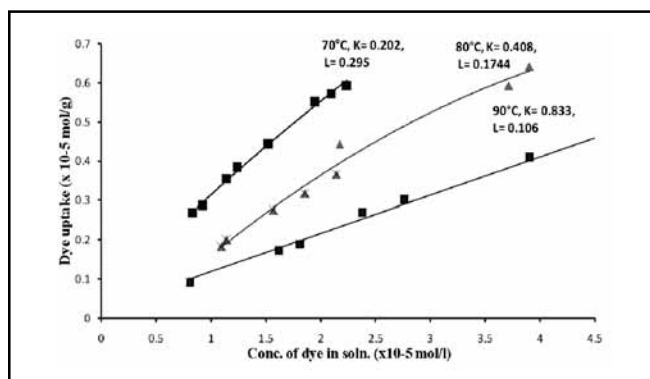


Figure 3.4: Adsorption isotherms of dye- IV (at pH 4-5)

The linearity is shown only in Dye-I and Dye-III where there is $-\text{OCH}_3$ and $-\text{CH}_3$ group as electron donors. So, Dye-I and dye-III show chemisorptions (chemical bonding between dye and fabric) as shown in Figs. 3.1 and 3.2. The Nernst adsorption isotherm gives a non-linear curve which is partly exponential in nature by plotting dye uptake against concentration of dye in solution also at pH 4-5. This is shown by dye-II and dye-IV as shown in Figs. 3.3 and 3.4. It is revealed from the plots that as temperature increases from 70° to 90°C , the slope of the graph (L) and K decreases indicating the equilibrium point of dyeing. In case of dye-II and dye-IV, on increasing temperature, complex adsorption mechanism changes to Langmuir adsorption type and reaching the equilibrium point whereas in dye-II and IV it changes to a combination of chemisorption and physical adsorption type.

3.5 Fastness properties of synthesized dyes

Table 3.3 represents the fastness properties of four synthesized dyes. It is apparent from the Table that all the dyes show good washing, rubbing and light fastness properties except Dye-II which has comparatively poor performance in terms of fastness. This is due to the high molecular weight of the dye as shown in Table 2.1.

Table 3.3: Fastness properties of the synthesized dyes on silk fabric

Dye	Washing fastness	Rubbing fastness		Light fastness
		Dry	Wet	
Dye -I	5	4-5	4-5	5
Dye-II	3-4	4	4	4
Dye-III	4-5	4-5	4-5	6
Dye-IV	4	4	4	6

4. Conclusion

The dyeing of silk fabric using synthesized disperse-azo dyes has a great potential not only in dyeing of silk fabric but also in dyeing of silk-synthetic blended fabrics. During dyeing of silk the adsorption isotherm was mostly found as partition type and exothermic in nature. The affinity of the dyestuffs towards silk fabric is found to be increasing with the decrease in I/O values of the dyestuffs. The alkyl and the nitro groups play an important role for dye adsorption as compared to hydroxyl groups. All the synthesized dyes showed good washing, rubbing and light fastness properties except Dye-II due to its high molecular weight.

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Dyeing with a Natural Orange Pigment from Bacterial Source

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Abstract

A bacteria producing orange pigment was isolated from garden soil by visual observation on modified nutrient agar. Studies regarding the growth conditions of the bacteria, extraction of the orange pigment and its application for dyeing of silk, wool and cotton fabrics have been studied. Dyeing of silk, wool and cotton fabrics with this orange compound as a natural dye indicated that the natural orange dye had affinity for silk and wool fibres while no dyeing was observed in case of cotton. The colour strength values of the silk and wool fabrics were good with excellent rubbing fastness, moderate wash fastness and poor light fastness properties. The dyed fabrics showed a remarkable antibacterial property.

Keywords

Natural dye, orange pigment, bacteria, natural fabrics, antibacterial property.

1. Introduction

At present, fabrics are mainly dyed using synthetic colourants. The production of synthetic colourants is technically and economically more advanced and efficient with colours covering the whole colour spectrum. However, this has resulted in the discharge of large amount of highly coloured waste water that not only affects water transparency in water bodies but also creates problems for photosynthetic plants and algae since light absorption is hindered by synthetic colourants. In addition, many synthetic colourants are mutagenic and carcinogenic leading to several human health problems [1-3]. Hence, the demand for natural instead of synthetic colourants for colouring fabrics is increasing. Microorganisms have recently received much attention as a natural source of colourants since they are known to produce red and yellow pigments. *Monascus* fungi produce red pigments that are used as food colourants, *Ashbya* produces yellow riboflavin and *Fusarium oxysporum* produces anthraquinones. Besides, some microbial colourants, especially prodiginines, have shown remarkable antibacterial activity in addition to providing bright colours which may impart antibacterial property to the fabrics resulting in the

production of naturally coloured antibacterial textiles [4-8].

This article mainly focuses on the dyeing performance of an orange pigment extracted from bacteria isolated from garden soil. The antibacterial nature of the dyed fabrics has also been determined and discussed.

2. Materials and Methods

2.1. Materials

Silk and wool fabrics were purchased from local markets, Fort, Mumbai whereas cotton fabrics were supplied by Premier Mills, Mumbai. Acetone extract of the orange pigment from the isolated bacteria have been used as the natural dye.

2.2. Methods

2.2.1. Isolation of the pigment producing Organism

Soil samples were collected from Institute of Chemical Technology [ICT]'s garden. In the laboratory, under aseptic conditions, 1gm of soil was suspended in 0.85% of sterile saline. The flask was shaken for about 5 mins at 150 rpm ensuring homogenous soil suspension. The contents of the flask were serially diluted upto 10⁻⁷ and 0.1ml of the last two dilutions were spread on Nutrient agar plates using traditional surface spread technique. The plates were incubated at 37°C for about 4 days and checked for pigment producing bacteria. The selected pigment producing bacteria was subjected

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to mass production to obtain maximum yield of pigment.

2.2.2. Production and Extraction of the Pigment

The isolate was repeatedly sub cultured on Modified Nutrient agar medium to ensure the isolates purity and its repeated ability to produce pigment at a constant intensity. For mass production of pigment, 100 ml of Modified Nutrient Agar containing Peptone 1%, Yeast Extract 0.5%, Sodium Chloride 1.5%, Dextrose 1.5% and Agar agar 1.2% was poured into large petri dishes. The plates were allowed to solidify. 0.3 ml of the pigment producing bacterial culture was spread on these solidified modified nutrient agar plates. The plates were kept in the incubator at 40°C for 4 days. After incubation the cells were harvested using a scalpel washed in minimum volume of distilled water and the cell mass obtained was used for extraction of pigment. To this coloured cell mass, 40 ml of acetone was added and centrifuged at 5000 rpm for 20 mins. The coloured acetone supernatant was collected in a beaker. The process was repeated till the acetone obtained was colourless. The coloured supernatants were combined and this acetone extract of the pigment was used as a natural dye in dyeing of natural fibres.

2.2.3. Dyeing Procedure

Dye baths were prepared by diluting acetone extract of orange pigment with water [1:2]. Dyeing of silk, wool and cotton was carried out by keeping the MLR ratio as 1:30. For cotton, Glauber's salt was added to the dyebath. Dyeing experiments were conducted in Rotadyer [supplied by Rossari Labtech] at 80°C for about 60 mins. After 60 mins, the rotadyer was brought to room temperature and the fabric sample was removed and given cold wash followed by soaping using 1.5g/L non-ionic detergent (Auxipon NP) at 80°C for 20 min. followed by cold wash. Then it was air dried and taken for the further study of; colour value and fastness properties, like wash fastness, light fastness and rubbing fastness.

2.3. Assessment of Colour Strength properties

Dyed samples were evaluated for the depth of the colour by determining K/S and reflectance values using a Spectra flash ® SF 300, Computer Colour Matching System (Datacolour International, U.S.A). Kubelka-Munk K/S function is given by:

$$\frac{K}{S} = \frac{(1 - R)^2}{2R}$$

where, "R" is the reflectance at complete opacity, "K" is absorption coefficient and "S" is the Scattering coefficient.

2.4. Fastness Testing

The dyed samples were tested for their fastness properties according to the ISO standard and AATCC methods. The specific tests were as follows: Colour fastness to washing, ISO 105-CO2 (1989); Colour fastness to light, AATCC 117 using Q-Sun's Xenon Arc light fastness tester; Colour fastness to Rubbing, ISO 105-X12 (1987) using Crockmeter.

2.5. Antimicrobial Activity of the Dyed Fabrics

Antimicrobial activity of dyed fabrics was studied against Staphylococcus aureus by AATCC method 100 wherein dyed fabric was incubated for 24 hrs with the organism under study in a liquid nutrient medium. % reduction in the viable count of the organism was used to determine the antimicrobial nature of the dyed fabric.

3. Results and Discussions

3.1. Selection of the Pigment producing Isolate

Microbiological analysis of the soil sample collected from ICT garden revealed five pigment producing bacteria. From these five bacterial strains, two were yellow pigment producing bacteria and three were found to produce orange pigment. The pigment production by bacteria was observed for every 24 hrs. Initially, after 24 hrs, there was slight pigment production observed in the bacterial strains. However, after 48 hrs one bacterial strain began elaborating dark orange pigment. Thus, this bacterial strain was isolated for further studies over the other strains on the basis of the tinctorial capacity of the generated pigment.

3.2. Production and Extraction of the Orange Pigment

Inclusion of sugars in media composition is known to act as pigment enhancer [8, 9]. Hence, in our experimental methods dextrose was incorporated into the nutrient agar medium and it was observed that the bacterial strain produced dark orange reddish pigment. After 4 days of incubation at 40°C, the pigment was extracted in acetone and a dark orange acetone extract was obtained which was used for further dyeing experiments.

3.3. Dyeing Performance

The microbial orange pigment was found to be capable

of dyeing silk and wool fabrics. No dyeing was observed in case of cotton. The silk and wool fabrics were dyed orange by the microbial pigment. The dyeings obtained were uniform. The shades obtained were deeper in wool as compared to silk. The colour strength and the fastness properties of the dyed fabrics are given in table 3.1. The wash and rubbing fastness properties were found to be good while light fastness was recorded as poor [Grade I].

3.4. Antibacterial Activity of the Dyed Fabrics

The result of the antibacterial activity study revealed that wool and silk fabrics dyed with microbial orange pigment had the ability to kill about 90% of the S.aureus bacteria within a 24 hr contact time. Thus, from the data, it can be stated that the antibacterial activity of the microbial pigment could be obtained on the fabrics.

Table 3. 1: Colour strength, Fastness and Antibacterial properties of the Fabrics Dyed with Microbial Orange Pigment

Fabrics dyed with microbial orange pigment	K/S	Wash Fastness		Light Fastness	Antibacterial activity (% reduction in bacterial growth)
		Change in shade	Staining on adjacent fabric		
Wool	9.832	3-4	3-4	1-2	92
Silk	5.125	3-4	3-4	1-2	90

4. Conclusion

A bacterial strain isolated from garden soil produced copious amount of dark orange pigment. The preliminary dyeing tests indicated that the orange pigment can be used as a natural dye for dyeing of wool and silk fabrics providing good orange colour tone. The dyed fabrics showed remarkable antibacterial property enhancing its commercial value. Such fabrics may find a place in the field of medical textiles. Moreover, various features of microbial pigments like natural origin, production independent of season and easy handling and storage compared to plant and animal dyes make them a potential source as an alternate to synthetic dyes in specific areas. The light fastness being poor, the future studies needs to be done to improve it.

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Antibacterial Activity of Garcinia Indica Dye

[Patent Application Number -2245/CHE/2010]

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Abstract

Bacteria are present almost every where and synthetic antibacterial are associated with side effects. *Garcinia indica* tree is rich source of tannin content and possess antibacterial activity against a wide range of bacteria. From *Garcinia indica* waste bark and waste fruit shell dye components were extracted and applied on organic cotton and ahimsa mulberry spun silk fabrics. Antibacterial activity was quantified by agar plate method. Bacterial inhibition was determined by the reduction in number of colony forming units. *Garcinia indica* extract dyed on organic fabrics with mordant's retain more than 59% of activity after 4 washes. The dye is eco-friendly in nature, nontoxic, antibacterial, UV protective and medicinal.

Key words

Garcinia indica dye from waste bark and fruit, Organic cotton, Ahimsa mulberry spun silk, Antibacterial, UV protective

1. Introduction

Bacterias are unicellular organisms, which grow very rapidly under warmth and moisture. Negative effect on the vitality of the bacteria is referred as antibacterial [1]. Bacteria are present almost every where. Bacterial infestation poses danger to living and nonliving matters. Human beings have an immune system to protect against accumulation of bacteria. Material such as textiles can easily be colonized by high carriers of bacteria. Textile materials provide environment for bacterial growth, providing oxygen, water and warmth and nutrients. This often leads to objectionable odor, dermal infection, product deterioration, allergic responses and other related diseases [2].

Synthetic antibacterial agents are associated with side effects. Use of chemicals for antimicrobial finishes lead to environmental and health concerns. Natural pigments exhibit better biodegradability and higher compatibility with the environment. There is increased demand in

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the textile industrial sector for antibacterial textiles based on eco-friendly agents which will meet the requirements imposed by regulating agencies [3]. The antibacterial substance present in the plant extract control the growth of odour causing bacteria arising in the use of textiles. These substances kills bacteria by puncturing their cell membranes, causing the contents to leak out. Once the bacteria are dead they will not produce waste metabolites and freshness is maintained [4].

Garcinia indica belongs to a family Clusiaceae and Genus- *Garcinia*. It is a type of fruit tree widely grown in the slopes and plain of evergreen forests of Western Ghats in south India. It doesn't require irrigation, spraying or fertilizers. [5] The tree is rich source of tannin content and possess antibacterial activity against a wide range of bacteria and fungi. The tree is one of the most promising sources of compounds with insect control, antimicrobial and medicinal properties. It is used as a traditional medicine against various human ailments and other health disorders [6]. Application of *Garcinia indica* as antibacterial agent has been reported by various food industries [7]. There is a good demand

for the eco- friendly fabrics having antibacterial properties. Today's consumers are aware of the hygienic life style and are looking for clothing that remain fresh and odour free in use [8]. To meet these requirements research has been carried out on *Garcinia indica* extract application as a dye and a mordant for organic textiles which exhibits antibacterial property.

1.1 Objectives

- To extract natural eco friendly dye from *Garcinia indica* plant waste bark and waste fruit shell.
- To apply the *Garcinia indica* extract on organic cotton and ahimsa mulberry spun silk fabric with natural mordants.
- To test the treated fabrics for the antibacterial activities.

2. Methodology

2.1 Extraction of dye

From *Garcinia indica* waste bark and waste fruit shell dye components were extracted .
(Shown in fig 2.1 & 2.2).



Figure 2.1 : *Garcinia indica* plant, bark , leaves and fruits.



Figure 2.2 : *Garcinia indica* fruit dye extraction.

2.2. Dyeing process

Extracted dye solution is taken as per the material

weight , heated, mordanted (alum, pomegranate rind, myrobalan fruit rind and used tea leaves powder) and dyeing is carried out by using previously prepared fabric.



Figure 2.3 : Dyeing process

2.3. Determination of antibacterial activity: (AATCC 100-1993 and AATCC 147-1993)

Antibacterial activity was quantified by agar plate method. The glassware, fabric and culture media were autoclaved. The fabric samples were sterilized and kept in liquid culture media. The bacterial culture was added into it. About 15mm fabric samples were placed on the agar plate and incubation was done for 24hrs at 37° C. Bacterial inhibition was determined by the reduction in number of colony forming units (CFU). Retention of antibacterial activities was assessed by washing cycles, (shown in fig- 2.4 & 2.5).

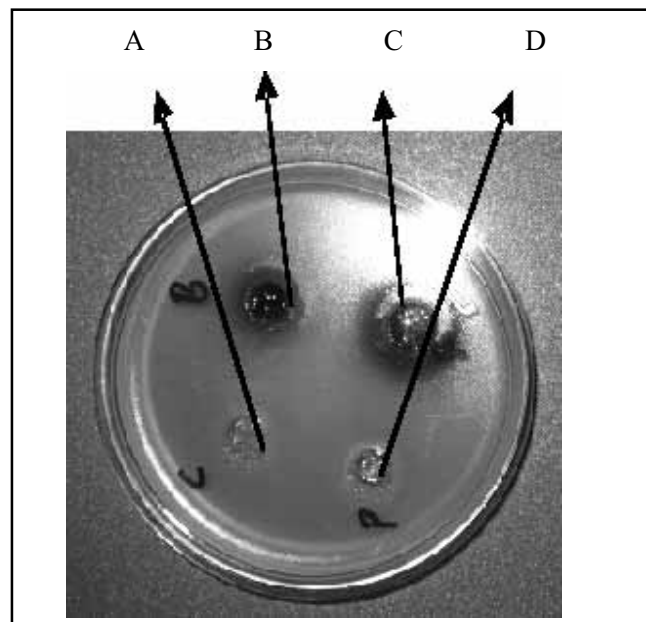


Figure 2.4 : *Garcinia indica* fruit and bark extract showing zone of inhibition.

A-Controlled, B- bark, C- Fruit, D- Positive control
4-pomegranate , 5- myrobalan, 6- used tea leaves

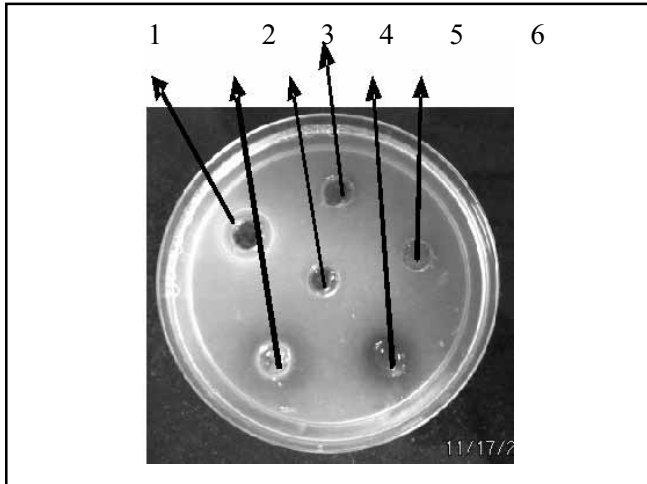


Figure 2.5 : *Garcinia indica* dye with mordants

Showing zone of inhibition.

1- Alum, 2-without mordant , 3- controlled

3. Results and discussions

Test results of antibacterial activities are as follows.

Table 3.1 : Antimicrobial activity of dyed fabrics

Fabric Samples	Mordants/ Details	Growth			Zone of inhibition , mm		
		B. subtilis	E. coli	S. aureus	B. subtilis	E.coli	S. aureus
Ahimsa mulberry spun silk	Undyed	+	+	+	+	+	+
	Controlled	Nil	Nil	Nil	3	3.5	3
	Alum	Nil	Nil	Nil	Nil	Nil	Nil
	Pomegranate fruit rind	Nil	Nil	Nil	Nil	Nil	Nil
	Myrobalan fruit rind	Nil	Nil	Nil	Nil	Nil	Nil
	Used tea leaves powder	Nil	Nil	Nil	Nil	Nil	Nil
Organic woven cotton	Undyed	+	+	+	+	+	+
	Controlled	Nil	Nil	Nil	3.5	3	3.5
	Alum	Nil	Nil	Nil	Nil	Nil	Nil
	Pomegranate fruit rind	Nil	Nil	Nil	Nil	Nil	Nil
	Myrobalan fruit rind	Nil	Nil	Nil	Nil	Nil	Nil
	Used tea leaves powder	Nil	Nil	Nil	Nil	Nil	Nil

+ Sign shows positive growth on the fabric sample , Nil- No growth on the fabric sample.

Bacillus subtilis , *Echerichia coli*, *Staphylococcus aureus* cultures were taken.

The table 3.1 shows the results for antibacterial activity on ahimsa mulberry spun silk fabric samples dyed with *Garcinia indica* fruit extract and organic cotton fabric dyed with *Garcinia indica* bark extract.

Undyed fabric showed the clear growth of bacteria with no zone of inhibition, indicating that fabric itself does not inhibit bacterial activity. Bacterial growth is completely absent in both the fabric samples dyed with *Garcinia indica* extract with the natural mordants such as alum , pomegranate rind, myrobalan fruit rind, used tea leaves powder.

The table 3.2 shows the antibacterial activity of the finished samples, evaluated for fastness to washing after different wash cycles. The finished samples were washed using a standard detergent. The antibacterial activity was assessed after single and 4 washes. From the table it is clear that fabrics shows good retention of anti bacterial activity for various bacteria such as *B. subtilis* (Gram -ve), *E. coli* (Gram+ve) and *S aureus* (+ve) after 4 washing cycle. Table shows the reduction in antibacterial activity with four washing process when it was compared with single wash. Antibacterial activity of ahimsa mulberry spun silk fabric is better when it is compared with organic cotton which may be due to the presence of some percentage of sericin content in the ahimsa mulberry spun silk

fabric. It is observed that the activity diminished gradually with the increase in the number of washes. Fabrics dyed with mordants retain more than 59% of activity after 4 washes.

4. Conclusion

Garcinia indica dye is applied on ahimsa mulberry spun silk and organic cotton with the natural mordants such as alum, pomegranate rind, myrobalan fruit rind, used

Table - 3.2 : A Retention of anti bacterial activity after single and four launderings, Time 24 hrs , Temp - 37° C

Fabric	Dye	Mordants/ Details	Bacillus subtilis				Echerichia coli				Staphylococcus aureus			
			A.S .L		A.F.L		A.S .L		A.F.L		A.S .L		A.F.L	
			R.I.cfu. %	A.R. %	R.I.cfu. %	A.R. %	R.I.cfu. %	A.R. %	R.I.cfu. %	A.R. %	R.I.cfu. %	A.R. %	R.I.cfu. %	A.R. %
Ahimsa mulberry spun silk	Garcinia indica fruit	Undyed	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	0	0
		Controlled	50	50	0	0	42	54	12	18	53	54	21	30
		Alum	87	99	60	65	43	90	26	74	95	100	63	68
		PMR	83	99	63	62	36	86	22	69	89	93	60	66
		MFR	78	93	59	57	34	83	21	65	87	91	65	69
		UTLP	89	100	72	79	46	98	28	79	90	99	68	67
Organic woven cotton	Garcinia indica bark	Undyed	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
		Controlled	42	50	0	0	34	64	18	20	51	66	08	12
		Alum	81	98.4	64	60.3	45	78	30	45	85	90	49	61
		PMR	78	93.2	59	57	40	68	27	42	80	88	46	67
		MFR	73	89.3	56	53	39	65	24	39	77	86	42	59
		UTLP	88	99.2	69	64	48	74	32	43	89	83	52	69

PMR- pomegranate fruit rind mordant. MFR- Myrobalan fruit rind mordant , UTLP - used tea leaves powder mordant. G.i.F- Garcinia indica fruit

A.S.L- After single laundering, A. F. L- After four laundering, MFR- myrobalan fruit rind mordant.

R. I - Reduction in cfu %, A.R- Activity retention %

tea leaves powder . From the research it is found that Garcinia indica dye and mordants used for the dyeing contain active antibacterial substances that can control the growth of bacteria. The antibacterial substances present in the Garcinia indica is a leaching type. Phenolics, Flavonols and tannins present in the Garcinia indica act as antibacterial agent. The dye is eco - friendly in nature, nontoxic, antibacterial, UV protective and medicinal. So the textiles can be dyed with this dye to produce clothes for different sectors of textile industries such as infant clothing , medical clothes and health care textiles.

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Water Tank Reinforced with Textile Fibres and Geotextile

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&

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Abstract

Use of natural fibres with enhanced mechanical performance, as reinforcement in cement-based matrix has shown to be a promising opportunity. Advantages associated with natural fibres include widespread availability from renewable sources, high fibre tensile strength, high fibre modulus of elasticity, relatively low cost, and well-developed technology to extract the fibres [1].

Key Words

Natural fibres, Geotextile, Reinforcement

1. Introduction

Naturally available reinforcing materials can be used effectively as reinforcement in Portland cement concrete. Natural fibre reinforced concrete is suitable for low-cost construction, which is very desirable for developing countries. It is important for researchers, design engineers, and the construction industry to vigorously pursue the use of local materials. For economical engineering solutions to a variety of problems, natural fibre reinforced concrete offers a viable alternative that needs to be fully investigated and exploited.

Among the different types of fibres used in cement-based composites, natural fibres offer distinct advantages such as availability, renewability, low cost, and current manufacturing technologies.

Fibre-cement composites exhibit improved toughness, ductility and flexural capacity, as compared to non-fibre reinforced cement-based materials. Bast fibres are unique reinforcing material as these are nonhazardous, renewable and readily available at relatively low cost compared to other commercially available fibres. Today bast fibres such as coconut and flax have found many applications in different fields.

Such family of composites is defined as textile reinforced concrete (TRC). The TRC allows the design of thin walled elements with high strength in tension and compression. These composites can be used in con-

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struction purpose. Vegetable fibre cement composites produced with ordinary Portland cement matrices undergo an aging process in humid environments in which they may suffer a reduction in post cracking strength and toughness.

Fibre reinforced composite materials offered a combination of strength and modulus that was either comparable to or better than that of traditional metallic materials. Because of their low specific gravities, the strength-to-weight ratios and modulus-to-weight ratios of these composite materials were markedly superior to those metallic materials. In addition, fatigue strength-to-weight ratios, as well as fatigue damage tolerances, of many composite laminates were excellent [1-8].

2. Materials and Methods

2.1. Materials

In the present study two natural fibres (flax and coir) were used as reinforcement, whereas for plastering purpose mixture of cement, sand and water was used.



Figure 2.1 : Tank Without Textile Material

2.2 Preparation of tank

Tanks were prepared as per the specifications given in Table 2.1. The leveling and consolidation of soil was done on all surfaces of the pit. The fibres were laid down manually with required GSM (gram per square meter) (Table 2.2). Cement slurry was applied for soaking the fibres to fill up the pores and then cement mortar (cement to sand ratio 1:4) was applied uniformly. Curing was done for 8 days. The photographs of different tanks prepared in such manner are shown in Fig. 2.1-2.4.

Table 2.1: Specifications of tank

Length (m)	Width (m)	Depth (m)	Slope	Volume (m ³)	Capacity (liters)
2	2	1	1:1	12	12000

Table 2.2: GSM of material

Flax	Coir	Geotextile
600-700	300-350	300



Figure 2.2 : Geotextile Tank

2.3 Test method for percolation rate

Pan Evaporimeter was used to find out daily evaporation from the tank for measuring evaporation rate which was subtracted from the other tank readings to get percolation rates per day.

Percolation rate = Actual reading of tank (-) Pan Evaporimeter

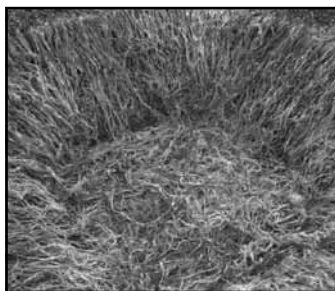


Figure 2.3 : Flax Tank



Figure 4 : Coir Tank

3. Results and Discussion

Table 3.1 and Figure 3.1 show that the percolation rate is highest in nontextile material tank followed by geotextile, coir and flax. The percolation rate was different for different tanks due to difference in GSM and thickness of reinforcing material used. Percolation rate was high in geotextile as GSM and thickness were lowest as compared to other textile reinforced tank. The percolation rate was highest in nontextile material tank which may be accounted for non blocking of pores and holding of cement properly.

Table 3.1: Water percolation rate of different tank (mm)

Flax	Coir	Geotextile	Without material
49.23	79.15	153.82	233.29

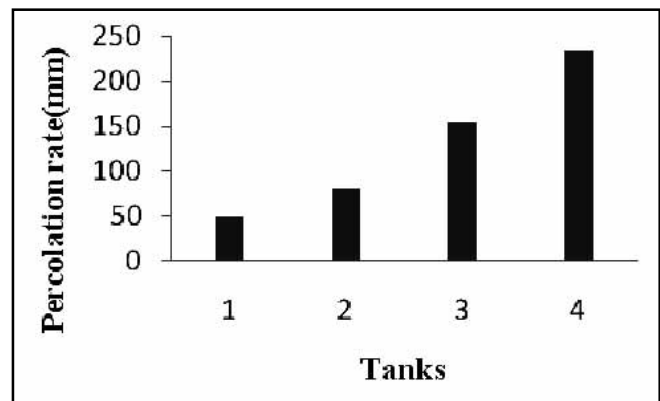


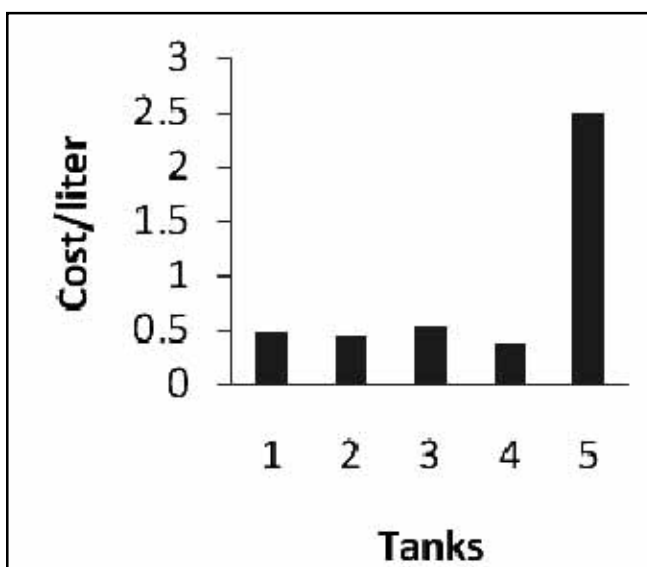
Figure 3.1 : Percolation Rate

The fibres were compressed in geotextile sheet whereas the fibres are in open form in case of coir and flax tank. The fibres in open form block the void spaces in concrete and reduce the percolation rates. This might have resulted in higher percolation rate in geotextile

Table 3.2: Construction cost for different tanks

Sr. No	Cost of	For Flax (Rs.)	For Coir (Rs.)	For Geotextile (Rs.)	For Without Textile (Rs.)	For Synthetic (Rs.)
1	Material*	1150	700	1800	- -	--
2	Digging Cost/pit	800	800	800	800	--
3	Construction labour charges/tank	1400	1400	1400	1400	--
4	Cement (250 kg)	1200	1200	1200	1200	--
5	Sand (1000 kg)	1270	1270	1270	1270	--
6	Total	5820	5370	6470	4570	--
7	Construction cost/ liter	0.48	0.44	0.54	0.38	2.50

*Material (kg) - Flax (15), Coir (12), Geotextile (6)


Figure 3.2 : Cost/Liter

Tanks: 1-Flax, 2- Coir, 3- Geotextile, 4-Without material, 5- Synthetic tank.

It can be derived from Table 3.2 and Fig. 3.2 that the cost/liter is lowest for nontextile material tank and increases in order of coir tank followed by flax tank and geotextile.

4. Conclusion

As per observations of the project we can conclude that natural tank cost/ liter is 20% of synthetic tank. Percolation rate is lowest in flax tank followed by coir tank followed by geotextile and considering cost/liter coir is lowest followed by flax and then geotextile.

Acknowledgement

We would like to express true sense of gratitude towards Mr. U. M. Paranjpe - Jalvardhini Pratishthan, and Mr. Bijamvar for their valuable suggestions that they have given in preparation of this project entitled.

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Creating Consumer Awareness towards Care Labels

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Abstract

Consumer education is essential while making any purchases of textile materials. Before purchasing the consumer should obtain adequate knowledge about the product. The role of the consumer does not end after the purchase but also continues throughout the life of the textile / clothing product. The consumer should be aware of the methods and treatment to take care of the fabrics. Care labels contain regular care instructions for the garment or fabric and inform how to wash, dry, iron, bleach, dry clean and the use of any other procedure. An aware consumer should see the label giving information of the textile, printed on cloth or garment and textile care labeling information at the time of purchase of textile and clothing. The objective of the study was to make consumer aware about care labels. A training program to educate consumers and to create awareness about care labels and symbols was organized to provide indept knowledge. The major findings were that respondents were aware of markings and labels but very less understood the meaning of various signs/symbols/markings on textiles and clothing. Respondents wanted to be made aware of meaning of the signs and symbols. There was increase in awareness among respondents after the training program regarding care symbols. It is recommended that similar programs could be conducted for different age and income groups, men consumers and for different colleges as target group.

Key words

Consumer, Care labels, Education, Awareness, Training sessions, Apparels.

1. Introduction

1.1. Who is a consumer

Very simple and broad definition of consumer is any person who buys any goods or services for his or other use. As per above definition, we are all consumers when we buy cloths and textiles for our use which could be readymade garments, saris, underwear or items like bed sheets, durries, handkerchief, ropes, tents and non-women's etc.

1.2. Importance of consumer education

Consumer education is essential while making any purchases of textile materials. Before purchasing the consumer should obtain adequate knowledge about the product. The role of the consumer does not end after the purchase but also continues throughout the life of the textile / clothing product. The consumer should be aware of the methods and treatment to take care of the fabrics.

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1.3. Care labels

Care labels contain regular care instructions for the garment or fabric and inform how to wash, dry, iron, bleach, dryclean and the use of any other procedure.

1.4. Objective of the study

With newer fibers, blends and treatments coming up, cloth is fast becoming an exasperating purchase for the consumers. As the consequence of these developments of new fibers, finishes, neither the housewife nor laundering and dry cleaning industry can determine appropriate cleaning procedures from mere appearance of an article or even from the description of its fiber content. For this purpose a system of graphic symbols has been established. It is intended for use in the permanent marking of textile articles, providing information essential for their proper care. The system specifies the use of symbols in care labeling. An aware consumer should see the label giving information of the textile, printed on cloth or garment and textile care labeling information at the time of purchase of textile and clothing. The objective of the study was to make consumer aware about care labels.

1.5. Care labels in textiles and apparels

A consumer research was conducted which focused on care label instructions, consumer perceptions of various care instructions and how they affect purchase decisions. The result highlighted that four out of five consumers look at the label before they buy clothing, and follow the instructions on the label when washing clothing. 83 percent of consumers read care labels before making a purchase decision [1]. In a study conducted on 200 consumers it was observed that men read care label instructions and were satisfied with care label features mentioned on tags and labels on the shirts sold in the market [2]. It is seen that care label is one cue that might influence evaluation of a garment because different care instructions are associated with different fabrics as well as different levels of expenditure of time and money. The purpose of one such study was to determine whether care instructions affected perceptions of garment quality, predictions concerning a garment's future performance, a garment's estimated retail price, and a customer's likelihood of purchasing a garment. Analysis of variance revealed that care instructions did not influence perceptions of quality, price, or likelihood of purchase but did influence predictions of future performance. Study results suggest that care instructions are a cue used by consumers to predict the future performance of a garment [3].

According to Federal Trade Commission rule 16 CFK 423, apparels should have a permanent care label that provides information about their regular care. The purpose of the rule is to give to the consumers accurate care information to extend the useful life of the apparels. Federal Trade Commission defines "Care label means a permanent label or tag, containing regular care information and instructions, that is attached or affixed in such a manner that it will not be separated from the products and will remain legible during the useful life of the product". According to American Society for Testing and Materials D3136-96 a care label is a label or other affixed instructions that report how a product should be refurbished [4].

The major systems followed worldwide are-

- International Care Labeling System (GINETEX)
- ASTM Care Labeling System
- British Care Labeling System
- Japanese Care Labeling System
- Canadian Care Labeling System
- Indian Care Labeling System

The symbols used in Indian Care Labeling System are same as that of International Care Labeling System. It uses five basic care symbols. A wash tub indicates washing, a triangle indicates bleaching, a square to indicate drying, an iron to indicate ironing, and a circle to indicate dry cleaning. The cross symbol superimposed on any of the basic symbols indicates the treatment is not permitted. A bar under the washtub or circle means that the treatment should be milder than that indicated by the same symbol without a bar. A very mild treatment is indicated by a broken bar under washtub [5].



Washing

- The number below the level of water in the washtub indicates the maximum permitted temperature of the water in degrees centigrade. The washtub and temperature also indicate that machine washing is possible.
- A hand in the washtub indicates that the garment can only be washed by hand.
- An underline beneath the washtub indicates that a milder treatment is in order.
- The numbers above the water level indicate different washing programs. These numbers are not always identical with those actually used on washing machines.



Bleaching

A triangle with "CL" inside indicates that chlorine bleaching is possible.



Ironing

The dots in the iron symbol (1, 2, 3) indicate the maximum temperature at which the textile article can be ironed.



Drycleaning

The letters in the circle (A, P or F) indicate to the drycleaner which solvents can be used in the drycleaning procedure.

(A- any solvent, P- any solvent except trichloroethylene, F- petroleum solvent only).



Drying

A circle in the square indicates that the article can be tumble dried, [6].

1.5.1. New sequence of symbols

The International Association for Textile Care labeling (GINETEX) has decided in future to list the sequence of symbols on care labels according to the consumer habits.

The GINETEX care labeling system is based on the following principles:

- The care symbols provide information on the maximum permitted type of treatment.
- The care symbols must always be used in full and in the prescribed sequence.
- The care labeling must be clear, readily understandable, easy to use and not dependent on any particular language.
- The care symbols must not leave room for possible misinterpretation by the consumer.
- Uniform positioning of labels and harmonized use of the care symbols.

1.5.2. Types of care label

The permanent type label comes with a special adhesive backing and when applied to a surface such as the flange of a magnetic tape, it adheres permanently. These types of permanent labels are found on garments like jackets, sweaters, sports clothing and towels. A non-permanent label is a label, which is not expected to withstand and remain legible through ten cleanings of the consumer textile article. The non-permanent type label has a special adhesive backing of stick-on-type construction that can be applied to just about any kind of surface yet be removed with very little effort. These

types of non-permanent labels are found on garments like undergarments, lingerie, sleepwear and swimwear, headwear and umbrellas [4].

1.5.3. The Care Labeling Rule

- The Care Labeling Rule requires clothing manufacturers and importers to provide at least one satisfactory method of care necessary for the ordinary use of the garment.
- Care labels indicate how to clean textiles articles in the best possible way.
- Care symbols give all the necessary information on washing, bleaching, ironing and dry cleaning.

2. Materials & Methods

Following methodology was used for the study

Research design

- The major design for the study was quantitative research design.
- Sources of data collection were female consumers.
- Method of data collection was questionnaire method.
- Tool of data collection would be self administered questionnaire.

Sample design

- The unit of analysis was young consumers. Therefore college students formed as the target group for the study. They became respondents for the project.
- Age group of the consumers was from 16 to 19 years.
- Number of consumers forming the target group was 489
- Target consumers were only female students.
- Consumers were selected from junior and senior college of Dr BMN College of Home Science and MMP Shah College of Arts and Commerce, Matunga.
- Heterogeneous group was targeted from various educational streams like Science, Commerce, Arts, Home science, etc
- Non random sampling technique was used to select consumers from above mentioned educational institutes.
- Location of study was Mumbai.

Training program for creating awareness towards care labels

A training program to educate consumers and to create awareness about care labels and symbols was orga-

nized to provide indepth knowledge Training program was conducted in batches of 50 consumers. Altogether 10 batches were given awareness training. Different audio- visual aids were used to provide training such as pictures and actual samples. Interaction sessions were conducted after each training program for better understanding of the awareness program. Interaction sessions were through questions and answers, group discussions, sharing of personal experiences etc. Feedback from consumers was taken to evaluate the knowledge gained through the awareness program. The feedback was taken with minimum window period of 10 days after the training sessions were held with the respondents. The feedback was taken through a self administered questionnaire method.

3. Results and Discussion

3.1. Socio demographic variables results

38 % of the respondents were in age group of 17-18 years and 34% were in age group of 18-19 years. 39 % of respondents were from faculty of Home science and 36% of respondents were from faculty of arts. 97 % of respondents had English as medium of instruction in college. 77% of respondents were from nuclear family. 35% of respondents were from family whose annual income was between Rs 50000- 1lac and 37% of respondents had annual family income of less than Rs 50000.

Table 3.1 : Markings/labels on textiles and clothing

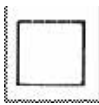
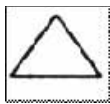



Markings/labels	Yes (%)	No (%)
Looking at Markings/labels on textiles/clothing	78.1	21.9
Understanding the meaning of various signs/symbols /markings	46.4	53.6
Like to be made aware of signs/symbols/markings on textiles/clothing	83.8	16.2
Awareness of recommended care procedures for different textiles/clothing	57.5	42.5

3.2. Consumers' behavior with respect to markings and labels on textiles and clothing

It is observed from table 3.1 that 78.1% respondents looked at markings and labels which are there on textiles and clothing but only 46.4% of respondents un-

derstood the meaning of various signs/symbols/markings. The table clearly shows that 83.8% respondents wanted to be made aware of meaning of the signs and symbols. Only 57.5% respondents were aware that there are recommended care procedures for different textiles/clothing.

Table 3.2 : Awareness of symbols in care labels

Symbols in care labels	Yes (%)	No (%)
Sign of Drying 	91	9
Sign of Bleaching 	90	10
Sign of Dry-clean 	92	8
Sign of Ironing 	97	3
Sign of Washing 	95	5

3.3. Awareness of symbols used in care labels

As noticed from table 2, after the awareness program higher percentage mention of respondents were able to identify the pictorial symbols used in care labels. It is observed that among symbols 10% of respondents could not recognize bleaching sign, followed by sign of drying and dry clean. 97% and 95% of respondents were able to identify sign of ironing and washing.

4. Conclusion

The technological advances which have occurred in textiles, apparel and cleaning industries have had a significant effect on the care process of apparel. Therefore, it is very important that customers be given accurate information on how to take care of their garments, so they can make informed purchase decisions concerning care characteristics of competing products and the product damage caused by the use of improper cleaning procedures can be avoided by consumers and cleaners alike. The major findings were that respondents were aware of markings and labels but very less understood the meaning of various signs/symbols/mark-

ings on textiles and clothing. Respondents wanted to be made aware of meaning of the signs and symbols. There was increase in awareness among respondents after the training program regarding care symbols. It is recommended that similar programs could be conducted for different age and income groups, men consumers and for different colleges as target group.

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Prospects of Shuttle-less Looms in India

Anil Gupta & Prateek Rastogi



Dr. Anil Gupta

Dr. Anil Gupta is a Textile Graduate and Fellow of Institution of Engineers. He is having 23 years experience of working in Textile Machinery Industry viz NMM Ltd., Indequip Engineering Ltd., Mafatlal Engineering Industries Ltd. and Texmaco Ltd. besides Mill Industry experience of 13 years at top positions. Dr. Gupta is also on the Board of First Winner Industries Ltd., First Winner Life Style Ltd., Ram Shyam Textile Industries Ltd., Pee Cee Cosma Sope Ltd., Nepa Ltd. and Bengal Chemicals & Pharmaceuticals Ltd. He has been taken on the panel of BIFR to be appointed as Special Director. Dr. Anil Gupta is elected as Vice President of The Textile association (India) for the term 2011-2013.

Mr. Prateek Rastogi is an MBA with graduation in Engineering. He has rich experience in the area of Business Consulting, Strategy / Corporate Planning. He has over seven years of experience. He has served companies like Legrand, Tecnova, ISGEC Heavy Engineering Ltd. Mr. Prateek Rastogi is presently working in Haier India Pvt. Ltd. as Manager Strategy Planning.

Abstract

Textile Weaving Machinery can be broadly classified into: Preparatory Machines and Looms which are further classified as Plain, Semi- Automatic, Automatic and Shuttle-less Looms in-order of Technology. For preparatory machines- around 70% of demand is met by domestic manufacturer and technology is at par with International standards. Import varies from 20 ~ 30% for high speed machines & is negligible for low & medium speed machines

In Looms – demand for Power looms (Low Technology) are totally met by domestic manufacturer and there is high dependence on imports (new / second hand) for shuttle-less looms (High Technology).

This article attempts to assess the market landscape of shuttle-less looms in India and thus provide information of business opportunity to various stake holders.

Executive Summary

Over the last decade the Textile business has been shifting its manufacturing base from developed to Asian countries like India, China, Pakistan, Bangladesh, Indonesia etc., these countries together account for around 75% of spinning and weaving capacity.

In spinning sector, India is at par with the latest technology available but over the years Weaving and Processing sector has lagged behind due to obsolete technology. In view, Govt. of India has taken cognize of this and extended the Technology Upgradation Funds Scheme (TUFS) till 11th Five Year Plan (2007-2012) wherein they give 5% subsidy on interest for financing weaving unit. The above scheme is likely to be continued for 12th Five Year Plan (FYP). The Govt. is also encouraging FDI in Textile Machinery & Manufacturing Sector

According to the “ **Vision document for Textile Industry 2007-2012**” prepared by CRISIL for **Confederation of Indian Textile Industry (CITI)**, the fabric production target was expected to reach to 73

Bn-Sq- Mtrs by 2012 from 39 Bn – Sq- Mtrs (2006-07) level.

However due to world-wide economic recession and subsequent slowdown in the Indian textile industry the fabric production target for most part of 11th FYP has not been met thus modernization/addition of capacity could not take place.

Our discussion with CITI for the future outlook reveals that they are buoyant about the industry prospects and have revised the target to 100 Bn – Sq- Mtrs for Fabric production by 2017 – which translates to additional requirement of ~ 2,40,000 shuttle-less looms.

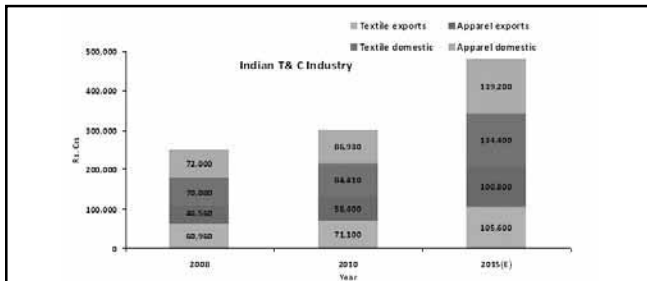
Historically, the actual production has lagged behind the target and is estimated to be around ~ 58% of the target envisaged at the end of 11th FYP.

Achieving the target envisaged for 12th FYP would be a Herculean task from the current levels, hence for this study we have taken a conservative view and we estimate fabric production to reach to levels

of 62 Bn- Sq- mtrs by end of 12th FYP based on past period performance.

Overview: Indian Textile and Clothing Industry

Indian T & C Industry is projected to grow at 9.8% CAGR to reach at Rs. 4, 80,000 Crs by 2015 from Rs. 2, 50,000 Crs (2008) with exports accounting for ~ 45% of the total market.



Assumptions:

1. Textile and Apparel Export growth estimated @ 8% and 12% CAGR respectively
2. Textile and Apparel Domestic demand growth estimated @ 10% CAGR each
3. Figs. for 2010 have been extrapolated based on respective growth rates
4. Conversion: \$ = Rs. 48/-

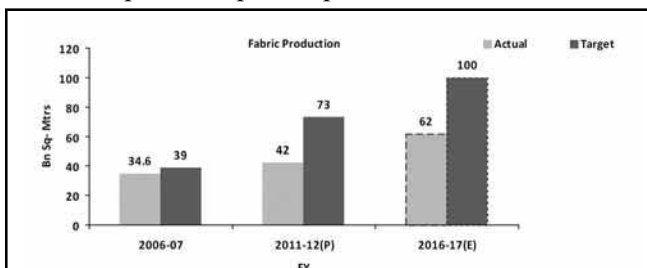
Source: CITI

Fabric Production

As per vision document and CITI report, fabric production was envisaged to grow @ 13% (in Vol. terms) from levels of 39 Bn- Sq- Mtrs (2006-07) to 73 Bn- Sq- Mtrs by 2011-12 and further to 100 Bn Sq- Mtrs by 2016-17.

Historically, the actual production has lagged behind the target and is estimated to be around ~ 58% of the target envisaged at the end of 11th FYP.

Achieving the target envisaged for 12th FYP would be a herculean task from the current levels; hence our estimate for fabric production (62 Bn- Sq- mtrs) is based on previous period performance.



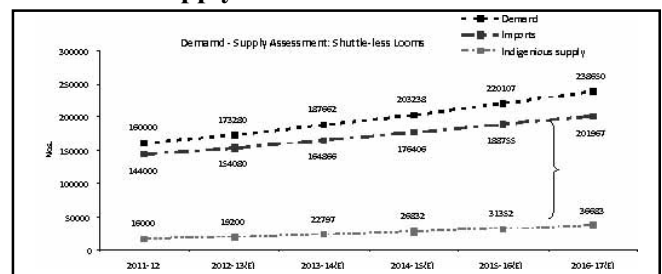
Source: CITI and Vision doc Indian Textile and Clothing Industry 2007-2012

Demand Assessment: Shuttle-less Loom

With present macro economic conditions also not encouraging, we have taken a conservative view for demand assessment. The table below depicts the basis for estimation of shuttle-less looms required to achieve fabric production of 62 Bn- Sq- Mtrs by end of 12th FYP.

S.No	Particulars	Units	Quantity/ Value
1	Woven fabric target by 2016-17	Bn Sq Mtrs	62
2	Woven fabric produced by 2011-12	Bn Sq Mtrs	42
3	Additional fabric required by 2016-17 (1-2)	Bn Sq Mtrs	20
4	% of additional fabric production on shuttle-less looms	%	70%
5	Production per shuttle-less looms per day	sq mtrs/day	500
6	Number of working days in a year	days	356
7	Additional no. of shuttle-less looms required	Nos.	78,650
8	% of second hand shuttle-less looms	%	35
9	% of new shuttle-less looms	%	65
10	Capital cost of second hand shuttle-less looms	Rs. Lakhs	12
11	Capital cost of new shuttle-less looms	Rs. Lakhs	25

Demand - Supply Assessment: Shuttle – less Loom



Assumption

1. Annual domestic production by existing manufacturers expected to increase @ 17 % p.a
2. Imports to increase moderately due to non availability of second-hand looms in developed market and govt. taking a critical re-look at imports of second hand machines

Based on the above assessment, market potential for shuttle-less looms is estimated to be ~ Rs 3000 Crs p.a Further assuming ~ 20 to 25% of the market would be catered through Indigenous supply - thereafter also there exists a market opportunity of ~ Rs. 2000 to 2500 Crs p.a which would be met through imports

Competitive Landscape

Textile weaving machinery (largely shuttle-less Looms) is largely dominated by foreign manufacturers with few notable domestic manufacturers.

The table below depicts product- mix of notable global players:-

S.No	Name of Company	Country	Types of Shuttle less Weaving Machinery			
			Air-jet	Water-jet	Rapier	Projectile / Gripper
1	Picanol	Belgium	v		v	
2	Toyota Industries Corporation	Japan	v	v	v	v
3	Dornier	Germany	v		v	
4	Itama Group (Somet, Vamatex, Sulzer)	Italy	v		v	v
5	Tsudakoma Corp	Japan	v	v	v	
6	Smit Textiles (formerly Nuovo Pignone)	Italy			v	
7	Ishikawa Seisakusho Ltd	Japan			v	
8	Panter Textile Machinery	Italy			v	

Most of the above players have their presence in India either through channel partners and / or their sales offices. The table below summarizes the same.

S.No	Players	Country	Sales Office	Agent	Partner	Service Center
1	Picanol	Belgium	Delhi	-	-	Delhi
2	Itama (Sulzer, Vamatex, Somet)	Italy	Mumbai	-	-	Mumbai
3	Dornier	Germany	Mumbai	-	-	Mumbai
4	Toyota Industries Corporation	Japan	-	Arvimatex, (Mumbai)	-	Arvimatex, Mumbai
5	Tsudakoma Corp.	Japan	Ahmedabad & Mumbai	-	-	Ahmedabad, Mumbai
6	Smit Textiles (formerly Nuovo Pignone)	Italy	-	Bakubhai Ambalal, (Mumbai)	-	-
7	Panter Textile Machinery	Italy	-	P.T Dynamic, (Ahmedabad)	-	Ahmedabad

Domestic Manufacturers

The table below depicts some notable domestic manufacturers with their annual capacities and cumulative production (nos.) of shuttle-less looms for the period FY08 to FY10.

Conclusion

1. Textile Weaving machinery market (shuttle-less Looms) is a fragmented market with presence of SME's as indigenous manufacturers
2. Market catered predominantly through new / second-hand imports – presence of foreign players either through agent and / or own sales offices.

S.No	Name of Company	Head Office	Capacity / Annum (Nos.)	Shuttle less Loom Manufactured (Nos.)				
				Rapier	Water-jet	Air-jet	Projectile / Gripper	Total
1	Lakshmi Textiles Stores	Ahmedabad	2000	1700	-	-	-	1700
2	Alidhra Weavetech Pvt. Ltd	Surat	3000	1400	50	5	-	1455
3	Dynamic Autoloom India Pvt. Ltd	Ahmedabad	2000	500	-	-	-	500
4	Lifebond Machines Pvt. Ltd	Surat	2000	500	-	-	-	500
5	Palod Himson Machines Pvt. Ltd	Surat	2000	300	5	-	-	305
6	Honest Trading Co. Pvt. Ltd	Bilimora, Surat	1000	200	-	-	-	200
7	Friends Engineering Works	Panipat	100	10	-	-	-	10
8	P.T Dynamic Textile Machinery Ltd	Ahmedabad	500	Nil	-	-	-	0
Total			12600	4610	55	5	0	4670

3. In future, the imports of second-hand looms would be declining due to:
- a. Non- Availability of second-hand looms - as most of the looms have already shifted from Europe to developing countries
 - b. Ministry of Textiles, is taking a critical relook at imports of second-hand looms as they are in no-

way at par with new looms in quality and technology.

- 4. Technology Upgradation Funds Scheme (TUFS) likely to be extended to 12th FYP
- 5. There exists a market to the tune of Rs. 2000 – 2500 Crs p.a for improved and latest machinery which could be manufactured in India through foreign collaboration.

Announcing... 67th All India Textile Conference

Hosted by

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Revolution of Inkjet Printing



Inkjet has become a household word through its ubiquitous presence on the consumer desktop as a low cost, reliable, quick, and convenient method of printing. The textile printing business is a large and complex business with production of prints required on all textile substrates from cotton to the wide range of synthetic fibres. Each of these fibres has to be printed with a dyestuff class to enable fixation (by various chemical or physical methods) to the textile to impart the 'wash and wear' characteristics demanded by the consumer. Total production of textile prints approaches 19 linear billion metres of fabric per year and shows an average growth rate of the order of ~2% per year. However, hidden behind these small growth figures are a relative decline in the developed western textile printing markets and a much larger growth in the developing markets in the Far East.

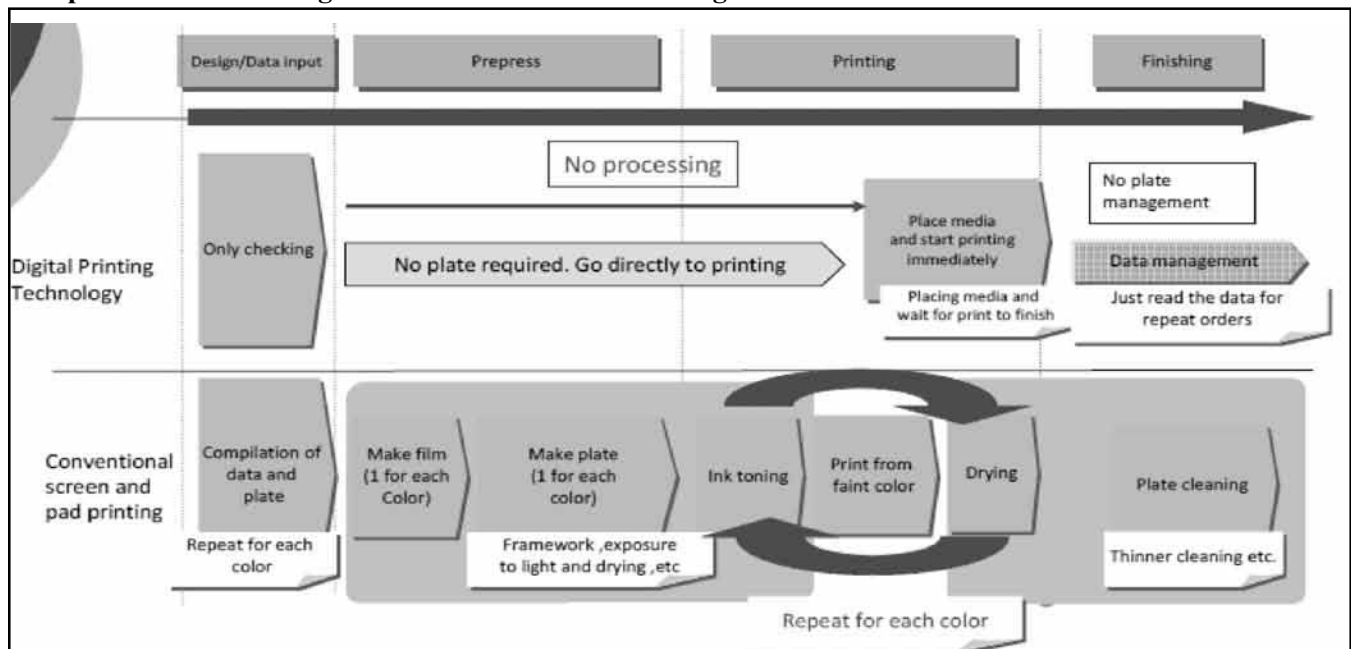
curable. Other types exist, but are less prevalent, such as oil-based and liquid toner (for electrostatic inkjet technology). Hybrid versions of the four main types also exist (e.g., water-based inks containing some amount of solvent).

Inkjet Printing Techniques

- Continuous Multi-Level Deflected Technology
- Continuous Binary Systems
- Thermal Ink Jet Technology ("Drop on Demand" System)
- Piezo Drop on Demand Technology

Nowadays inkjet printing technology is used in textile industry, screen and pad printing industry, plastic decorating industry, nameplate and tag industry, glass and ceramic industry and toy production industry.

Comparison between Digital and Conventional Printing



For the developed print markets to survive into the 21st century a strategy has to be developed based on (i) speed of response, (ii) short lot production, (iii) short delivery times, and (iv) increased innovation and new fashion ideas.

There are currently four main types of inkjet inks: phase-change, solvent-based, water-based, and UV

The inkjet printing is innovative technology with value-adding effects. Also it is eco friendly process, reduces water consumption thus no pollution, requires less floor space, lowest production costs and suitable for 24/7 operation with highest precision.

- By Chet Ram Meena



Ahmedabad - Unit

Ras Garbha Competition

The Textile Association (India) Ahmedabad Unit organized Ras Garbha competition at the celebration of Sharodyotshav function for the members & family members of the association on the 11th October 2011. Member of Jury in the occasion were Mr. Vimal Arora, Asstt. Vice President, Reliance Industries Ltd and Dr. Jyoti S. Pareek, Associate Professor, Rolwala Compute Centre, Gujarat University. For the encouragement of members the association handed over prizes on different criteria to the selected Ras Garbha competitors who had performed well. At the end of the function Shri T. L. Patel, President thanked all the members for their involvement and active participation to make the event a success.



Photograph during the AARTI

Visit to ITMA 2011

The Textile Association (India) Ahmedabad Unit arranged a delegation with MSME to ITMA 2011 Worlds biggest Textile & Garment Technology Event held on 22nd - 29th September, 2011 at Gran Via, Barcelona, Spain. Near about 40 delegates from Ahmedabad joined with this tour. Every delegate achieved new technological information from this visit. The tour was very successful.

Visit to Asian Textile Conference

The 11th Asian Textile Conference held on 1-4th Nov, 2011 at EXCO, Daegu, Korea. The theme of the conference was Knowledge Convergence in Textiles for Human and Nature. The whole ATC-11 covered 5 plenary lectures, 53 invited lectures, 144 general oral presentation and 403 poster presentations from 24 nations. During the conference there were many wonderful social events, giving the participants chance to build up a global network for further collaboration and to enjoy the Korean culture. Besides the conference the organizer also organized ATC-11 Exhibition. 24 companies from Korea and Japan participated in the exhibition and exhibited their latest technological products. Asian Textile Conference (ATC) is a sole event of FAPTA and is held in every two years to discuss the latest achievement on textile science and engineering and to build up a global network between Asian Textile scientists and engineers. In the FAPTA (The Federation of Asian Professional Textile Associations) meeting 16 members participated from Australia, China, Chinese Taipei, Hong Kong, India, Iran, Japan and Korea. From The Textile Association (India) Shri Ashok Juneja & Shri V. A. Trivedi represent as FAPTA members.



Photograph of ATC-11

Diwali Get together

The Textile Association (India) Ahmedabad Unit celebrated its Diwali Get-together for the members & family members of the association on 7th Nov, 2011. In the same day association arranged an auspicious programme i.e. GANESH YAGNA. Every member who was present prayed to lord GANESH for their happiness in life & the New Year. The entire program was very peaceful and enjoy able for the members as well to the association.



Photograph during the prayer of GANESH YAGNA

Half Day Seminar Organised by TAI (Ahmedabad Unit) & BTRA

The Textile Association (India) Ahmedabad Unit and Bombay Textile Research Association jointly organized half day seminar on "Screening of Flame Retardant Chemicals and Textiles for their eco-friendly features" on 8th Nov, 2011 at Hotel Vice President, Ahmedabad. Dr. Chandan Chatterjee, Director CED & GM iNDEXTb, Govt. of Gujarat, Gandhinagar was the Chief Guest and Shri Nayan C. Parikh, Former Chairman Textile Committee, Govt. of India and of MD Nayan Parikh & Consultant, Ahmedabad was the Guest of Honour in the function. Three technical papers were presented in the seminar. Ms. Pooja Prabhudesai, BTRA, Mumbai delivered speech on Evaluation of Commercial Flame Retardant Finishing agent with special reference to their eco-friendliness, Mrs. Chandrakala L. M., BTRA, Mumbai delivered speech on Test Method for Evaluating Flame Retardant chemicals and Dr. G. S. Nadiger, Research Advisor, BTRA,



L to R : Dr. N. N. Mahapatra, V. A. Trivedi, Dr. G. S. Nadiger, Dr. Chandan Chatterjee, T. C. Patel, Nayan C. Parikh, Chandrakala L. M. & Pooja Prabhu Desai

Mumbai delivered speech on Fire safety in public places- Importance of Flame Retardant Textiles. Dr. N. N. Mahapatra, Vice President (Tech. Mkt) of Hindprakash Lonsen Industries Pvt. Ltd, Ahmedabad highlighted some points on the subject matter. The seminar was very useful for the invitees.

Interactive Meeting

Shri T. L. Patel, President & Shri V. A. Trivedi, Hon. Secretary from TAI-Ahmedabad Unit attended an interactive meeting organized by Textile Commissioner under the Chairmanship of Ms. Sunaina Toamr, IAS, Joint Secretary, Ministry of Textiles, New Delhi at Hotel St. Laurns Tower, Ahmedabad held on 11th Nov, 2011. The interaction held between the members of different powerloom association like: The Ahmedabad Powerloom Owners Association. Gujarat Powerloom Association, Vijapur Taluka Powerloom Association, Kalol-Chhatral Powerloom Association, Dholka Powerloom Association etc. Besides the powerloom some members were invited from TAI-A'bad Unit, ATIRA, CITRA, MANTRA & ITAMMA. Commissioner officer narrated different schemes for upliftment of Powerloom Sector in Gujarat. During the interaction the status of decentralized powerloom sector and Schemes for development of powerloom sector were discussed. Also Powerloom Owners pointed out certain difficulties behind why powerloom is stagnant in Gujarat.

Textsmile

An engineer, physicist, and mathematician are all challenged with a problem: to fry an egg when there is a fire in the house. The engineer just grabs a huge bucket of water, runs over to the fire, and puts it out. The physicist thinks for a long while, and then measures a precise amount of water into a container. He takes it over to the fire, pours it on, and with the last drop the fire goes out. The mathematician pores over pencil and paper. After a few minutes he goes "Aha! A solution exists!" and goes back to frying the egg.



11th Asian Textile Conference

1st to 4th November, 2011 at EXPO, Daegu, Korea

It is our proud that the Textile Association (India) is one of the founders of FAPTA (The Federation of Asian Professional Textile Association). Shri M.K. Mehra, Past President of TAI was the founder member of FAPTA. It is also our kind of achievement.

The FAPTA established in 1991. TAI has organized 1st and 8th Asian Conferences in India. This time ATC-11 was held on 1st to 4th November, 2011 at Daegu, Korea to discuss the latest achievements on textile science engineering to build up a global met world between Asian Textile Scientists and Engineers. The main theme of ATC-11 was knowledge convergence in Textiles for Human & Nature with the ongoing evolution and expansion of textiles into other research and technological fields. The Scope of the ATC-11 includes to textile as well as the subjects related to fibre, polymer, testing, design, smart interactive textile, bio, non-woven and technical textiles.

The fusion among nanotechnology, biotechnology, information and communication technology and green technology is the leading trend in the development of fibre and textile fields. Moreover eco-friendly textile

system is the challenging technical area all over the world.

ATC-11 had 5 plenary lectures, 50 invited lectures, 144 oral presentations and 400 poster presentations from 24 nations. 15 oral presentations were from IIT Delhi, Baroda & South India which is among the 50 delegates participating from India. ATC-11 event supported by KFTI (Korean Federation of Textile Industry), KFSTS (Korean Federation of Science and Technology Scientists), GECE (Global Education Center for Engineers) and technical contribution by FITI Testing & Research Institute, KTITI (Korean Textile Inspection & Testing Institute) etc.

In short, all related textile educational & research Institutes were present there. Mr. Vijay A. Trivedi, Hon. Secretary, TAI-Ahmedabad Unit and Mr. Ashok Juneja, then Vice President, TAI were present during FAPTA Board Meeting and other functions. TAI is very much thankful to the organizer particularly Mr. Chang Whan Joo, Chairman of ATC-11 & Dr. Hyun-Jin Koo, FITI and special thanks to NANTA who performed Korean Traditional Rhythm in social event. The event was very much enjoyable full for all the participants.

During the FAPTA Board meeting the next meeting ATC-12 was declared which will be held at China in 2013 and Prof. Jae R. Youm selected as new Chairman for the same. TAI congratulates China, for taking responsibility for hosting next ATC-12 & also wishes all the best for successful conference.



Mr. Ashok Juneja and Mr. Vijay Trivedi standing along with other members



Osthoff Senge Hairiness Tester - paving way for efficient singeing

What is fabric hairiness?

Hairiness refers to protruding fibres on a textile surface. These protruding fibres on the fabric surface vary in length, based on the quality of the yarn used for weaving.

Due to these protruding fibres, the final fabric surface can be rough, which is often not in line with the customers' expectations. Whenever such a fabric is dyed, then due to the presence of these protruding fibres, the colour appears hazy and dull. This is due to the fact, that the protruding fibres act as obstructions and thus, the angle of reflectance is poor, thereby affecting the fabric feel and quality.

How is hairiness controlled?

It is well known that the process of singeing fabric is the best way of reducing its hairiness. For eg: Osthoff Senge offers the famous double jet burner, which with gas/air mixtures, singes away the protruding fibres, thus offering a very clean surface and soft feel to the fabric.

In addition, Osthoff now offers the Osthoff Senge Hairiness Tester. This accessory allows an objective measurement of the hairiness of a fabric sample, which in turn lends itself to proper control of the singeing process to reduce the fabric hairiness.

The scope of supply consists of a monochrome CCD camera and a light source LED along with a guide roller and necessary synchronization with PC.

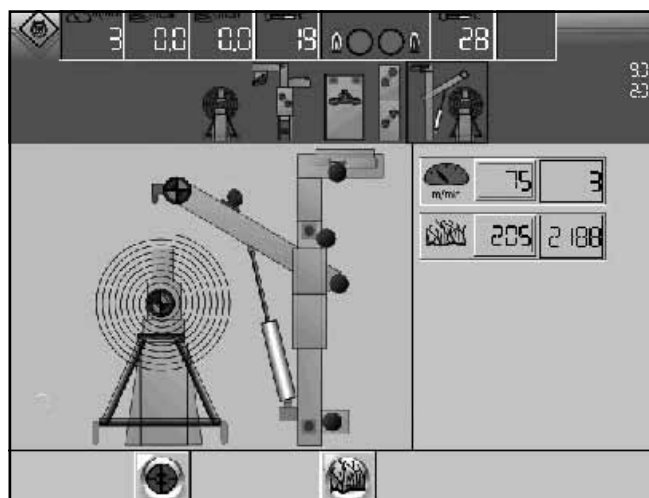
This system consists of a light source (LED) and a monochrome CCD camera. The light source is slightly tilted, which illuminates the fabric surface tangentially, so that the camera does not register the shadows of the protruding fibres, but the refracted light. This type of measurement is called dark field measurement, because the background remains black, whereas the objects are shown bright.

Camera and light source are installed in a dust and waterproof enclosure (IP67).The lenses of the camera are protected by scratch-resistant sapphire glass. Both

parts of the unit feature air nozzles, which keep the optics dust free.

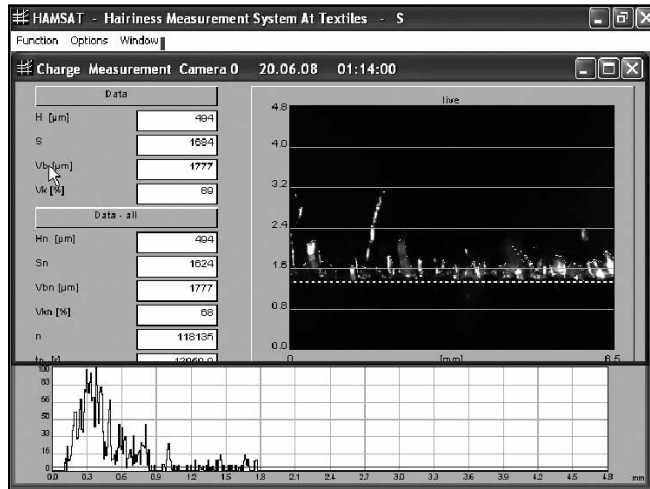
The camera signal (up to 2 cameras are possible) is sent to an industrial PC via Gbit Ethernet cable. The industrial PC is located in the main cabinet and runs an analysis program, which determines the bottom limit (fabric surface) and top limit (topmost visual point of hairs) of the fibres. The distance in between is the length of the hair. After this, a variety of statistical data is calculated; where for the evaluation of the hairiness the mean value and the standard deviation are used. The mean value reflects the grade (how short are the hairs in general), the standard deviation reflects the quality (the consistency of the hair length) of the hairiness.

We define hairiness as the sum of the mean value and the standard deviation.



Osthoff Senge Hairiness Tester

The left-hand picture (A) shows the screen of the PC where the signal coming from the camera is evaluated. The important values are Hn (mean value) and Sn (standard deviation). Top right is the camera picture, below is a histogram showing the distribution of the hair lengths. The above example shows hairs between approx. 0.15 mm and 1.8 mm length, the major part of them being approx. 0.3 mm long.



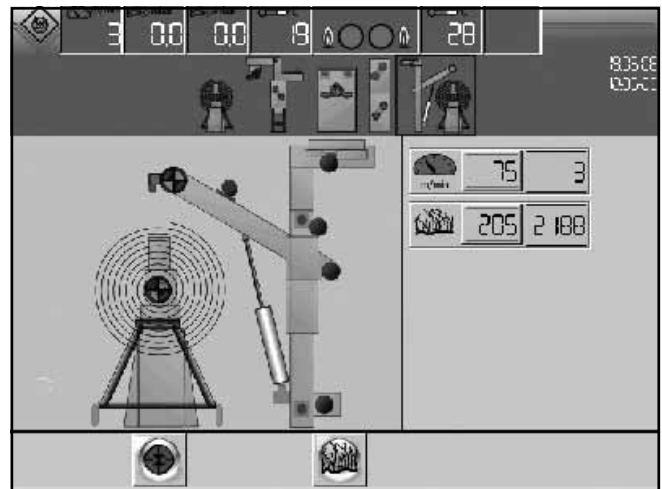
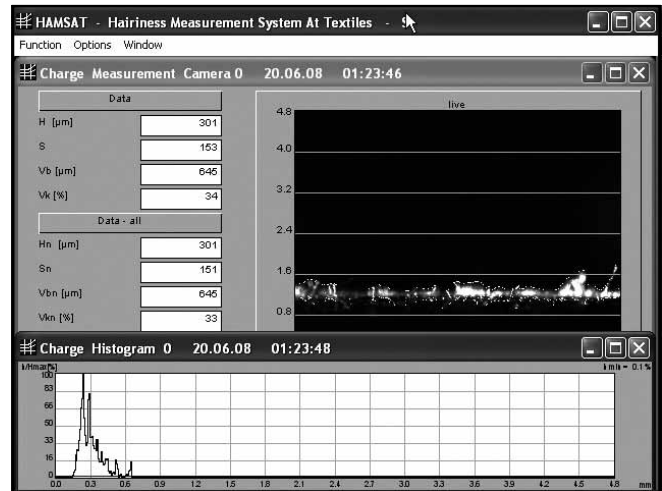
The right-hand picture (B) shows the operating panel of a singeing unit (our laboratory machine) consisting of a centre unwinding device, dedusting unit, singeing machine (for woven fabrics and knitware), two more dedusting units and a big batching device with centre winding. The hairiness tester is located behind the dedusting unit following the singer. The right-hand side shows a preset hairiness value of 205, the actual value being 2188.

By means of our hairiness tester, we are, for the first time, able to measure and influence the important variable, i.e., the hairiness, directly. The measured value is used to control the process parameters in more detail. The intensity of the burners is adjusted depending on a preselected hairiness value.

Advantages

1. It ensures that the whole batch has the same hairiness value.
 2. In the future similar articles will be singed with the same parameters (repeatability)
 3. The gas consumption is only as high as necessary. If the desired hairiness is achieved with a lower intensity, the settings are adjusted accordingly.
- The improvement that can be achieved with the use of

hairiness tester is depicted in the following images, wherein the fabric has been perfectly singed with very little hairiness appearing on the surface.



We have supplied Osthoff senge hairiness tester to Oswal Hammerle, Kolhapur, and Ruby Mills, Mumbai.

This underlines the importance of the online hairiness tester in ensuring perfectly singed fabric quality online.

For further details please contact,

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FICCI's Technical Textiles workshop in Kolhapur generates huge response



L to R : Mr. Scahin Goavi, Asst. Director, FICCI-WRC, Dr. Vaijayanti Pandit, Sr. Director, FICCI-WRC, Shri. P. K. Awade, Ex. Minister For Textiles (Maharashtra State), Shri. Ajay Pandit, Deputy Director, Ministry Of Textile, GOI, Dr. C. D. Kane, Exe. Director, DKTE's Institute

"Our dream of setting up a technical textiles park will soon be realised and we see huge opportunities for India in this industry" said Shri. P.K. Awade, former Textile Minister of State, Government of Maharashtra while inaugurating the Interactive Workshop on Opportunities in Technical Textiles and Nonwovens on 25th November 2011 at Kolhapur jointly organized by FICCI and Ministry of Textiles. "Shri.Prithiviraj Chavan, Chief Minister of Maharashtra announced first Technical Textile Park in India at Ichalkaranji" he added. Mr. Awade informed that 42% of TUFs funds were availed by Ichalkaranji and near by areas out of the total funds utilized in India. Out of total funds utilised by Maharashtra State, 78% went to Ichalkaranji. He also briefed about the history of Ichalkaranji's textile sector and the development in this area.

Technical textiles are the fastest growing segment in

textiles in India and it has generated a lot on investor interest in recent past. The Indian Technical Textiles market has grown from Rs. 42,000 crores in 2007-08 to Rs. 57,000 crores in 2010-11 registering a CAGR of 11%, states the FICCI- DKTE knowledge paper released at the inauguration of the workshop by Mr. P K Awade.

As the Guest of Honour, Mr. Ajay Pandit, Deputy Director, Ministry of Textiles, Government of India informed about the different schemes available for SMEs and entrepreneurs. He said that 12th five year plan working committee now estimated that the technical textile market can grow 20% y-o-y in coming years. He added that more than 60 awareness programs have been conducted in different cities of India. He briefed about the Technology Mission on Technical Textile and subsidies available for technical textiles sector.

Dr. C D Kane, Executive Director said that "During last 3-4 years after the initiatives of Indian government and Ministry of Textiles, a textile industry is enthusiastic to enter into technical textiles sector which is relatively new but very potential field.

The other eminent speakers were Mr. Avinash Mayekar, CEO, Suvin Advisors, Mr. Satyajeet Bhosale, Deputy GM, Reliance, Mr. Pradeep Deshpande, Marketing Head, Illies Eng, Mr. Sanjay Murabatte, ATE Enterprises, Mr. Pankaj Sehaliya, CEO, KP Tech India, Dr. Vhanbatte, Ass. Prof, DKTE among others

Over 120 industry representatives from all over India were participated in this interactive workshop. The participants included experts from the fields of Technical textiles, textile companies and textile institute.

For Detail Contact:

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French Machinery : ITMA 2011 above all expectations

ITMA 2011 in Barcelona was clearly a great edition of the machinery and technology exhibition.

"It was very spectacular to see so much interest for our machines and services and many significant projects from the textile producers worldwide" says Bruno Ameline, the Chairman of UCMTF, and the French Textile Machinery Manufacturers' Association. He adds "there seem to be two different worlds, the financial world in jeopardy and a real economy where the entrepreneurs have long term goals and innovative projects to ensure the growth and the profitability of their companies."

The French exhibitors were amazed by the number and the quality of the visitors, their already well planned projects and their willingness to implement these very quickly to secure complete advantages on the market.

Contracts have been signed on the show, some on which the French machinery manufacturers may report, many which the customers want to keep confidential not to let their competitors know about their strategies.

Evelyne Cholet, UCMTF Secretary General, states that "the French manufacturers are now harvesting the results of their strategy to address the specific requirements of their customers, to provide them tailored solutions and seamless service, in one word to build long-term relationships with them and provide added value to their projects."

Spinning and yarn processing

NSC Fibre To Yarn

NSC Fibre To Yarn main innovation was the S200 new stretch breaker. It was very well received by the customers. The latest evolution of the ERA combing machine also reached a big success. The company attracted an unusual number of customers from such countries as Argentina, Brazil, Uruguay, Chile, Mexico, Iran and India.

Superba

SUPERBA has shown its latest development in the field of artificial turf: the GREENTEX line. It is a completely new concept for the processing of artificial grass which enables to carry out the well known KDK technology in one single operation. The line is capable of texturizing up to 12 ends at the same time in a fully continuous operation including knitting, on-line heat-setting, de-knitting and rewinding. The customers, prospects and visitors who were looking for innovative processes, quality and energy savings in machinery and differentiation with new products on their market segments, found these with the Greentex line, or with the already reputed TVP3 heat-setting line for carpet yarns.

Swisstex France

SwissTex France has presented a new twisting & cabling Tire Cord machine: the CP 20 exhibited for the 1st time in a show. The machine was running on the booth and has attracted many visitors. With this new CP 20 machine, SwissTex France makes the choice of a complete new design from the frame to the textile equipment, with many advantages such as energy saving, easy ergonomics. Christophe Lettner, head of Sales and Marketing, said the booth was particularly active with customers coming with very precise projects and that very important orders were signed during ITMA.

Petit Spare Parts

PETIT Spare Parts is a dealer in accessories for all textile machines. It has a wide international installed base. Over 6 000 spare parts references are available on stock at competitive prices. A personalised assistance is provided by technicians and a reactive, trilingual bureau is available for the customers. PETIT Spare Parts has acquired worldwide exclusive rights to deal in original spare parts for the "fine fibres" machines of the ARCT, ACBF, ICBT, RIETER ICBT and RITM brands.

Fil Control

The measurement of the real tension of yarn is of paramount importance to optimize the quality of the yarn during the manufacturing process. FIL CONTROL brought a solution for detecting "big" yarns (400 to 10 000 dTex) thanks to a new product MYT (Meters Yarn Tension) with a wide tension range: 100cN to 10 000cN. It also permits to detect drifts in the manufacturing process of yarns and to improve the maintenance of the machines.

Nonwovens

Laroche

The main innovation was the new generation of Airlay type "Flexiloft +". This fifth Laroche Airlay generation is designed to produce uniform mats from all types of fibers from 2 to 60 mm length whatever the fineness and as well as from non-fibrous particles. The main improvement of this new generation is in the capability of this machine to produce very resilient lofty fibers mats which will permit notably to produce thermobonded products with uniform density of less than 10 kg/m³ and with thickness up to 300 mm after thermobonding process. Also a big improvement has been made to produce mats of fibers from 250 up to 10 000 gsm with a capacity up to 1T/h/m as well as the ability to process 100% shredded paper or 100% wood fibers. LAROCHE is particularly proud to have sold the 10th JUMBO/EXEL Tearing Line to its main customer in Spain "ALCOCERTEX", as well as other recycling lines to countries such as Indonesia, Pakistan, Mexico...

Breaking NEWS : Andritz acquires Asselin-Thibeau
During ITMA, Andritz Group and NSC Group announced they had signed a contract on September 20 for the acquisition of Asselin-Thibeau by Andritz. Asselin-Thibeau is the corporate identity of the NSC Nonwovens activities and Andritz already a leader in nonwovens through Andritz Perfojet in France and Andritz Küsters in Germany. Both companies insisted that very interesting synergies could be found with this consolidation: a nonwoven platform within the Andritz Group will enable the pooling of three experiences and know how to optimize the existing technologies and achieve the best process results and the utmost production efficiency for single system components or full-line concepts. For the clients a wide range of processes will be available from a single source. Concerning the future of the NSC Group, Bruno Ameline, Chairman and CEO explained the Group will continue to invest for the future of its engineering expertise.

NSC Nonwoven

ASSELIN THIBEAU was very satisfied with ITMA 2011. The machinery manufacturer received an excellent welcome for the Excellence Isoweb® TT card as well as for the ACS Profile crosslappers and the new SDV-2 needleloom for velour applications. Excellence Isoweb® TT card is the inline card solution to obtain 3/1 MD/

CD strength ratio on final product, even at high speeds over 250 m/min. ACS is the crosslappers solution for high speed production capacities. Even with both card web condensed, ACS is enabling the Asselin® crosslappers to run an inlet speed well over 100 m/min. With parallel card web, speeds are over 150 m/min. The ACS also enhances the final fabric performances, such as contributing to obtain a MD/CD ratio for strength and elongation, close to 1/1. Automotive appears to be one of the key application fields. For Jean-Philippe DUMON, Sales & Marketing Director, the affluence of customers was huge, specially customers with real projects from India, Pakistan, Middle-East and Gulf countries, North and Latin Americas. The attendance from Europe and Asia was as expected, with a limited number of Chinese customers. Several contracts have been signed during ITMA but the company cannot give names for the moment to respect the confidentiality requested by the customers.

Andritz Perfojet

Andritz Perfojet and Andritz Küsters presented their latest developments in wetlaid, spunlace, calender, and wet finishing. With the neXline spunlace, which includes the Jetlace hydroentanglement system, a dewatering unit, through-air dryer, and twin embossing calender, Andritz can provide a single-source solution with high productivity and very attractive energy efficiency to produce state-of-the-art spunlace fabrics. In order to customize spunlace fabrics and produce unique webs, Andritz offers a full range of patterning and aperture solutions using calenders or sleeves. A further innovative development by Andritz Perfojet is the spunjet technology for spunlaid nonwovens. This patented process entails hydroentanglement of continuous filaments, thus creating a new generation of nonwovens with superior fabric properties as regards bulk, softness, drape, and tensile strength.

Weaving

Stäubli

STÄUBLI announced a new generation of dobbies, the newly developed rotary dobby family S3060/S3260. The new evolutionary locking system principle - the heart of every dobby - features enhanced security for the selection of the heald frames and allows higher production speeds and fabric quality.

As a main attraction on the STÄUBLI booth customers wanted to see the new Jacquard machine SX, which is

now also available in a version SX V for the production of velvet fabrics. Furthermore drawing-in machine SAFIR S80 - known for high universality and faultless drawing-in quality of weaving harnesses - was of major interest to customers who want to further rationalize weaving preparation. New contacts were made and many projects were discussed, started or reviewed. A most pleasing fact is that an encouraging number of orders were finalized during the show.

Mallein

MALLEIN, a specialist of the beam for warping and weaving, is able to answer to all needs of the actual textile activity. The entire integration of its aluminium foundry and all of its production facilities allowed MALLEIN to answer to all specific enquiries. MALLEIN exhibited its new range of aluminium canisters during ITMA 2011, canisters that are stronger and stronger and manufactured with the greatest geometric precision.

Ebelmann

On ITMA, EBELMANN worked very closely with its clients on how to reduce waste on the selvages during the weaving process. In particular special scissors, made in carbide tungsten blades, in association with polycrystalline diamond inserts - a special know how of the company- were closely studied by many customers for such applications as aramids, glass fibers, carbon fibers and other high price yarns. "New research in 3 D and multiaxial weaving are very promising for EBELMANN" says Karine Ebelmann, the CEO.

Dyeing and finishing

Alliance

Shown for the first time in Barcelona, the ROTORA Yarn & Fabric Machine is the new advancement of the ROTORA concept to dye a beam of cones in rotation. It offers the possibility to dye simultaneously cones and fabrics. One of the main advantages is to obtain absolutely the same color in clothes which are made with fabric and yarn. A sampling can be made without draining the vessel, by means of a door on the vessel. The rotation of the beams inside the machine allows to adapt the quantity of bath to the quantity of material and so to dye in the most economical condition. The ROTORA Y & F allows economies up to 50% compared to conventional machines and more versatility as the length of the ROTORA Y & F beam machine is adapted to the width of the fabric and/or the number of

cones to be dyed.

Callebaut De Blicquy

Callebaut de Blicquy (CDB) introduced its latest improvements in dye-work management optimization: - On laboratory level, with CDB specific device for "online" color measuring, integrated to the dyeing machine or any other equipment requiring it, and with their own lab equipment allowing both process optimization and significant production cost savings. - On industrial level: CDB introduced machines for economical and ecological Very High Density bleaching and dyeing of loose stock fibers, tow and bumps (up to 700 kg per cubic meter for acrylic or polyester tow and more than 350 kg per cubic meter for loose cotton fibers), allowing huge savings in water, steam and ingredients consumption, and so providing the most competitive cost prices (up to 25% cost reduction).

Rousselet

The latest version of ROUSSELET ROBATEL continuous centrifugal hydro-extractor achieved a great success at ITMA. The various and numerous loose stock processors involved in dyeing, bleaching or washing have been impressed by energy cost savings such centrifuge allows at the level of the drying operation, and appreciated its new designed full opening and pneumatically driven top lid which significantly reduces basket inspection and cleaning times, so increasing its productivity and improving its flexibility.

Dollfus & Muller

The interest on the DOLLFUS & MULLER booth was specially on the new compactor felt for the knitted fabrics finishing which brings many new advantages: higher compaction, softer for quicker running in, peach skin surface for a better finishing of light weight open width fabrics. Many contacts were also taken concerning the dryer belts and the sanfor felts.

David Fauconnier, Sales Director, emphasises that "ITMA 2011 has surpassed our expectations. The number of visitors at the DOLLFUS & MULLER booth increased by more than 40% compared with the prior edition of ITMA. Many new contacts were made with prospects from such countries as Turkey, Egypt, Pakistan, Iran and as well from India, France, Germany, Italy, Spain, Brazil." Last but not least, during the show DOLLFUS & MULLER was very proud to celebrate its 200 years anniversary.

Miscellaneous

SPOOLEX

Visitors have discovered Caemard's cutter Softegder new generation, developed especially for flat and smooth edges on narrow strips 100% PE, Tafta or satin. The Decoup+ Ultrasonic division has introduced its new mini press to perform cutting, welding and punching operations: even more compact, more versatile, with easier settings and maintenance. The customers were searching for high quality devices but also customized solutions as per their needs, with the same objective: add value to their final product.

AESA AIR ENGINEERING

AESA, the specialist in air-conditioning and waste collection systems for all textile factories, was positively impressed by ITMA Barcelona results noting a

big qualitative and quantitative increase of visitors compared to previous edition. Prospective are very interesting in different part of the world and may materialize as soon as cotton price stabilize.

SCHAEFFER PRODUCTIQUE

The main product innovation introduced at ITMA 2011 was the interactive mobility application linked with the textile specialized ERP, available in SaaS mode, thanks to the Cloud Computing technologies and the Tablet PCs. It is a very good solution for the textile producers' objectives to network through internet with their own clients, and a real added value for textile of Schaeffer's ERP/CRM business software. For Rémy Wolfer, the export manager, "ITMA in Barcelona was a great success as more than 20 new projects should be finalized before the end of 2011."



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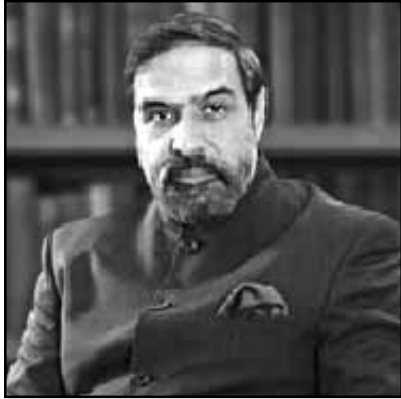
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The first objective is to increase the share of manufacturing in overall economy to at least 25% by 2022.



Mr. Anand Sharma, Minister of Textiles and Commerce & Industry, Govt. of India

In 2010, the Indian economy rebounded robustly from the global financial crisis - largely because of strong domestic demand - and growth exceeded 8% year-on-year in real terms. With its ninth largest nominal GDP and the fourth largest purchasing power parity (PPP), the country's per capita GDP (PPP) stood \$3,586 (IMF, 129th) in 2010. Industry accounts for 28% of the GDP and employs 14% of the total workforce.

Textile manufacturing is the second largest source of employment after agriculture. During 2004 to 2008, the total investment amounted to 27 billion dollars. By 2012, still convinced of the government, this figure will reach 38 billion as expected. Ludhiana produces 90% of woollens in India and is known as the Manchester of India. Tirupur has gained universal recognition as the leading source of hosiery, knitted garments, casual wear and sportswear.

The Ministry of Textiles steers the formulation of policy, planning, development, export promotion and regulation of the textile sector in India. This includes all natural, artificial, and cellulosic fibres that go into the making of textiles, clothing and handicrafts.

Mr. Anand Sharma (Born 5 January 1953) is the present Union Minister of Textiles and Cabinet Minister for Commerce and Industry, Government of India. He was given the portfolio for Ministry of Textiles on July 12 2011. Mr. Sharma is currently member of upper House of the Parliament (Rajya Sabha).

Addressing the Face2Face talk with Ms. Madhu Soni-Sr. Editor & Correspondent, Mr. Anand Sharma draws the closer picture of the Indian textile industry and shares the ministry's plans to enhance the performance of this vital sector.

Face2Face feels pleasure to host an interview with you, Sir! You have assumed additional charge as hon'ble Union Minister of Textile in recent past; please apprise us about the immediate challenges figured out by your ministry.

Indian Textiles Industry is the India's second largest employer sector after agriculture, employing 60 million textiles workers. The industry has witnessed rapid investments catalyzed by TUFs with Rs. 2.07 lac crores of project costs being approved since 1999. Textiles industry has just coped resiliently with the global economic recession and the highest price volatility in cotton prices in the past 150 years. There appears to be incipient signs of a slowdown in 2011-12 with yarn and fabric production coming down. However, I am confident that in a year of low raw material costs, textiles industry will weather the challenges of a slow down and register positive manufacturing growth.

So, what will be some of the key action areas in reform agenda to bring back the industry on high growth trail?

The level of ambition has to be high to begin with. We have a very robust policy framework that will be attractive to investors. We have to bear the larger objective in mind. The share of manufacturing in India has been stagnating, which is much higher in other countries such as China, South Korea, Thailand, Malaysia and Indonesia, where it is 25%-34%. Therefore, the first objective is to increase the share of manufacturing in overall economy to at least 25% by 2022.

Well, that means more opportunities for jobs. Am I right?

Definitely! There is a social dimension too, which is to create 100 million jobs. In a country of 1.2 billion people, manufacturing is the only sector that can create so much employment. The idea is to make Indian manufacturing globally competitive. The National Investment and Manufacturing Zones (NIMZ) that are planned are not just zones but standalone, integrated

industrial townships that will be autonomous and self-governing under Article 243Q-C of the Constitution.

So, what role infrastructural development will play in these ambitious plans to growth?

In meeting the aspirations of our people to sustain double-digit growth over the next few decades, creation of world-class infrastructure would be of critical imperative. The coming decade will see expansion of our road and highway networks, building of new ports and airports and expansion of telecom and power sectors to provide sustenance to our growing economy. We aim to invest in excess of US\$ 1 trillion over the next decade in creation of our infrastructure.

What level of support is available from various affiliated government bodies on the plan of actions proposed?

The recent interactions with the chambers of industry and their senior members have yielded considerable feedback on the initiatives already taken by the Government. A number of issues, including those relating to the implementation of the direct tax code, GST, National Manufacturing Policy, MMDR Act and so on, were discussed. A number of actionable points have emerged because of these discussions. We intend to continue the structured dialogue with the industry, including at the state level, and have such interactions more frequently. A decision has been taken to constitute an Industry-Government task force at the level of the Commerce & Industry Minister for ongoing interactions with industry. First meeting of the task force has already taken place.

TUFS is to be favored in upcoming 12th Plan too. Can you please share some details about it and how is it going to benefit the industry as a whole?

The restructured Technology Upgradation Funds Scheme (TUFS) is presently approved up to 31st March next year. The working group on Textiles and Jute for the 12th Five Year Plan has recommended continuation of the Scheme during the 12th five year plan given the positive benefits of the Scheme and the continued need for modernization, especially in the hitherto unaddressed areas of weaving, processing, etc. with a projected outlay of Rs. 15886 crores for the entire 12th five year plan period.

The TUFS scheme has been extremely successful in mobilizing significant investments into the textiles industry. As I had said, Rs. 2.07 lac crores of investments could be catalyzed under TUFS. Government has approved an allocation of Rs. 7432 crores including Rs. 1972 crores for TUFS for 2011-12. I do hope that the textiles industry's investment needs will be adequately addressed with this allocation.

Sir, to talk policies in specific; what is your opinion on beneficiary aspects of National Manufacturing Policy for the textile sector?

The proposals in the Policy are generally sector neutral, location neutral and technology neutral except incentivization of green technology. While the NIMZs are an important instrumentality, the proposals contained in the Policy apply throughout the country wherever industry is able to organize itself into clusters and adopt a model of self-regulation as enunciated. Textiles industry has a lot to gain if it decides to benefit from the concessions and flexibilities given in the policy.

A defining feature of the Policy has been the endeavor to improve the business regulatory environment by providing single window clearances.

In order to protect the interests of labor in the eventuality of a closure of a unit, a suitable mechanism has been devised using innovative job loss policy/sinking fund to insure workers against such loss.

Moreover, the third party inspections to supplement the inspections by government agencies for compliance monitoring for both labor and environment are included.

Green manufacturing has received a special attention and a Technology Acquisition Fund will be established to acquire global technologies and build a patent pool for appropriate sectors including manufacturing of equipments, which seeks to reduce energy consumption.

Attuning on the same note, I am glad to share that we at Fibre2fashion, taking initiative for giving back to society through a campaign meant to spread awareness about Sustainable and Environment Friendly Manufacturing practices in one of the most pollutant sectors- dyes & chemicals, are coming up

November-December 2011

with special feature on Sustainability. Millions of our global visitors who have welcomed the concept, would love to know your take on "Sustainability and doing business the responsible way."

Sustainable business practices are not only a collective responsibility of the entire generation but a business imperative also. As discussed previously, in National Manufacturing Policy we have incentivized green technologies. Green manufacturing has received a special attention and a Technology Acquisition Fund will be established to acquire global technologies and build a patent pool for appropriate sectors including manufacturing of equipments, which seeks to reduce energy consumption.

India has made rapid strides in the renewable energy sector and we are the fifth largest wind energy producers in the world. Our ambitious National Solar Mission has set a target of 20 GW solar power generation capacities in this decade. We will also be adding 25 GW of nuclear energy capacity over the next decade, which will see investment of over US\$ 80 billion. Similarly, India has a total hydropower potential of 150 GW with huge untapped potential especially in the small and micro Hydel sector.

Sir, as the industry is all set on her growth path, concluding our talk here, any message you may like to give to investor community-

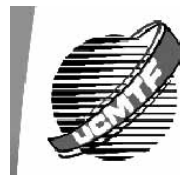
India continues to be one of the favored destinations for FDI, having been reported as the third most attractive investment location for 2011-13 by UNCTAD World Investment Report (WIR) 2011.

There have been many rationalizations and steps to streamline investment climate and Consolidated FDI circulars document these steps. We will continue to make the FDI policy more investor friendly.

Texttreasure

"The difference between 'involvement' and 'commitment' is like an eggs-and-ham breakfast: the chicken was 'involved' - the pig was 'committed'."

- unknown



A French solution for a Belgian dye house success story

Escotex is a family owned commission dyehouse located in Deinze in the center of the important Belgian carpet industry cluster. Specialized in the dyeing of loose stock fibers, the company has developed over the years a close partnership with French machinery manufacturers to offer their customers the best efficient service.

Escotex was established in 1958 by Pascal van Brabant, the father of today's owner and CEO, Philippe. The name, Escotex, mixes the initial location, which is near Gand along the Escaut river (Esco) and its industry, textile (tex).

In 1972, they moved to Deinze in the valley of "la Lys" river in order to be in the middle of the Belgian carpet industry cluster. In 1979 Philippe, who was only 19 years old, joined the company and has been helped since 1983 by his wife Luce.

This short reminder of the company history explains how the company and its owner-manager personal life are completely linked together. Philippe Van Brabant, even though he spends most of his working time solving technical problems to give a personalized service to his customers, has a long term approach in the definition of his company strategy. He is not looking only for short term profits but to give the best possible service to its customers and behave in a responsible way for its community and environment.

The only way for the Belgian carpet industry to survive in the global competition is to be creative, to offer quality goods and services at competitive prices. Escotex has been designed and redesigned to offer their customers the possibility to adapt themselves to the market permanent new requests. The success of Escotex can be measured by their growth in the good years and their resilience during two past years when local business and activity were really in a deep crisis. It can also be measured by the fact that if about 60% of the activity is within the local cluster, about 40% is exported outside Belgium.

The carpet industry needs to offer many designs, re-

quiring by consequence many different colours, sometime in very small quantities. To manage and finance the raw material need a very fast and reliable network of suppliers. Escotex strategy is to respond to these customers' needs.

Escotex main activity is to dye loose stock fibers in a very short time, only a couple of days, with complete colour reproducibility and at a competitive price level. In order to reach these goals, Philippe van Brabandt has developed a long-term partnership with two French textile machinery manufacturers, which have been working together to propose a complete solution for his dyeing process, Callebaut de Blicquy and Rousselet-Robatel.

The first step is to find the best recipe for each new colour. Callebaut de Blicquy have designed a unique laboratory dyeing machine with a hydraulic dyeing circuit equivalent to the one of production machines. Once a recipe is defined in laboratory, it can be fully reproduced in the production process, again and again.

The second step is to have a cost competitive, reliable, production process for fast response, with minimum labour intensity. Escotex dyeing house has been designed to reach this goal. When receiving the raw material, the bails are opened by a machine also manufactured by a French machinery manufacturer, Laroche.

Then by pneumatic transportation, raw materials are fed into a press manufactured by Callebaut de Blicquy in order to prepare the "cake". Callebaut de Blicquy have developed a unique technique of high density cakes which gives a better color uniformity with very low liquor ratio and by consequence low consumptions of water, energy and auxiliaries products. The cake is prepared in a specially designed carrier suitable for high cake density. The carrier is then handled to the dyeing vessel. When the dyeing process is achieved,

the cake is removed from its carrier, then it is broken and fibers sent through a continuous centrifuge to is hydro extracted prior being sent to the dryer. The unique continuous centrifuge has been specially designed for the textile industry by Rousselet-Robatel, a world leader of centrifuges for many different industries. Over 10,000 of their centrifuges are in use worldwide. Rousselet-Robatel is the only manufacturer offering such technique for textile products, the main advantage being to deliver fibers with very regular moisture content to the next step, the dryer, in a fluffy shape which authorizes a better yield to the dryer compared to traditional process. After drying, fibers are sent to a bailing press which prepares new bails of dyed fibers ready to be shipped to the customers' carpet mills.

All this process is highly automated and although Escotex are able to dye between 20 to 25 tons per day, only 9 workers are employed in this complete process. Concerning a night shift to increase production volumes without investing in any additional machinery, Philippe Van Brabandt does not intend to go into such strategy because he thinks it could deteriorate the quality his customers have been used to. Even more, he always wants that production process stops on Friday around noon to completely clean the workshop and to fine tune all the machines in order to get the factory ready to start the following week in perfect condition.

Philippe van Brabandt is always thinking about other strategies, including a very similar new production line for the finishing of technical textiles. Of course, he is working on these new projects with his long-term partners. These partners are both working with him for the success of his long-term strategy and his daily problems.

- Philippe van Brabandt
- dyed goods ready for shipment
- dyeing machines





After Surpassing USA, UK And Japan to become India's largest trading partner, trade between India & China. Expected to continue at a record breaking pace.

- Over 120 Chinese companies participating in the 9th China Products (Mumbai India) Exhibition 2011 to continue the business momentum with India
- The exhibition will be held from 15th - 17th December, 2011 at Bombay Exhibition Centre, Goregaon (East), Mumbai, India.

With China overtaking USA, UK & Japan to become India's largest trading partner in 2010-11 and trade relations between the two countries continuing to grow at a fast pace, Chinese entrepreneurs are tapping opportunities like the 9th China Products (Mumbai India) Exhibition 2011 to get in touch with Indian businessmen. The exhibition will be held from 15th - 17th December, 2011 at Bombay Exhibition Centre, Goregaon (East), Mumbai, India.

Trade volumes between India and China reached US \$ 61.7 billion in 2010 and it is anticipated to reach US \$ 100 billion by 2013. In the first 8 months of 2011, India-China bilateral trade reached US\$ 48.17 billion, an increase of 19.47% over the same period last year. The added impetus to the growing Indo-China trade is the debt crisis in Europe and the anticipated slowdown in the US. Additionally, trade confidence between both India & China - which have strong domestic consumption - is also quite high.

According to Mr. Suresh Prabhu, four time Member of Lok Sabha and former Union Cabinet Minister for Power, Heavy Industries & Public Enterprises, who has consented to preside as Chief Guest at Opening Ceremony of the expo, "Many areas of common interest between India and China can be addressed through bilateral co-operation. There are a lot of opportunities for India and China to collaborate and develop positive relations based on trust and friendship for mutual benefit".

The 9th China Products (Mumbai India) Exhibition 2011 is the biggest platform for Indian and Chinese entrepreneurs to interact with each other, and - as in the previous years - will serve as a platform for the Indian Industry to explore long-term business associations with Chinese companies in the form of tie-ups, joint ventures, collaborations and import-export trading relations.

On display at the Exhibitions will be an extensive range of products across a wide section of industries like building, construction and interiors, cosmetic and beauty products, diesel engine and diesel generator sets, electrical appliances, electronics, fabrics and garments, food and beverages, gifts and toys, glassware, handicrafts, hardware and tools, health and hygiene, home appliances, industrial products, sanitary ware, stationery, water pumps etc.

The trade show is being organized by the China Council for the Promotion of International Trade (CCPIT), Sub-councils of Commercial Industry, Guangdong, Ningbo and Hangzhou. The Exhibition is supported by the All India Association of Industries (AIAI) and the India-China Chamber of Commerce and Industries (ICCCI) and managed by Worldex India. For further details please log onto www.chinamumbaiexpo.com

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THE TEXTILE ASSOCIATION (INDIA)

Central Office

Office Bearers for the term 2011-2013

Mr. D.R. Mehta re-elected as President

The Textile Association (India) has elected the Office Bearers for the term 2011-2013 during their Governing Council Meeting held on 26-11-2011 at Kolkata.



Mr. D.R. Mehta - National President

Mr. D.R. Mehta is B.Sc.Textile, P.G.C.B.M., F.T.I. (Manchester), F.I.E., F.T.A. & Chartered Engineer. He is having more than 43 years working experience in India & Abroad in Textiles, Embroideries, Administration and Liaisoning with Govt. Authorities. He is Ex-Chairman cum Managing Director, NTC & Hakoba Embroideries. Presently he is associated with Eurotex Industries & Export Ltd. as Director since last 5 years. Mr. Mehta is closely associated with The Textile Association (India) - Mumbai Unit. He was awarded F.T.A. in 1992 and then Service Gold Medal in 2000 by the TAI. He is President of TITOBA (West Zone) and President Emeritus of The Textile Association (India) - Mumbai Unit. He made record surplus from All India Textile Conferences hosted by Mumbai Unit. He also raised surplus income for auditorium fund by organizing fund raising programmes by TAI - Mumbai Unit. Presently, Mr. Mehta is a National President of The Textile Association (India) since 2009. Under his dynamic leadership Association got ISO 9001:2008 certificates. Also under his excellent and focused leadership TAI have organized magnificent event of World Textile Conference in 2011 for the first time here in India which city of Mumbai witnessed one of the most successful and well attended international event in the form of World Textile Conference (WTC). He has been re-elected as President for the term 2011-2013.



Dr. Anil Gupta - Vice President

Mr. Anil Gupta is a Textile Technology Graduate from TIT Bhiwani (Punjab 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. He 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 well acquainted with the latest development in Textile Machinery. At present he is on the board of First Winner Industries Ltd, Mumbai, Pee, Cee Cosma Sope Ltd., and first Winner LifeStyle Ltd & Ram & Shyam Textile Industries Ltd. He has served at senior positions and 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 has widely traveled 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). Mr. Anil is associated with TAI Delhi since 1980. He has served the association as G.C. 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. He is Life member of Indo French Technical Society, Member (97-98) of Capital Goods Committee of CII. Presently he is elected as Vice Chair-

man, TAI Central Office. Mr. Anil Gupta is recently appointed as Special Director on the Board of BIFR for Sick Industries. Mr. Gupta has been appointed as Vice President, Textile Association (India) - Central Office for the term 2011-2013.



Mr. K.D. Sanghvi - Chairman

Mr. K.D. Sanghvi is B-Text. from VJTI and has done Industrial Management. He is techno-commercial man with vast experience in the Textile Industry. He is very enthusiastic and trouble shooter. He is associated with several social organizations. He has been conferred by service gold medal in the year 1997 by The Textile Association (India). He is associated with TAI since last 25 years and has had important positions in TAI. He was working as General Manager for 19 years in mills under NTC (Maharashtra) like Finlay, New City, Podar, Digvijay etc. which is being modernized by NTC Ltd. Mr. Sanghvi has attended Asian Textile Conference at Hong Kong, and Japan. He has been awarded Service Memento in 1993 & Service Gold Medal in 1997 by The Textile Association (India). Presently Mr. Sanghvi is dealing with Yarn trading. Mr. Sanghvi has been re-appointed as Chairman, Textile Association (India) - Central Office for the term 2011-2013.



Dr. N.N. Mahapatra - Vice Chairman

Dr. N.N. Mahapatra is having 27 years of experience in textile industries in India and abroad. He has worked

in all big textile houses like Birlas, Reliance, Raymond (Kenya) Churchgate Group (Nigeria), GSL, (formerly Gujarat Spinners Ltd.), LNJ Bhilwara (RSWM) Group in various senior capacities. In the year 2007 he was also awarded C Col FSDC (U.K.) and C Text FTI (Manchester). In the year 2008 he was awarded the F.T.A from the Textile Association of India and F.I.C from the Institution of Chemists, Kolkata. In the year 2009 he was awarded the F.I.E from The Institution of Engineers (India). He is a Senior Member of American Association of Textile Chemists and Colourists. Dr. Mahapatra is a Life Member of Indian Institute of Chemical Engineers, Indian Chemical Society, Indian Colour Society, UDCT Alumni Association, Indian Science Congress Association, and Indian Association for Science Fiction. He is a Patron Member of Association of Chemical Technologist (India) Ahmedabad. He is also member of All India Management Association. In 2008 his name got included in American Biographical Institute. Inc (U.S.A) for professional recognition and peer communication. He is also the Chairman cum Treasurer of Western Indian Section of Textile Institute, Manchester (WISTI). He has contributed more than 130 papers in textile journals, having international circulation and presented more than 15 technical papers in various seminars in the country and abroad. He has travelled countries like Australia, U.K., Dubai, Kenya, Nigeria, Germany, Singapore, Bangladesh and Spain. Presently he is working as Vice -President (Technical Marketing), Hindprakash Lonsen Industries Pvt. Ltd., Vatva, Ahmedabad. Dr. Mahapatra has been appointed as Vice Chairman, Textile Association (India) - Central Office for the term 2011-2013.



Mr. V.D. Zope - Hon. Gen. Secretary

Mr. V.D. Zope obtained a Bachelor Degree in Textile Technology in the year 1975 from Bombay University with 2nd rank in the merit list. He was awarded Research Fellowship by Century Mills, Mumbai under the guidance of BTRA, Mumbai for obtaining Post

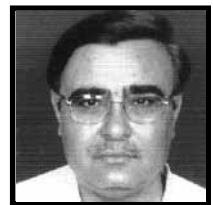
Graduate Degree in Textile Technology of Mumbai University. He has vast experience of 34 years in private and public sector textile mills. He has sound background of various areas like Production, Quality Control, R&D, Technical excellence, Project Preparation & Appraisal monitoring and implementation. He is very much associated with The Textile Association (India) and had worked with the capacity as Hon. Treasurer, Hon. Jt. Secretary. He was working with NTC Ltd. (Western Region) as Officer in charge. Presently he is a freelance management consultant. Mr. Zope has been re-elected as Hon. Gen. Secretary, Textile Association (India) - Central Office for the term 2011-2013.



Mr. Pratik Bachkaniwala - Co-opt Member

Mr. Pratik Rajnikant Bachkaniwala is the third generation entrepreneur and a family member of the Surat

based Himson group. Mr. Pratik is a Commerce Graduate from Sydenham college of Commerce and Economics, Mumbai in the year 2001. After graduation, he had opted for a Post Graduate Diploma course at Entrepreneurship Development Institute of India, Ahmedabad. His course there was PGD in business and Entrepreneurship management with a specialization in Family Business Management. Before becoming the whole time Director at various group companies at Himson, he had taken work experience for purchase & vendor development, production planning and marketing & customer services from 2002 to 2004. He has been managing 3 units of the group independently since 2004. Mr. Pratik had been instrumental in setting up office and joint venture Company in China in 2008. In 2009, he had actively assessed and completed the procedure of takeover of a Company in similar line of product. Mr. Pratik has traveled extensively for business and is associated with European and Chinese companies at various levels. He Pratik has been the Executive Secretary in Surat Management Association in 2006 and is the member of committee at TAI, Surat. He is also Treasurer of Textile Machine Manufacturers Association (TMMA), Mumbai. Now Mr. Pratik Bachkaniwala is unanimously elected as Co-opted Member of The Textile Association (India) for the term 2011-2013.



Mr. H.B. Parekh
Jt. Gen. Secretary

Mr. V. Jariwala
Jt. Gen. Secretary

Mr. V.N. Patil
Treasurer

Prof. M.D. Teli
Chairman - EB

Dr. H.V.S. Murthy
Chairman - PAC

Prof. A.I. Thakkar
Chairman - BPC

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MoS, Textiles Graces NITRA's 10th Convocation

NITRA's 10th Convocation was held on Saturday, 10th Dec.'11 at NITRA, Ghaziabad. Hon'ble Smt. Panabaaka Lakshmi, Minister of State for Textiles, GoI was the chief-guest. The guest-of-honor was Shri V. Srinivas, I.A.S., Jt. Secretary, MoT, GoI. Eminent industrialists Shri R.L. Nolkha, Shri K.K. Agarwal, Shri R.C. Jain and Shri Shishir Jaipuria, all members of NITRA Governing Council, were also present. 167 students from 11 programs were awarded certificates and medals in this year's convocation.



(L-R) Dr. J.V. Rao, Director, Sh. K. K. Agarwal, Dy. Chairman, Sh. V. Srinivas, IAS, Jt. Secretary, Textiles, Smt. Panabaaka Lakshmi, MoS, Textiles, Sh. R.L. Nolkha, Chairman, and Dr. R.C. Jain, Former Chairman

Shri R.L. Nolkha, Chairman, NITRA, in his welcome address opined that the future of Indian textile & clothing industry is very bright. He mentioned that the industry needs trained people from experienced and reputed training organizations like NITRA to perform better in business. He informed that at present NITRA has nearly 1700 alumni strength that is efficiently serving in more than 100 apparel and textile companies.

Director NITRA Dr. J.V. Rao mentioned that today NITRA had set benchmarking standard in professional training and offered 14 industry oriented techno-management programs on regular, part-time and distance learning modes, covering the areas such as textile/garment manufacturing, textile/garment designing, merchandising, quality assurance, garment finishing and sewing machine operation & maintenance. Apart from the regular students, the DLP students also excelled in their career after updating their knowledge from NITRA. Under the ISDS launched by GoI, NITRA has set a target to train 16,600 personnel over the next five years. To conclude, Dr. Rao also spoke about the "Centre of Excellence" set up at NITRA for carrying out R&D and training in protective textiles and the new Fire Testing Laboratory at NITRA.

Shri V. Srinivas, in his key-note address informed that investment worth Rs. 2000 crore is pumped in T&A sector in the last five years that is generating employment potential of 9 crore people in the coming years. He also discussed about the govt's Integrated Skill Development Scheme (ISDS) for the Textile and Apparel Sector, launched in July'11 with financial outlay of Rs. 229 crores to train 26.75 lakh people over a period of 5 years.



A fresh pass out being awarded certificate by Smt. Panabaaka Lakshmi, MoS, Textiles, as Sh. V. Srinivas, IAS, Jt. Secretary, Textiles looks on.

Smt. Panabaaka Lakshmi in her Convocation Address stated that the Indian textile and clothing industry contributes 14% to industrial production, 12% to export earnings, 4% to the GDP and 18% employment for the country. The industry directly employs nearly 35 million people and the current size of it is US\$ 55 billion. The MoT has taken several new initiatives such as ISDS, TMTT, SITP, and TUFs, in order to achieve faster and inclusive growth of this industry that is likely to generate additional 30 million direct and indirect employments by 2020. The MoS expressed happiness over NITRA's brilliant performance in training youngsters and providing them job opportunities.



Pass out students await their turn for Award Ceremony at NITRA's 10th Convocation.

Shri K. K. Agarwal, Dy. Chairman NITRA, while proposing the formal vote of thanks, asserted that NITRA's initiatives would fully support the existing govt. initiatives for manpower training and thus would benefit the textiles and apparel industry as a whole.

Suvin Empanelled with Ministry of Textiles to spur Technical Textiles Growth

Suvin Advisors Pvt. Ltd. has been empanelled as consultant for business start-up under Mini Mission-II of Technology Mission on Technical Textiles (TMTT) with the Office of Textile Commissioner, Ministry of Textiles (MoT), Government of India.

This initiative by MoT is bound to boost the technical textile industry in India. MoT has taken many steps to promote the technical textile industry in India. Some of the major schemes include scheme for growth and development of technical textiles (SGDTT), Technology Mission on Technical Textiles (TMTT), concessional custom duty for major technical textile machinery, technical textile machinery covered under TUFs scheme etc.

Technical textile is the fastest growing segment in India but entrepreneurs have difficulties in investing in technical textiles due to lack of knowledge about the technology, products, markets, process, raw material requirement. To support the entrepreneurs, MoT had requested for applications from COE and other associations/institutes/independent reputed consultants for empanelment of consultant for business start-up.

The empanelled consultant will assist the entrepreneurs in identification of product, selection of technology, machinery, raw material etc. The consultant will also help in preparation of techno-economic feasibility project report (which will be further submitted to lending agency) and do the hand holding of the entrepreneurs till completion of the projects.

Suvin Advisors is a professional engineering consultancy firm providing services like management consultancy, overall project consultancy and process management consultancy for sectors like technical textiles, traditional textiles, food, retail and other infrastructural projects.

Suvin has been empanelled with the MoT due to its strong presence in technical textile industry, experts trained on international technical textile technology providers, knowledge of executing textile & industrial projects and channel partners across the world especially in developed countries. Suvin, providing turnkey consultancy services under one roof, has the passion to provide right and appropriate solutions for the benefit of the industry.

Congratulation

Prof. Deepak Kulkarni nominated on Academic Council of YCMOU, Maharashtra



Prof. Deepak Kulkarni

Prof. Deepak Kulkarni, head textile technology at Government Polytechnic is nominated as a member of academic council of Yashwantrao Chavan Maharashtra Open University (YCMOU), Nashik for a period of three years 2011 to 2014 by Vice chancellor recently. Prof. Deepak Kulkarni is also vice President of the Textile Association (India) Vidarbha Unit Nagpur.

Prof. Kulkarni has 29 years of teaching experience in the field of technical education. He has good liaisoning with industries and is in charge of public and media relations of Government Polytechnic Nagpur. He is also Hon. Editor of newsletter published by Maharashtra State Technical Education Board (MSBTE), Mumbai. Prof. Kulkarni conducts personality development and management training for faculty, students of colleges as well as industry personnel. Prof. Kulkarni is also a member of ATA course curriculum revision committee of The Textile Association (India).

All India Textile Conference on the theme "Textile & Clothing - Emerging Global Scenario" scheduled for 4th & 5th February, 2012 at New Delhi

The Textile Association (India) TAI, is the leading and the largest national body of textile professionals in India. It has been serving the Indian Textile Industry for over 7 decades, since its inception in 1939. The TAI has 27 affiliated units at various textile centers in the country, accounting for member strength of over 22,000 from pan India.

The Textile Association (India) has been organizing an annual conference, the All India Textile Conference (AITC), every year since 1944, which is attended by a large number of textile professionals from all over the country and also from abroad.

The 67th edition of the All India Textile Conference is being hosted by Delhi Unit of TA(I), and is scheduled for the 4th & 5th February, 2012 and will be held at India Habitat Centre, New Delhi.

The theme of the 67th edition of AITC is "Textile & Clothing - Emerging Global Scenario", and the conference shall have a very sharp focus on the various aspects and dimensions of the fast evolving trends in the entire ecosystem of the textile and clothing industry across the globe.



Mr. Ashok Juneja,

Conference Chairman, Mr. Ashok Juneja, said that this edition of the AITC is designed to be a "Conference with A Difference" as it will offer a highly "delegate-friendly" format by way of panel discussions instead of the age-old class-room paper presentations. He further expressed, "The 67th AITC will offer multi-dimensional content, relating to the most significant aspects of the textile and clothing industry, and shall be the first-ever convergence of senior bureaucrats, super-specialist technicians, decision-makers from the industry, and renowned subject-matter experts, from India and abroad, on one platform for sharing thoughts, discussing solutions, and laying the road-map for the future of textile and clothing industry in India."



Mr. R.K. Vij

President TAI - Delhi, Mr. R.K. Vij said that the conference will be attended by over 500 delegates from various segments of textile and apparel industry, from India and abroad. The conference will cover a wide array of distinct subject lines, like, environment and sustainability, corporate social responsibility, technology, investment and infrastructure, attracting investments in textile sector, etc.

Mr. R. Dudeja, the Conference Secretary, and also the Vice Chairman of Delhi Unit of TAI, said that "The 67th AITC will enable the industry professionals to absorb a wide variety of new thoughts and ideas, and introduce them to the latest in technology and innovations from across the globe. At the same time, the conference will also offer excellent networking opportunities to all the participants."

Elaborating on the content and format of the conference, Dr. V.K. Kothari, Chairman- Technical Programme said, "The 67th AITC will have panel-discussions in an interactive format, on a wide array of currently relevant topics, with the panelists being drawn from the entire spectrum of textile and clothing industry from both India and abroad. This will be the first-ever discussion oriented conclave, in which the renowned and seasoned decision-makers and captains of the industry will share their experience and vision with the large congregation of professionals from textile, apparel and retail industry, on a public platform."

The conference is being supported by Indorama Industries Limited, Indonesia, Sutlej Textile Industries Limited, Alok Industries, Reliance Industries Ltd, T.T Group, Kirloskar Toyoda Textile Machinery, Welknown Polyester, Bombay Dyeing, ITME Society, Rieter, Paramount, Alps Industries, Pan Overseas, Orient Syntex. Indian Card Clothing in addition to Ministry of Textiles, Govt. of India.

The conference will be organized in the precincts of the prestigious Habitat World venue in New Delhi.



ज्ञानमंगा घरघर

YCMOU

Yashwantrao Chavan Maharashtra Open University



Unique Educational Opportunities for the Textile Workers

Introduction

The Indian textile industry is one of the largest in the world, providing direct employment to more than 35 million people in the country. Indirect employment including the manpower engaged in agricultural based raw-material production like cotton and related trade and handling has been estimated to be around another 60 million. In fact, this industry is the second largest employment generator next only to Agriculture. The National Skill Development Corporation (NSDC) studies project that the overall employment in the sector would increase to about 60 to 62 million by 2022. This would mean an additional human resource requirement of about 25 million persons. Even though the skill sets required across the production function, which is the dominant activity in the textile industry, vary from the lowest level Operator to the Managerial level, it is pertinent to note that as many as over 15 million persons are going to be required with the lowest skill levels. These are skills that require technical training inputs, knowledge of handling simple as well as repetitive tasks as also some complex operations and machinery. It is, therefore, undoubtedly necessary to enhance the employability of those with minimal education currently through carefully worked out strategies and focused interventions. It is evident that the huge human resource requirements cannot be adequately catered to solely by the existing training provisions in the country. Universities and educational institutions must step-in in a big way to bridge the gap that exists. The Open and Distance Learning (ODL) system, with its inherent flexibility and scalability is ideally equipped to serve several thousand learners simultaneously, even while they are fulfilling their work and other life commitments. It is indeed the need of the hour then that the policy makers and practitioners in the textile industry as well as the distance education providers work hand in hand to achieve this common target of addressing the manpower needs of the textile industry. The Yashwantrao Chavan Maharashtra Open University (YCMOU) with its rich experience in creating distance learning provisions for diverse learner groups, can play a pivotal role in this context.

About YCMOU

This university was established in 1989 by an Act of the Maharashtra State Legislature. It has been granted recognition by the University Grants Commission and operates as per the guidelines of the Distance Education Council, New Delhi. Envisioning a system of distance education that percolates to the remotest corner, the university has over the years, made significant multi-faceted progress. It offers a diverse array of over 200 academic programmes spanning the full range from the certificate to the post-graduate level covering the full spectrum from agriculture to science and technology, annually registers 4,00,000 learners and operates with the help of an extensive network of 10 Regional Centres and 4,000 Study Centres . These Study Centres are distributed across the State of Maharashtra as well as certain other States like Tamil Nadu, Rajasthan, Kerala and Goa. As a result of its varied achievements, the university has received accolades and international recognition. It has been honoured with the prestigious 'Award for Institutional Excellence in Distance Education' from the Commonwealth of Learning, Canada and is listed among the 'Mega Open Universities' of the world.

True to its mandate, a number of socially oriented initiatives have also been introduced by the university, especially in recent times - most of these directed towards the development of relevant vocational skills among carefully identified target groups. Some of the target groups addressed / being addressed are the Mumbai dabbawalas, the maid-servants, barbers, cobblers, newspaper and LPG distribution boys, the milk delivery boys as well as the road transportation personnel like the auto-rickshaw/taxi/bus/truck drivers, etc.

The university also has major tie-ups with the Govt. sector - the Indian Army, the Indo Tibetan Border Police (ITBP) and the Maharashtra Police for offering educational opportunities to the constabulary and Jawans serving in these organisations as a mark of respect and recognition of their service to the nation.

Focusing on the industrial sector with a view to bridging the gap that currently exists between industry and the academic world, the university has entered into collaborative arrangements with Lupin Pharma, Ltd

for offering a B.Sc in Industrial Drug Science and Mahindra & Mahindra, Nagpur for a B.Sc in Industrial Science. Other industrial houses operating in other sectors are also in the process of participating in similar joint ventures.

Opportunity for the Textile Sector

In order to address the manpower requirements of the Textile industry, the university in collaboration with the Textile Association (India) offers some unique opportunities for enhancing the employability chances of those wanting to make a career in the textile sector. The specific programmes on offer and their details are as outlined below.

Programmes

- Preparatory
- Bachelor of Arts (Textiles)

The Preparatory Programme

- Eligibility : Non HSC
- Duration : 6 months Study material : 1 book comprising:
 - Basic Study skills
 - Basic Language skills,
 - Mathematics for all.
- Medium : Hindi, English, Marathi, Urdu, etc

The Preparatory programme offered for those who have not been able to complete their HSC is designed to develop study skills and is essentially a bridge course that provides entry to graduate studies. Successful completion of this programme will also be considered adequate for the procurement of a soft loan from the Bank of Maharashtra with whom the university has a tie-up. It is also important to note that as per a GR issued by the Govt. of Maharashtra, students completing the YCMOU Preparatory programme and the First Year of graduation will be considered as equivalent to HSC, especially in the context of appointments in Govt. jobs wherein HSC is the eligibility condition.

BA (Textiles)

- Eligibility : HSC / YCMOU Preparatory programme
- Duration: 3 years
- A total of 6 Certificates: Certificate 'A' to Certificate 'F'
- Each Certificate Programme of 6 months' duration
- All Certificates jointly certified by YCMOU and Textile Association (India)
- Bachelor's Degree certified by YCMOU

Salient features

- Self-study without affecting work
- Easy to understand study material
- Soft Skills, IT skills, Social behaviour, etc included in curriculum.
- Opportunity to complete the degree programme in a phased manner, each phase yielding a separate Certificate.

Course components of ' A ' Certificate

- Foundation Course in Self Study Skills
- Basic Soft Skills
- Foundation Course in Hindi and English
- Foundation Course in General Knowledge & Textiles

Course components of 'B' Certificate

- Advanced Soft Skills
- ICT literacy
- Foundation Course in Social Sciences
- Elements of Textiles : Processes , Products and Applications

The curricular details of Certificates 'C' to 'F' are being currently worked out with the help of experts - academics from the university and the Textile Association (India) and these courses should also be ready for offer in due course. It is, however, now necessary to make a determined beginning - starting from the Preparatory level or for those who have completed their HSC, from the 'A' Certificate level.

Concerted attempts of this kind, executed collaboratively, are sure to yield rich dividends - both for the individual as well as the industry as a whole and will go a long way in realizing our dream of becoming a 'Knowledge Society' by 2020 as envisaged for our country by our former President Dr. A. P. J. Abdul Kalam.

Textsmile

An architect, an artist and an engineer were discussing whether it was better to spend time with the wife or a mistress. The architect said he enjoyed time with his wife, building a solid foundation for an enduring relationship. The artist said he enjoyed time with his mistress, because of the passion and mystery he found there. The engineer said, "I like both." "Both?" Engineer: "Yeah. If you have a wife and a mistress, they will each assume you are spending time with the other woman, and you can go to the lab and get some work done."

INDIA
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

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, Colledge 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 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

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.



What gives birth to
breakthrough innovations?

A curious and open mind

At LMW, we are always curious to learn and experiment with new ideas. We keep our mind attuned to new insights and understanding.

This attitude has given us enormous advantage in building our company's ability to achieve profitable and long-lasting growth besides, earning us the coveted position as one among the top three in the world to produce the entire range of textile spinning machinery.



Innovation and Value Creation is the primary objective of LMW. We have understood what would create value for all the stakeholders concerned. We have also understood how innovation would play a crucial role in enhancing this value. All our actions and capabilities are aligned in this direction.

At the threshold of celebrating the **Golden Jubilee**, LMW is excited at the prospect of innovative ventures and enormous potential for more and more value creation!

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W-28, M.I.D.C. Bhosari Industrial Area, Pune - 411 026, INDIA. Tel. : +91 20 27120379, 27127674 Fax : +91 20 27126272, 27656315
Email : admin@unitechtextech.com, sales@unitechtextech.com URL: www.unitechtextech.com

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