



TEXTILE VALUE CHAIN

www.textilevaluechain.com

ISSN NO.:2278-8972 | RNI NO.: MAHENG/2012/43707

January 2020

Volume 8

Issue 1

₹ 100

INTERVIEWS

Tor Lund, MIP Inc.
Raghunath Khadilkar , Phoenix Textile Engineering
Murlimohan, Bezz Enterprises

FINANCIAL RESULT

Rieter
Kewal Kiran

ARTICLES

Innovation Mindset
Sustainable Fiber
Technical Textile
Digital Textile

BRAND UPDATE

Donear & Cotton USA
Liva



Registered with Registrar of Newspapers under | RNI NO: MAHENG/2012/43707
Postal Registration No. MNE/346/2018-20 published on 5th of every month,
TEXTILE VALUE CHAIN posted at Mumbai, Patrika Channel Sorting Office, Pantnagar, Ghatkopar-400075,
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Invitation

GENERAL INFORMATION

Show Date

February 20-23, 2020

Show Time

February 20-22 12:00 - 20:00

February 23 12:00 - 19:30

Venue

ICCB - International Convention City Bashundhara
Kuril Bishwa Road, Dhaka 1229 (Next to 300 ft. Purbachal Express Highway)

Admission

Trade Visitors and Professionals Only
(Minors under 16 are not permitted on showground.)

Organizers



Bangladesh Textile Mills
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Yorkers Trade & Marketing
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Show Management



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EXHIBIT PROFILE

TEXTILE

- Machinery & accessories
- Spinning machinery & accessories
- Looms
- Yarn processing machinery & accessories
- Weaving machinery & accessories
- Bleaching & washing machines
- Steaming machinery
- Cloth processing machinery & accessories
- Embroidery equipment
- Knitting machinery
- Auxiliary equipment
- Testing equipment and controls
- Winding machines
- Textile screen printing machinery



APPAREL

- Machinery & accessories
- Cutting & laying machines
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- Ironing & steaming equipment
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March 2020

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Owner, Publisher, Printer and Editor Ms. Jigna Shah
Printed and Processed by her at, Impression Graphics,
Gala no.13, Shivai Industrial Estate, Andheri Kurla Road, Sakinaka, Andheri (East), Mumbai 400072, Maharashtra, India.

Registered Office

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ORGANIZATION STRUCTURE CHANGE IS PRIORITY FOR OUR INDUSTRY

“ Organisations learn only through individuals who learn. Individual learning does not guarantee organisation learning. But without it no organisational learning occurs. — Peter senge ”



Ms. Jigna Shah

Editor and Publisher

India Incorporation is going to new direction with changing its organization structure to get GDP growth rate in comfortable position with reduced inflation rate.

Industry Organizations also need to change to survive global competitive world. Textile being a Family owned business from decades , culture of family generation to generation remained same with hierarchy structure (top to bottom). Leadership structure remained as it was years ahead.

Textile industry immediate change required is Organization Structure. From Line Management to Fractal Organization (collaborative approach)is necessity to get new ideas, innovation. We can attract youth to this industry by providing healthy , cool environment where they can think freely , creatively , make their own decisions so they feel like connected with the organization. Collaborative approach is acceptable and implemented world over. For optimum skill utilization , Freedom with power is must for today's bold, fearless, confident youth.

Textile industry is commodity based , works on thin margins and if no innovation, creative approach in product or attitude then its price war game in world , if not won ; quality affect, company image deteriorate and results in country's entire industry affect.

Textile being highest Employment generation industry but not Highest Revenue generating industry for Government Of India (GOI). Few segment of industry is Labour Intensive where GOI don't get Direct tax. Government don't want to focus on the commodity sector where they can't get more earnings.

Government will only take textile a priority sector if we self-sustain and not depend on government policy benefits. Though many countries have competitive advantage but still India can fight with right product mix with right price at right market.

We wish you Happy Budgeting Season !

ENCOURAGING INNOVATIVE MINDSET IN TEXTILE INDUSTRY

P. P. RAICHURKAR

Associate Dean,

TUSHAR C. PATIL

Assistant Professor,

Centre for Textile Functions, SVKM's NMIMS, MPSTME, Shirpur

Abstract

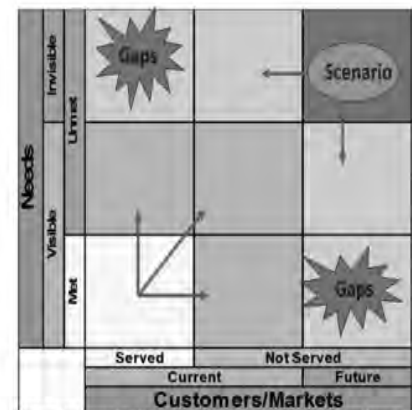
An era is started where innovation is not only limited to the technology development, it is embossing its potential requirement in all the manufacturing as well as networking sectors. Where as in concern with market demand and its fulfillment by using the existing resources is getting the tight rope walk for the management, especially in Textile sector. Apart from the exposure given to technology revolution in textile industry, producing skilled technical cadre of engineers with innovative mindset should also require to be focused. Utilization of available resources including technology and skilled man power is the key for problems which are been tackled during achieving the production and quality targets. Hence, it is getting difficult to balance economic stability of the organization and so entrepreneurs are diverting their mindset from the textile industry to other sectors for investment. Innovation in existing technology which is the only solution to compete, which gives quality and production on par with modern technology available. This paper focuses on the various aspects which will be proven as golden footprints to follow for getting economic as well as technical sustainability in the global textile market.

1. Innovation - Review

One of the oldest schism in innovation studies is between technology push and market pull accounts of innovation. In the former case, the ini-

tiative behind innovation is supposed to lie in research and invention, with inventors creating opportunities to satisfy people's needs, often as a result of striving to understand better how things work. In the latter case, the initiative derives from user needs as expressed through market demand and other channels, with these being posed as problems that could do with innovative solutions. The distinction draws a great deal on the supply-push, demand-pull discussion in economics more generally. While most commentators would agree that both between technology push and market pull can be drivers of innovation, there has been considerable controversy around the precise role of each – in general, in relation to the influence on the innovation outcomes (e.g. technology push is supposed to encourage more radical innovation, market pull more incremental ones), and in relation to specific cases and conjunctures. The classic formulation of technology-push is the much-criticized "linear model" of innovation. It portrays the innovation process as a set of stages – beginning with research (often in laboratories), moving on to development, and then to production and marketing. One reason for the continuing vitality of this model is the relative ease of funding research as opposed to closer-to-market stages of the process. Another is the visible origin of some very important innovations in laboratory research-based scientific discoveries – the laser is a well-known

case. It is apparent that some basic research does result in new knowledge that engenders capabilities to transform the world in dramatically new ways. In contrast, however, are many consultants, case studies and survey analyses, concluding that successful innovation relies upon identification of industry requirements? If design and development are not enough to meet the requirements that have been expressed, then new research may be invoked. But this sound somewhat artificial, because shortcomings with the product may well be experienced by or expressed to the research department directly. Indeed, linear models tend to imply a single flow of knowledge and action, whereas in practice there are many feedback loops and reiteration of activity across stages of the innovation process.



Source: "The Innovation Matrix" at <http://www.dominantinnovation.com/home> accessed

Figure 1. Innovation Matrix

1.1 Product Innovation

Out of this need has arisen a theory holding that the interaction between technology and the marketplace is much more complex and dynamic than the linear view would have us believe. It is our contention here that the conditions required for rapid innovation are extremely different from those required for high levels of output and productivity: Under de-

mands for rapid innovation, organizational structure will be fluid and flexible, whereas under demands for high levels of output and productivity, organizational structure will be standardized and inflexible. Thus, a firm's innovation attempts will vary according to its competitive environment and its corresponding growth strategy. It will also be affected by the state of development of both its production technology and that of its competitors (Abernathy and Utterback, 1978). Therefore, we can expect to see different creative responses from productive units facing a different competitive and technological challenge, which, in turn, suggests a change in the way of viewing and analyzing possible policy options for encouraging.

1.2 Process Innovation

The new product technology will often be crude, expensive, and unreliable but will fill a function in a way that is highly desirable in some market niche. Prices and profit margins per unit will be high, because the product often has great value in a user's application. Several studies have shown that the performance criteria that serve as a primary basis for competition change from ill defined and uncertain to well articulated as a firm travels through the various states of development. Although the total amount of research and development (R&D) in a sector may be large, its focus will be diffuse. The production process reaches the specific state when it becomes highly developed and integrated around specific product designs, and as investment becomes correspondingly large. In this state, selective improvement of process elements becomes increasingly more difficult. Production volume and scale of plants will be large. The process becomes so well integrated that changes become extremely costly, because even a minor change may require changes in related elements of the process and in the product design. Process redesign typically comes in progressive steps, but it may also be spurred either by

the development of new technology or by a sudden or cumulative shift in the requirements of the market. If changes are resisted as process technology and the market continue to evolve, and then the stage is set for either economic decay or a revolutionary, as opposed to evolutionary, change. A strong influence will be exerted on suppliers to provide consistent quality and flow of inputs, as these are critical to the unit's productivity and profits in its now high-volume and low-margin operation. Tasks that cannot be automated may be segregated from the mainstream and performed in separate locations or by subcontractors. Consequently, production scheduling and control, quality control, materials requirements planning and materials handling, job design, labor relations, and capital investment decisions will vary with changes in product and process technology.

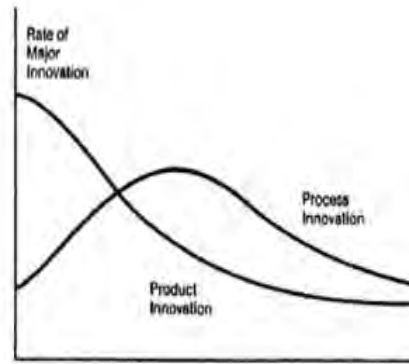


Figure 2. Process Innovation & Product Innovation

2 Innovation in Textile Industry - Pathway

Knowledge and capability development is highlighted because demand led innovation requires greater knowledge and competence on the part of suppliers and the users that they engage with. This highlights the role of new design approaches, and ways of managing available resources up to maximum level. In many cases, innovation policy requires collaboration between various service providers, which may also call for regulatory change to promote partnerships be-

tween industry, academia and machinery manufactures.

A key idea is that production units may be able to develop the new innovation in the existing technology which may able to produce the quality end product. Spinning, weaving, chemical processing sectors need to promote policy to support the innovation based projects which are to be design in consultation with the machinery manufacturers. Technology is getting smarter day by day, but its leaving the conventional existing technology far behind. Also the new technology is expensive. Thus, it is required to go for process innovation through finding the disadvantages / lacunas of the existing technology and redesign the specific part of concern technology which may be cost effective.

Innovation in the textile industry requires that production units in the spinning, weaving, chemical processing and allied industries be included. Analysis of electronics firms requires review of the changing role of component, circuit, and software producers as they become more crucial to change in the final assembled product. It can be summarized by following points

- Technologies that lift fundamental technical concept on the art without imposing stringent new constraints.
- Designs that enhance the value of potential innovations in other elements of a product or process.
- Technology that ensure expansion into various segments of textile industry.
- Technology that builds on existing operations rather than replacing them.

This could be better explained thorough taking the example of the warp sizing machine, an effective up gradation has been done in the various zone of sizing machine especially in sow box zone, but if we can able to innovate the core technology based 2 Deep 2 Nip concept in the existing

sow box then it will give the better results on par with the latest model of warp sizing machine.

2.1 Role of Machinery Manufactures

R & D based Productive innovation will help to machinery manufactures to upgrade the existing technology. Textile machinery manufactures should come forward to support the innovation policy in consultation with production units and academia. Spinning machinery manufacturers like Rieter, LMW and Truetzschler, Weaving machinery manufactures like Picanol, Toyota, and Karl-Mayer are supporting the projects and training sessions for the industry persons as well as education institutes. This policy should be boosted thorough See & Learn and Work & Learn methodology, which involves the hands on training sessions for students and technical persons from industry on the upcoming technology.

This will leads to build the technical cadre well in advance. Because textile units after setting up or after undergo expansion in various sectors like spinning, weaving and processing adopts the new updated machinery, but unfortunately skilled man power which will able to handle it in the required manner is not available. This leads to increase the loss of efficiency and cost effectiveness of the production units, hence machinery manufactures should come forward to support the innovation policy which further encourages the innovative mindset.

2.2 Innovation through Industry-Institute Linkage Program

Leading textile institutions and the industrial sector can collaborate in the joint projects for the development of emerging technologies of mutual interest. Major thrust areas can be identified by a Technology Up-gra-

dation group involving leading academicians from technical institutions, eminent technologists from reputed industries and talented scientists from textile research associations in the country. Such an effort will surely lead to the development of state-of-the-art technologies pertaining to the industrial sector and promote the collaboration between institutes and industries.

Inadequate industrial exposure to the students affects their ability to effectively deal with the real life industrial problems. This leads to unsatisfactory performance in professional careers. Thus, students must spend at least one full semester in industry to understand the industrial environments and prevailing practices during the project work under the supervision of capable persons. Development of required skills to understand the industrial problems and the tools and methodologies to solve those problems are the resultant gain in this process.

2.3 Work & Learn Pedagogy

In the initial phase of building the skilled technical man power see & learn methodology can be promote the basic technical knowledge, but the task is not completed here. To groom the innovative mind set work & learn pedagogy while working on the production units will be effective. Promoting the textile education while working in the industry will enhance the technical skills of the existing employees. This will help to mould the thinking ability of technical persons towards the innovation track. Process lacunas in concern with the limitation of the respective technology and the proposed remedial measures will be the output of it. Similarly while undergoing the education, textile graduates (Diploma, B.Tech.) should be groomed through work & learn pedagogy by promoting policy for

industry funded projects which are based on the technology innovation either through process innovation or product innovation concept.

3 Summary

In summary, to understand how the development and innovation of technology affects productivity and competitiveness, it is essential that we understand the linkages of technologies with manufacturing process, industry sectors, machinery manufactures, and institutions. Maintaining balance and integration among all essential factors leads to set up the innovative mindset in the corporate textile industry. Focusing on manufacturing alone is wholly insufficient. Innovative technology design for manufacture, promoting innovative R&D based policies, and appropriate strategies are also prerequisites for development of innovation in the industry. By the same token, potential for process and product innovation depends increasingly on ability to innovate in technology of manufacturing processes viz. spinning, weaving, chemical processing and knitting sectors.

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“ We dont have to sacrifice a strong economy for a healthy enviornment.

Dennis Weaver

”

CLOTHING FROM CAMEL HAIR



DR. N.N. MAHAPATRA

BUSINESS HEAD (DYES)
SHREE PUSHKAR CHEMICALS
& FERTILISERS LTD.

Animal fibres make up less than 7 percent of the total weight of textile fibres produced annually. In quantity, therefore, they represent a minor part of the world's fibre resources. But animal fibres play a much more important role in the textile trade than their limited production indicates. They are all fibres of character; each one has unique properties which ensure it a position of special significance as a textile fibre.

Whenever fur-bearing animals form part of the domestic economy of a country, the fibrous materials of their coat are put to good use in one way or another. Wool, the fibrous covering of the sheep, is by far the most important of these fibres. Wool forms more than 90% of the total world production of animal fibres. Although wool plays such a dominant role in the animal fibre industry, a number of other animal fibres are of considerable commercial importance. In the textile industry, it is usual to describe all animal-covering fibres other than wool as hair fibres. The long, coarse fibres forming the outer coat are called hair, and the short, fine fibres of the undercoat are called wool.

Hair fibres are all related to wool in their chemical structure; they are all keratin. But they all differ from wool, and from each other, in their physical characteristics; they are of different length and fineness, and have different shapes and internal

structures. Many hair fibres are used in high-quality applications in the textile trade. Some of the hair fibres used are horse-hair, camel hair, goat hair and rabbit fur. The hair of these animals has been so adapted by nature for the climate in which they live that the cloth produced from the fibre gives warmth with light weight. Some of these animals are used primarily as burden carriers; others are bred for their fleeces, which produce the most expensive fibres in the textile industry.

Camel hair is a fine hair that is known to the American consumer chiefly in the form of high-quality coat fabrics. In north-west China and Mongolia, the Bactrian (two-humped) camel is an important animal. It is found from Turkey east to China and north to Siberia. It serves as a means of transport in desert regions, and it also provides a supply of the camel hair which is used as a textile fibre. The climate in these areas is exceedingly hot during the day and extremely cold at night. This constant change has produced a protective hair covering that insulates the body both heat and cold; it is also naturally water-repellent. In the spring, the year's growth of hair, which hangs from the camel in matted strands and tufts, fall off in clumps to make room for the new growth. Masses of hair that are shed throughout the year are also accumulated. The camel is sometimes plucked to obtain the down or under

hair. Camel hair fibres fall under the category of speciality hair fibres. Besides wool, the camel hairs are also used in the textile industry for the manufacture of woollen cloth. Significant supplier countries of camel hair are; Mongolia, Iran, Afghanistan, Russia, Tibet and Australia.

1. PRODUCTION AND PROCESSING

Out of the two different varieties of camels, e.g. single humped (*Camelus dromedary*) and double humped (*Camelus bactrianus*); the double humped camel of dry cold region comparatively produces superior quality hair. It consists of the strong, coarse, outer hair and the undercoat. The better grades the more they are expensive. The quality attributes of double humped camel hair fibres collected from shoulder, mid side and hump regions of both calves and adults show that the mid side region fibres in both calves and adults have better textile properties. The fibres obtained from calves are superior to those obtained from the adults. The hair is collected as it is shed or sheared from the animals. A camel produces about 5 pounds of hair a year. The speciality animal fibre is collected by a number of methods including combing, shearing, and collecting the hair shed naturally during the moulting season. During the moulting season the hair falls off first from the neck, then the mane and lastly the body hair. The moulting season occurs in late spring and is a process that takes six to eight weeks.

There are five primary steps to the production of camel hair which are as follows

1. Collection.
2. Sorting.
3. Dehairing.

4. Spinning.

5. weaving /knitting/dyeing.

After collecting the hair either through shearing or collecting during the moulting season the hair goes through a sorting method . In this process the coarse hair is separated from the fine ,soft hairs . The fibres are then washed to remove any dirt or debris obtained from the collection . The sorted and washed hair is then dehaired . This process removes the coarse hair and any drandruff or vegetable matter before it is sent to be spun into yarn and used for either weaving or knitting. Camel hair can be dyed using Acid dyes or Metal complex dyes in the loose fibre form or in hank form or in fabric form .

In the textile industry , camel hair is divided into three grades ;

a. Grade 1 - It is the soft and silky light -tan under hair found close to the skin of the camel. This is short staple ,or noil , of from 1 ¼ to 3 ½ inches (30-90 mm) , but it also the best quality . Before , it was the only true camel hair used in the manufacture of apparel . Please note in wool , noils represent the less valuable short staple whereas in case of hair fibres ,the short fibres are the best product and are the only ones used in high -grade hair fabrics .

b. Grade 2 - It is the intermediate growth ,consisting of short hairs and partly of coarse outer hairs , ranging from 1 ½ to 5 inches (40 - 125 mm) in length.

c. Grade 3 - It consists entirely of coarse outer hairs measuring up to 15 inches (380 mm) in length and varying in colour from brownish black to reddish brown. This grade has no value for apparel manufacture ; it is suitable only for cordage and for low-quality rugs .

2. STRUCTURE AND PROPERTIES -

In case of calves , the fibres from mid side region are more suitable to be used for textile purpose when blended with the wool . In case of adult camels also the mid side region fibres

not only possess lowest mean fibre diameter and highest fibre strength but also comparable elongation per cent with the fibres of other region . Camel hair is characterized by strength , lustre and smoothness .

The fibre characteristics of Bactrian camel , such as fineness and staple length are considered to be the best . It contains on an average

a. Sand & Dust - 15-20 %

b. Fat -4-5 %

c. Fibre 75-80%.

For purified camel hair

a. Sulphur -3.47%

b. Nitrogen - 16.48%

Camel 's hair is an excellent insulator . Camel hairs have a good fineness ,softness , warmth and lightness . These can hardly be spun into thin and smooth threads so are used as thick and coarse fabrics for over coats or blankets . The crimp force of camel hairs is large as wool.

The colour of camel hair is primarily golden tan with a variance of red to light brown tones . Camel 's hair is also a fibre that supplies warmth without added weight . The hair contains thermostatic properties which can protect and insulate the camel from the extreme cold conditions as well as keeping them cool in the desert . The same properties and characteristics are transferred when making fabrics woven from camel hair .

Camel wool fibres are not so fine as cashmere ; they are usually about 10-40 micron wide . The surface of the fibre is covered with scales which cannot easily be seen under the microscope . The scales have diagonal edges .

The cortical layer of the camel wool fibre is marked by striations due to strings of coloured pigment granules

that give the fibre its characteristic pale red - brown colour .

Some fibres have distinct medullae which are often fragmentary . Seen in cross-section , the fibres are circular or oval .

Comparisons of properties of camel hair fibres ;

Properties	Camel hair	silk	wool	cotton
Tenacity ,gm/den	2-2.5	1-1.5	1.5-2.0	2-5.5
Elongation ,%	39-40	25-45	25-45	6-10
Density, gm/cm ²	1.32	1.34-1.38	1.33	1.50-1.54
Moisture regain ,%	13.0	11.0	14-16	9
Acid resistance	Excellent	excellent	excellent	Bad
Alkali resistance	Bad	good	bad	Excellent
Resistance to moth/fungus	Resistance to fungus but not to moth	Resistance to fungus but not to moth	Resistance to fungus but not to moth	Resistance to moth but not to fungus
U.V resistance	Bad	bad	bad	good

3. USES OF CAMEL HAIR -

Camel's hair gives warmth without weight ,the finer fibres are valued for apparel . They are often used in blends with sheep's wool , which is dyed the tan colour of camel's hair . Camel's hair is used in coats or jackets , scarves , and sweaters . Blankets of camel's hair and wool are also available .

These fibres are used for woolen items such as sweaters ,coats and coats in pure form ; as well as in the form of blends with other animal fibres (wool and silk) and synthetic fibres .The best blends of camel hair in textiles are pure camel hair or blended with wool only . It is also commonly blended with nylon to make hosiery and other knitted products . Products containing camel hair should be dry cleaned or hand washed . These fibres are blended with wool in various proportions either to produce special effects or to enhance softness ,beauty , colour and lustre of the end- product . These fibres are also used for garments as like cashmeres . These are used as thick and coarse fabrics for overcoats or blankets. Sometimes blended with wool to reduce the cost and increase the wear . It is used for over -coating

➤ SUSTAINABLE FIBER

and top coating .

Camel hair fabrics are ideal for comfort ,particularly when used for overcoating , as they are especially warm but light in weight . The best quality is expensive when used alone .It is often mixed with wool , thus raising the quality of the wool fabric by adding the fine qualities of camel hair . The price of a mixed cloth is naturally much less than that of a fabric that is 100% camel hair .

The fine fur of the camel hair are

often blended with fine wool to create fabrics for men's and women's coats , jackets and blazers ,skirts ,hosiery ,sweaters ,gloves ,scarves , mufflers and caps and robes . The long coarser hair removed in the dehairing process is also used which can be made into carpet making as well as waterproof coats that are very warm for colder climates .

Camel hair fabrics are warm and comfortable , and are used very largely for making overcoats,dressing gowns and knitted goods .

The coarse outer hair is made into ropes and industrial belting , tent-fabrics and blankets .

In India camel hair is having good scope when mixed with other natural fibres and made yarn on worsted spinning or synthetic spinning system then fabrics are made to give value addition to the product.

Some of the leading composite textile mills in India are working on it . Camel hair has got a good future .

➤ BRAND UPDATE

DONEAR NXG SHOWCASES PRODUCTS AT THE 70TH EDITION OF NATIONAL GARMENT FAIR



Donear NXG, a leading lifestyle menswear brand from the House of Donear Industries Ltd., is participating in the 70th edition of National Garment Fair organized by

the Clothing Manufacturers Association of India (CMAI). The fair is being held between 29th-30th January 2020 at the Nesco Center, Goregaon East, Mumbai. DONEAR NXG's stall displays daily essentials, from formal shirts to casual shirts and formal trousers to casual trousers, denims and t-shirts, endorsed by top celebrity and the brand ambassador, Sushant Singh Rajput.

Rahul Agarwal, Director, Donear

said, "We are immensely glad to be a part of the 70th edition of National Garment Fair, which will help us reach a larger audience. Our brand caters to the next generation and we are proud to share that considering the changing climate, we have recently launched an environment friendly product line utilizing recycled fibres and organic cotton for our trousers and shirts, respectively. We at Donear NXG strive to keep up with the changing fashion trends while providing our customers with the best-quality products."

INNOVATION AND SUSTAINABILITY ARE WHAT'S NEW IN COTTON™ AT PREMIÈRE VISION

Sustainability and innovation will be the focus at Cotton Council International's (CCI) upcoming WHAT'S NEW IN COTTON™ booth in Hall 6, C53 at Première Vision in Paris, France, on February 11-13. "U.S. cotton's sustainability and innovation are WHAT'S NEW IN COTTON™ right now," CCI Executive Director Bruce Atherley said. "At Première Vision we will present innovative technologies utilizing U.S. cotton, designed to inspire the textile industry, such as innovative traceability solutions and a sustainable alternative to traditional

stretch fabrics." Regarding sustainability, Atherley said that CCI will introduce the new U.S. Cotton Trust Protocol, a program that provides U.S. cotton farmers a voluntary way to formally document and communicate common elements of best management practices – a significant step that further shows that U.S. cotton is shrinking its environmental footprint. "The Trust Protocol will provide U.S. cotton's customers the confidence that they are sourcing, spinning and selling sustainably-produced U.S. cotton," he said. "Through the collection of robust data, the Trust Protocol will

remove risk by giving U.S. cotton's customers the evidence they need to demonstrate progress toward the United Nations Sustainable Development Goals and other sustainability pledges –

making the Trust Protocol the right choice for today and tomorrow."

Visit the COTTON USA™ booth at Première Vision to learn more about U.S. cotton's

sustainability and the innovative ways U.S. cotton can be used to boost your business.

FIBERS USED IN BALLISTIC PROTECTION



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INTRODUCTION

Modern multi-component bulletproof vests are an important and indispensable element of the equipment of the officers of various types of forces. Different types and purpose bulletproof vests exist. Recently, modular type vests are becoming more and more relevant, which can be transformed depending on the task being performed and the degree of risk. To the main part of the armor (back and chest securing section providing full torso protection at the front and rear), additional safety components in the form of separate modules can be attached to protect the side parts of the torso, shoulders, neck, and the loins. Bulletproof vests play an important role in preserving the health and life of anti-terrorists in fulfilling their duties and resolving crisis arising in various critical situations. The fibres used in ballistic protection plays a vital role in deciding the protection level.

FIBERS USED IN BALLISTIC PROTECTION

Kevlar®

Developed by Dupont, this is widely used in the modern generation of light weight concealable body armors with drastically improved ballistic protection over their predecessors. Kevlar fibers consist of long molecular chains produced from polypara-phenylene terephthalamide. The chains are highly oriented with strong inter chain bonding that results in a

unique combination of properties, which include high tensile strength at low weight, low elongation to break, high modulus (structural rigidity), low electrical conductivity, high chemical resistance, low thermal shrinkage, high toughness (work-to break), excellent dimensional stability, high cut resistance and flame resistance. Kevlar fiber does not melt or soften and is unaffected by immersion in water, although its ballistic properties are affected by moisture. It is five times stronger than steel on an equal weight basis and it is lightweight, flexible and comfortable. Kevlar fibers can be processed by textile manufacturers with little difficulty. Kevlar, introduced in the early 1970s, was the first generation of bullet resistant fibers to make the production of flexible, concealable body armor practical for the first time. Kevlar® fiber and filament come in a variety of types, each with its own unique set of properties and performance characteristics for different protection needs .

Kevlar® 29 (K29)

The original family of product types of Kevlar®, having similar tensile properties with many

deniers and finishes. These yarns are used in ballistic applications, ropes and cables, protective apparel such as cut-resistant gloves, in life protection uses such as helmets, vehicular armoring, and plates, and as rubber reinforcement in tires and automotive hoses.

Kevlar® 49 (K49): High-modulus type used primarily in fiber optic cable, textile processing, plastic reinforcement, ropes, cables, and composites for marine sporting goods and aerospace applications.

Kevlar® 100: Producer-colored Kevlar® yarns, used in ropes and cables, tapes and strappings, gloves and other protective apparel, and sporting goods.

Kevlar® 119: Higher-elongation, flexible-fatigue-resistant yarn types found in mechanical rubber goods, such as tires, automotive belts, and hoses.

Kevlar® 129: Lightweight, high-performance, and high-tenacity type of yarns used in motorcycle racing gear, life protection accessories, ropes and cables, and high-pressure hoses

used in the oil and gas industry.

Kevlar® KM2: Woven into fabric meeting performance requirements for helmets and vests

for military and high-performing UD's for spall liners.

Kevlar® KM2 Plus: High tenacity, high toughness, and finer denier fiber used in vests and

helmet for both military and law enforcement officers.

Kevlar® AP: Kevlar® AP for Advanced Performance helps dramatically improve cost effectiveness and design flexibility to manufacturers helping them build leaner, more robust

consumer and industrial products.

Twaron®: Twaron is high-performance man-made 100% paracrystalline fiber and Teijin Aramid's flagship para-aramid product. It offers a unique combination of mechanical properties, chemical resistance, durability and thermal stability. It is highly valued across a wide range of

industries for the benefits it brings to a great many high-performance applications.

Technora®: Technora is a para-aramid fiber made from co-polymers. Technora has a range of unmatched performance properties, including:

- High tensile strength – weight for weight, Technora is eight times stronger than steel

- Good fatigue resistance
- Long-term dimensional stability
- Excellent resistance to corrosion, heat, chemicals and saltwater

Sulfron®: Sulfron is a modified Twaron aramid. Used as a compounding ingredient, it improves the properties of sulfur-cured and peroxide-cured rubber compounds. It reduces hysteresis, heat build-up and abrasion, while improving flexibility, tear- and fatigue-resistance properties. It can be used to reduce the hysteresis of carbon-black-filled compounds and of compounds containing both carbon black and silica. As the Sulfron 3001 is mixed with the compound at elevated temperatures, intermediate reaction products are formed that interact with the carbon-black particles, thereby reducing the filler-filler interaction. The result is a compound with reduced frictional energy and thus improved hysteresis properties. With carbon black, this reaction takes place at elevated temperatures of between 140°C and 160°C. It is suitable for compounds containing both natural rubber (NR) and synthetic rubber (SR). According to the Tejin, tires that contain Sulfron are more durable and longer lasting, with better fuel efficiency, without compromising performance.

Tejinconex®: Tejinconex is a meta-linked aromatic polyamide fiber with flame-proofing and heat-resistance properties. It will not catch fire through exposure to direct flame or heat, and it neither burns nor melts, which means it cannot stick to skin. It is thermal insulator and has outstanding chemical resistance. According to Tejin, Tejinconex also meets the standard requirements of a cloth-

ing material – it is lightweight, easy to clean, and comfortable to wear. **Spectra®:** This fiber, manufactured by Honeywell, is an ultra-high strength polyethylene fiber. Ultra high molecular weight polyethylene is dissolved in a solvent and fibers are produced through the gel-spinning process. In general, Spectra fibers are a bright white polyethylene fiber with high resistance to chemicals, water and ultraviolet light. Spectra is stronger than steel and 40 percent stronger than aramid fiber and capable of withstanding high-load strain-rate velocities

DSM Dyneema®: Another HPPE fibre like Spectra, this is made of ultra-high-strength gelspun polyethylene used in body armour. Dyneema has an extremely high strength-to-weight ratio and is light enough to float on water.

Dyneema® is used in armored helmets, vests, shields and inserts to protect against a wide range of ballistic threats. Personal Armor, made with Dyneema®, help safeguard “everyday heroes”—such as soldiers, law enforcement officers, commercial pilots and high-profile civilians.

Dyneema® Soft Ballistic (SB) armors are used in vests and clothing to provide life-saving protection against handgun ammunition and knives.

Dyneema® Hard Ballistic (HB) armor solutions are incorporated into ballistic inserts and helmets to protect against heavier and more penetrating threats.

Zylon® (PBO): Zylon fibers is high performance fiber developed by Toyobo. Zylon consists of rigid-rod chain molecules of poly(p-phenylene-2,6-benzobisoxazole).

Zylon fiber has strength and modulus almost double that of p-aramid fiber and shows 100°C higher decomposition temperature than p-aramid fibre. The limiting oxygen index is 68, which is the highest amongst organic super fibers. These properties are displayed in comparison with other high-performance fibers. There are two types of Zylon fibers, AS (as spun) and HM (high modulus). Zylon body

armor is believed to be lighter, more comfortable and stronger than aramid body armor. However, the tensile strength of Zylon fiber might be susceptible to degradation under certain extreme temperature and humidity conditions.

CONCLUSIONS

Excellent knowledge of fibres meant for individual ballistic protection are crucial to the right choice of means to protect the health and life of the officers during law enforcement, anti- and counter-terrorist, peace supporting, military and other operations.

The important parameters to be kept in mind are:-

- 1.Improve protection against natural and battlefield threats.
- 2.Maintain thermo-physiological comfort or survival in extreme conditions.
- 3.Improve compatibility between and within different clothing components.
- 4.Reduce weight and bulk of materials.
- 5.Integrate functionality so that fewer layers provide multi layer protection.
- 6.Reduce life cycle costs by making systems more effective, durable, and recyclable

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JUTE REINFORCED PLA BIO-COMPOSITE FOR THE PRODUCTION OF CEILING FAN BLADES

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Abstract

In this project work, jute fabric is used as reinforcement and PLA (poly lactic acid) film is the matrix by which composites are made by stacking of number of fabric layers in between the PLA films. For surface modification of the jute fabrics, different chemical treatments are carried out such as alkali, acetylation, silane treatment and treatment with maleic anhydride. The differently treated fabrics have been tested by Universal tensile tester machine and mechanical characterization is done. Accordingly, Alkali + Silane treated fabric shows the highest tensile strength and young's modulus followed by Alkali only treated. Alkali + Acetylation treated and Alkali + Maleic anhydride treated jute fabrics show poor tensile strength and young's modulus values. Compression moulding machine is used for composite blades making. With the use of the composite blades an average power savings of 15.65Watt has been achieved while the fan is operating at the maximum speed, which is 20% power reduction and due to this a minimum of 630 million Rupees or 63 crore Rupees savings per annum will be there if we use the blades in Delhi only.

Key words: Jute fabric, surface modification, compression molding, composite blades, power savings.

I. INTRODUCTION

Among the plant fibers, jute is the second most important bast fibre after cotton because of its easy availability at low cost. It is produced from plants in the genus *Corchorus*, family Tiliaceae. Jute fibers are composed primarily of the plant materials cellulose and lignin.

Jute fibre stiffness comes because of the cellulose. It also gives strength and stability. But due to the hydrophilic properties of cellulose, compatibility with that polymer matrix is difficult because they have hydrophobic nature. For this basic reason different surface modification methods has to be there for the jute fibre so that the interfacial adhesion can be improved. [2]

While reinforcing the fibre with the matrix material, the cellulosic hydroxyl groups on the fibre surfaces make both the physical and chemical bonds. To say that bond be-

tween fibre and the matrix is good, number and strength of bonds between the two materials has to be better. [4]

Compared to the traditional polymers (Polypropylene, polystyrene & polyethylene), PLA has better mechanical properties like: tensile strength, tensile young's modulus, flexural strength, etc. besides the stated better mechanical properties, it has also its own Drawbacks like poor toughness property and for those applications which needs

Plastic deformation this poor property limits its use. [7] The influence of chemical modifications on jute fibres has been studied and reported in different works. Amongst them are: latex coating, alkali treatment, monomer grafting, silane treatment, isocyanate treatment, permanganate treatment, acetylation, and so on. With the stated modification methods, improvements have been seen on the fibre matrix adhesion of the composites. Usually the need for modifications is for improvements on wettability and making compatible the reinforced fibre with the resin material so that the produced composite is going to be strong and durable. [1]

The ceiling fan blades are usually made up of aluminum, steel, wood, etc. The ceiling fans have become a common appliance both in domestic and industrial applications. Though the power consumed by these fans is less, it is to be considered that these fans run on a continuous duty and this makes the power consumption significant. Energy crisis and less availability of natural resources being the major challenge, selection of better material and effective manufacturing processes, can reduce both the power consumption and the manufacturing cost. Composite materials have found a wide range of application in replacing the conventional materials with enhanced strength and mould ability.

Energy crisis is the major problem faced widely. Though wide range of researches is being laid in the areas of alternate energy sources, proper management of the available energy sources will contribute in controlling this energy crisis, particularly in high populous countries such as India. Ceiling fan being one of the vital electric appliance, consumes considerable electric power in most domestic and Industrial application. Imparting fibre reinforced composite blade in ceiling fans reduces the weight of the blade, thereby considerably reducing the power consumption. [16]

II. MATERIALS AND METHODS

Materials & Chemicals

Woven Jute fabric (1/1 plain fabric) and PLA (poly lactic

acid) film were used. The following chemicals were used for chemical treatments and preparation of composites: NaOH, HCl, Acetic acid, Ethyl acetate, H₂SO₄, Amino propyl trimethoxysilane, Maleic anhydride, Acetone solvent, and Araldite epoxy.

Compression moulding machine, LCD Wind Speed Gauge Meter Anemometer & Thermometer, 4 In 1 Digital Meter AC (80-260V/20A) Ammeter/Voltmeter/Power Meter/energy Meter are the equipment used for making of the composite blades and for testing the performance parameters.

III. METHODOLOGY

A. Jute fabric surface treatments:

Table 1 Characteristics of untreated jute fabric

Ends/inch	Picks/inch	GSM	Density (g/cm ³)
10	9	251	1.42

Alkali treatment

5% w/w NaOH solution is prepared using sodium hydroxide pellets and distilled water. Then the fabric is dipped in NaOH solution for 1 hour separately. After 1 hour, fabric is washed with 1%

HCl solution for neutralization. Finally, it is washed with distilled water. Fabric is then kept in hot air oven for 3 hours at 70°C to hinder the water content.

Alkali treatment + Acetylation

The alkali treated jute fabric is then treated with acetic acid for 1 hour at room temperature and then thoroughly washed with distilled water and dried.

Alkali treatment + Silane treatment

A solution of 0.5 wt% silane coupling agent [3-(2-aminoethyl amino) propyl trimethoxysilane] was prepared in acetone. Acetone was used in preference to water to promote hydrolysis to take place with the moisture on the surface of the fibres rather than within the carrier. It also promotes swelling of the fibre and so increases the fibre surface area exposed to treatment and the Alkali treated jute fabric is then immersed in the solution for 45 min. After treatment, fabric is removed from the solution and dried in oven at 65°C for 1 h. Finally, the fabric is thoroughly washed with water to remove chemical residues until a pH of 7 is obtained and then dried at room temperature.

Alkali treatment + Maleic anhydride treatment

In maleic anhydride treatment, the alkali treated jute fabrics were surface treated for 5 min with 1% solution of maleic anhydride dissolved in toluene solvent at 55°C. After treatment, fabrics were washed in toluene to remove extra MA. The fabrics were then dried for 6 h followed by oven drying at 60°C.

B. Characterization Techniques

Evaluation of tensile properties of fabrics

Breaking strength and elongation of fabrics were tested on Universal testing machine following ASTM D 5035:1995 using load cell of 1000N. Five specimens were tested for each sample. The testing conditions are:

Width: 5cm; Thickness: 2mm; Length: 20cm; Gauge length: 7.5cm; Loading rate: 300mm/min.

Evaluation of tensile properties of composites

Tensile stress (MPa) and breaking extension of composites were tested on a Zwick tensile testing machine by following ASTM D 3039. A load cell of 50 KN was used. The testing conditions are:

Width: 25mm, 20mm; Thickness: 2mm, 3mm, 4mm & 5mm; Length: 175mm; Gauge length: 100mm; Cross head speed: 2mm/min

Testing of Inter-laminar shear strength of composite

By using Zwick/Z010 shear strength tester, inter-laminar shear strength of composite specimens was tested following ASTM D2344/D2344M - 16 using load cell of 5KN. The testing details are:

Thickness: 2mm; Width: thickness*2= 4mm; Length: thickness*10= 20mm; Span length: thickness*4= 8mm; Cross head speed: 2mm/min

Measurement of air velocity of fans

An LCD wind speed gauge Anemometer was used for measuring the air velocity (ft/min) of fans (both Usha and the composite blade) running at different speeds starting from the minimum to the maximum. Readings were taken at the tip (edge) part of the blades, where maximum air velocity is there and to get the actual readings data has been recorded just after completion of 3 minutes.

Measurement of power consumption of fans

Power consumptions of fans were measured using 4 in 1 Digital meter Ac (80-260V/20A). By using the wiring diagram at the back of the meter, 1st and 4th terminals of the meter are loaded to the power conductors of the fan's regulator switch and through 20 A load current, 2nd and 3rd terminals of the meter are connected to the voltage supply of the regulator switch. Finally, the fan regulator has been switched on and readings are taken at different speeds.

IV. RESULTS AND DISCUSSION

Tensile properties of jute fabrics

The tensile strength and young's modulus of un-treated and chemically treated fabrics are given and compared in Fig 1. The breaking extension (%) at maximum breaking load has been compared for the differently treated and untreated jute fabrics and the result shows jute fabrics treated with Maleic anhydride and Acetic acid exhibit its highest breaking extension (%) and this is due to the

fact that many constituent fibres in the fabric slips rather than catastrophic failure when breaking load is applied on the fabric and do not contribute for the load sharing, and hence, the fabrics show a lower breaking strength and tensile strength values. On the contrast, Alkali+Silane treated jute fabrics show the lowest breaking extension (%) value because of the catastrophic failure of the constituent fibres which in turn contributes for the load sharing and hence a highest breaking strength and tensile strength values.

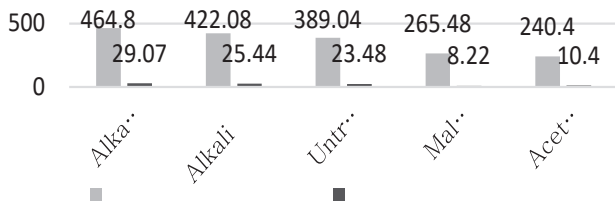


Fig. 1 Tensile properties of untreated and treated fabrics

Alkali+Silane treated jute fabrics exhibits a higher tensile strength and Young's modulus followed by alkali only treated jute fabrics (Fig.1). So for making of composite specimens with different fibre volume fractions and weights, jute fabrics treated with Alkali+Silane were only considered.

Mechanical Characterization of Composite Samples

Three composite specimens made from Alkali + Silane treated jute fabrics as reinforcement by 60:40 fibre volume fraction to matrix volume fraction and with five layers of jute fabrics have been tested and results are compared with that of aluminum alloy 1050 H14, which is a potential candidate for making ceiling fan blades.

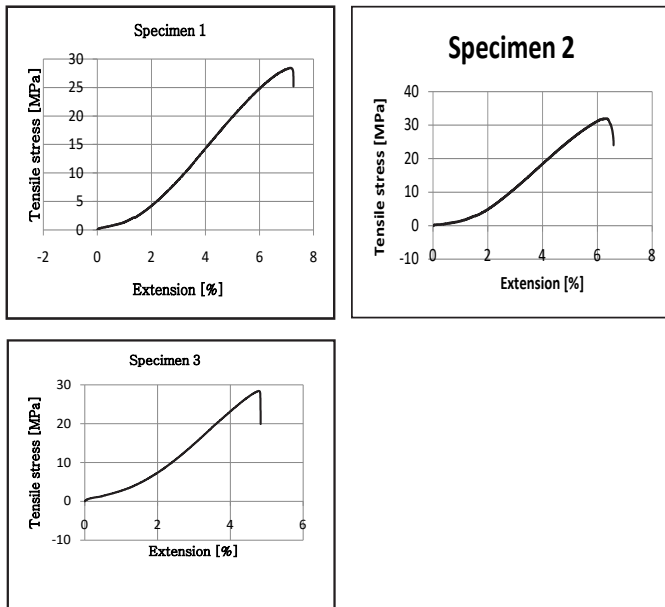


Fig. 2 Load-extension graphs of composites with five fabric layers (fibre volume fraction: 60%)

Another four samples of the composite having the same volume fractions but only increasing the number of fabric layers to ten have been tested and compared and below the data is shown in figure 3 and table 3.

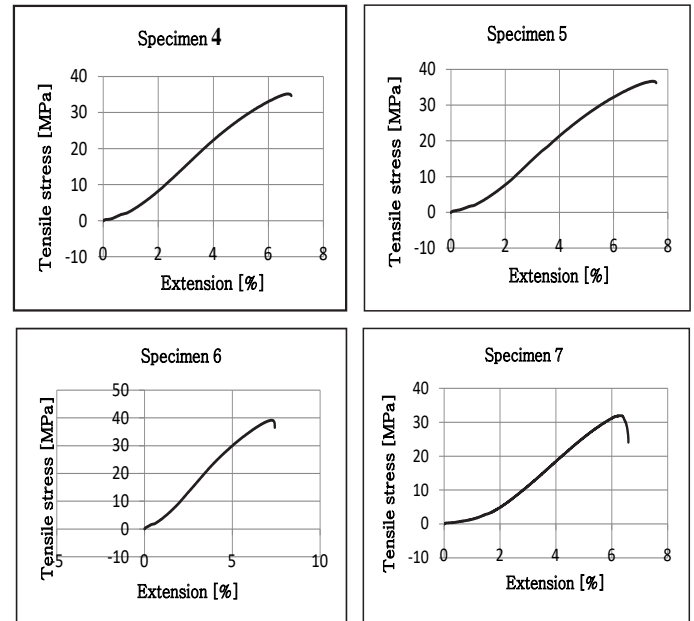


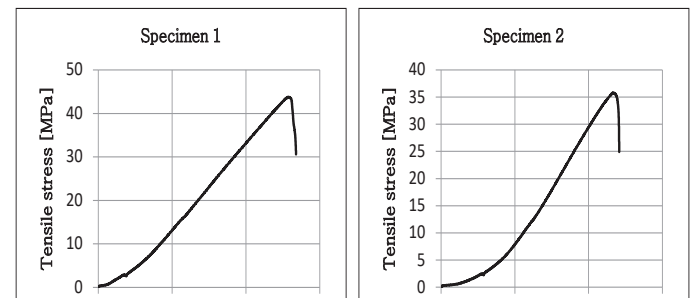
Fig. 3 Load-extension graphs of composites with ten fabric layers (fibre volume fraction: 60%)

Table 2 Tensile Properties of Aluminum Alloy 1050 H14

Material	(g/cc)	E (GPa)	Tensile strength (MPa)
Aluminium Alloy 1050 H14	2.8	52	105-145

Tensile Test of Composite Blades (70% Fibre Volume Fraction & sixteen fabric layers)

150 g weighing composite blade made from Alkali + Silane treated jute fabrics as reinforcement by 70:30 fibre volume fraction to matrix volume fraction and with sixteen layers of jute fabrics have been tested and results are



compared with that of aluminium alloy 1050 H14, which is a potential candidate for making ceiling fan blades.

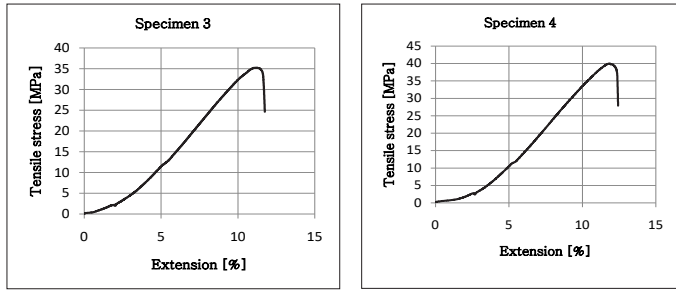


Fig. 4 Load-extension Graphs of composites with sixteen fabric layers (fibre volume fraction: 70%)

Tensile Test of Composites (50% Fibre volume fraction & twelve fabric layers)

150 g weighing composite blade made from Alkali + Silane treated jute fabrics as reinforcement by 50:50 fibre volume fraction to matrix volume fraction and with twelve layers of jute fabrics have been tested and results are compared with that of aluminum alloy 1050 H14, which is a potential candidate for making ceiling fan blades.

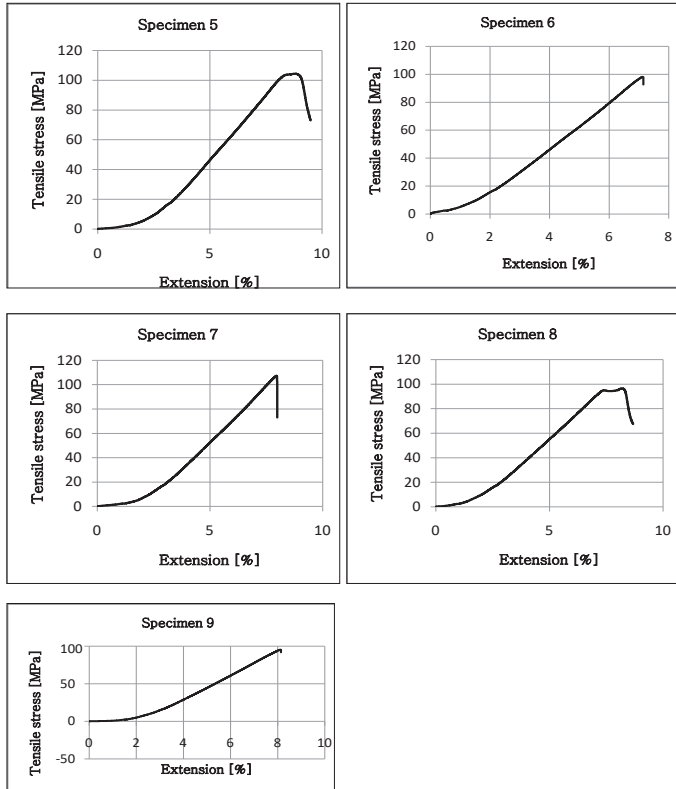


Fig. 5 Load-extension graphs of composites with twelve fabric layers (fibre volume fraction: 50%)

Tensile Test of Composites (50% Fibre Volume Fraction and Six Fabric layers)

75g weighing composite blade made from Alkali + Silane treated jute fabrics as reinforcement by 50:50 fibre volume fraction to matrix volume fraction and with six layers of jute fabrics have been tested and results are compared with that of aluminum alloy 1050 H14, which is a potential candidate for making ceiling fan blades.

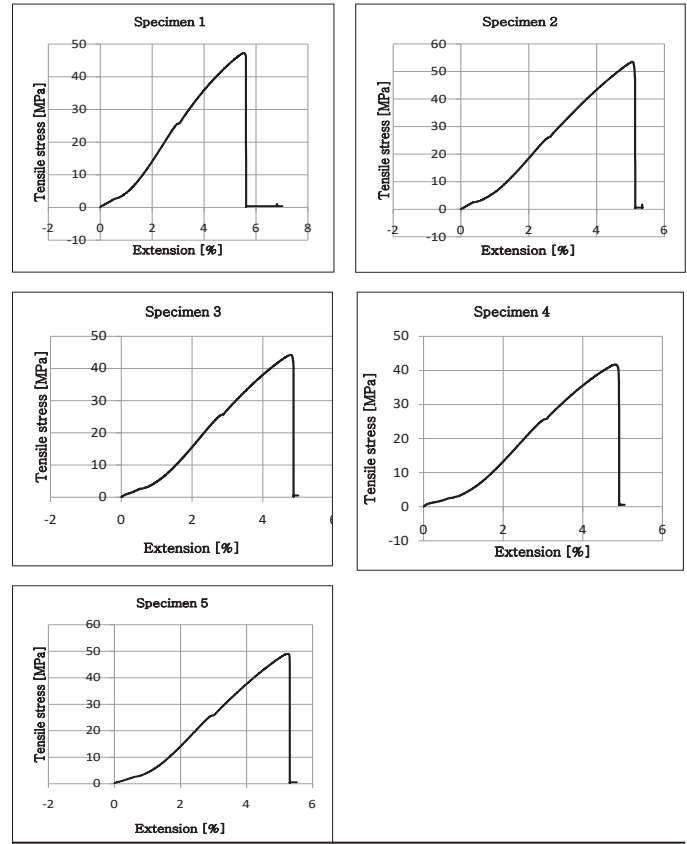


Fig. 6 Load-extension graphs of composites with six fabric layers (fibre volume fraction: 50%)

Table 3 Summary of comparisons of tensile strength of composites with Aluminum blade

S/No.	Material	Tensile strength (MPa)	Strain at failure (%)	Br. Load (N)
1	Composite blade with 60:40 fibre volume fraction	36.075	7.1	2167.5
2	Composite blade with 70:30 fibre volume fraction	38.7	12.4	3870
3	Composite blade with 50:50 fibre volume fraction weighing 150g	99.12	8.26	7929.6
4	Composite blade with 50:50 fibre volume fraction weighing 75g	47.1	5.1	1886
5	Aluminium Alloy 1050 H14	105-145	-	-

Referring from table 3, tensile strength achieved for composite blades made with 50:50 fibre volume fraction weighing 150g is most comparable with the Aluminum alloy 1050 H14 but it is still heavier blade so composite blades made with 50:50 fibre volume fraction weighing 75g has been chosen as the composite blades because it is lightest one although it has a tensile strength value which is half of that of the aluminum alloy.

Short Beam Shear Strength Tests for Composite Blades Made with 50:50 Fibre Volume Fraction Weighing 75g

Short beam shear tests are often used to assess inter-

laminar shear strength (ILSS) and to

compare the effects of fiber surface treatment on the fiber matrix adhesion. A total of 9 composite specimens made from both treated (Alkali+Silane) and untreated jute fabrics having the same dimensions have been tested and results are also compared (referred to tables 4 & 5).

Table 4 Summary of short beam shear strength tests for Alkali+Silane treated jute fabric composites with six fabric layers (fibre volume fraction: 50%)

S/no.	Thickness, t (mm)	Width, w (mm)	Max. load, P _{max} (N)	Displacement (mm)	Short beam strength, F ^{shs} (MPa) F ^{shs} = 0.75*(P _{max} /t*w)
1	2	4	101.19	2.01	9.48
2	2	4	95.5	1.45	8.95
3	2	4	99.72	1.53	9.35
4	2	4	90.86	1.34	8.52
5	2	4	86.55	2.45	8.11
Average	2	4	94.764	1.756	8.88

Table 5 Summary of short beam shear strength tests for untreated jute fabric composites with six fabric layers (fibre volume fraction: 50%)

S/no.	Thickness, (mm)	Width, (mm)	Max. load, P _{max} (N)	Displacement (mm)	Short beam strength, F ^{shs} (MPa) F ^{shs} = 0.75*(P _{max} /t*w)
1	2	4	79.52	1.8	7.45
2	2	4	68.77	1.45	6.45
3	2	4	76.01	1.42	7.13
4	2	4	67.61	1.58	6.34
Average	2	4	73	1.56	6.84

So from the test results given in the tables (4&5) the composite specimens made with Alkali+Silane treated jute fabrics shows higher ILSS (inter-laminar shear strength) of 8.88 MPa and composite specimens made with untreated jute fabrics shows a lower value of 6.84MPa. A 23 % improvement on the shear strength is observed, because of the treatments.

So, based on the above stated mechanical characterizations of the different composite blades the one that shows the comparatively better properties and lightest one has been chosen and below in table 6 the weight and dimensions has been compared with the existing Usha fan blades.

Table 6 Comparison of weights and dimensions of existing (Usha) fan and the composite blades made with 50:50 volume fractions

Weight of each blade (g)		Width (in.)		Length (in.)		Thickness (mm)	
Existing (Usha fan)	The composite blade	Existing (Usha fan)	The composite blade	Existing (Usha fan)	The composite blade	Existing (Usha fan)	The composite blade
250	75	5	4	18.8	10	1	2

C. Performance of the Composite Fan Blades

The following technical parameters have been assessed and compared:

- Air velocity in ft/min,
- Air delivery in cfm,
- Power in watt and
- Service value in cfm/watt

Table 7 Summary of air velocity (ft/min) and air delivery (cfm) at maximum speed for composite blades (with six fabric layers & fibre volume fraction: 50%)

Speed	Air velocity (ft/min)		Air delivery (CFM)		Blade surface area (ft ²)			
	Usha fan blades weighing 250g	Composite blades weighing 75g	Usha fan blades weighing 250g	Composite blades weighing 75g	Usha fan blades weighing 250g	Composite blades weighing 75g		
5	713	836	84	357	251	254	0.5	0.3

Table 8 Comparisons of power consumption of Usha fan blade and the composite blade (with six fabric layers & fibre volume fraction of 50%)

D. Monetary Savings:

Speeds	Power consumption (Watt)			Average Power savings (Watt)	Average % age power reduction
	Usha fan blades weighing 250g	Composite blades weighing 75g			
1	14.4	14	13.6	0.6	-
2	34.8	36	35.8	-	-
3	52.5	45.8	45.7	6.75	13
4	57.8	58	56.3	0.65	-
5	77.8	60.6	63.7	15.65	20

As it is stated above (referring table 8), by using the composite blades there is a 15.65W power savings which is 0.01565Kw. Let in Delhi we use ceiling fans for 8 months per year for 12 hours a day. That is the fan will be on 12 hours a day for 240 days.

So the energy savings will be calculated as:

$$0.01565\text{Kw} * 12\text{hr} * 240\text{days}$$

$$=45.072\text{ KWh/fan/year}$$

For domestic use the electricity tariff in Delhi is about 4Rs/ KWh. So, 180.3 Rs/fan/year will be saved.

Population of Delhi is around 20,000,000. Assuming that

one family has four members, we have about 5,000,000 families. But from these families, those that can afford to buy ceiling fans be around 70 %. Then, the number of families who can afford to buy a ceiling fan is 3.5 million. Let, to the minimum 1 family has only 1 fan in home, so we are going to have a minimum of 3.5 million ceiling fans in Delhi.

So the monetary savings will be calculated as;

$180.3Rs \times 3,500,000 = 630$ million Rupees or 63 crore Rupees savings per annum will be there.

Table 9 Comparisons of service value (cfm/watt) of Usha fan blade and the composite blade (with six fabric layers & fibre volume fraction of 50%) at maximum speed

Speed	Service value (cfm/watt)			
	Usha fan blades weighing 250g	Composite blades weighing 75g		
		10.13 ⁰	12 ⁰	
5	4.58	4.14	4	

So from the table (Table 9), service values for the composite blades are a little bit lower than the Usha fan blades due to the lower air delivery values of the composite blades that are because of the lower surface area of the blades.

E. Cost Analysis:

The composite blades are made with 50:50 fibre volume fractions, so the $W_{fibre} = 53$ & $W_{matrix} = 47$. To produce composite blades weighing 75 g the following amounts of fabrics and matrix will be needed:

$0.53 \times 75g = 40$ g of fabric and $0.47 \times 75g = 35$ g of matrix

1 layer of jute fabric having dimensions of 10×25 cm² or 250 cm² weighs about 6.6 g so 40 g of fabric will come about 6 layers. So to produce a blade with the stated dimensions and weight we need to have about 6 jute fabric layers.

Raw material cost

Jute fabric

1m² jute fabric costs about 150Rs and the composite blades have dimensions of 10×25 cm² or 250 cm². So,

$10,000cm^2 = 150Rs$

$250cm^2 = 3.75Rs$ (1 layer) so for 6 layers it will be 22.5Rs.

PLA matrix

1 kg of the matrix costs about 400Rs, but to produce a blade we need to have 35 g of it so the cost will be 14Rs.

Chemicals cost

NaOH

5 % of 40 g = 2 g of it is needed,

5kg NaOH= 1405Rs

2 g= 0.562Rs

HCl

1 % of 40 g = 0.4 ml of it is needed,

500 ml= 100Rs

0.4 ml=0.08Rs.

Aminopropyltrimethoxysilane

0.5 % of 40 g= 0.2 g of it is needed,

500 g= 12,150Rs

0.2 g= 4.86Rs

Acetone

1 % of 40 g= 0.4 ml of it is needed,

2.5 L = 846Rs

0.4 ml= 0.14Rs

Araldite epoxy

About 6 g of it is needed to bond one composite blade with the metal plate,

180 g= 250Rs

6 g = 8.33Rs

Manufacturing cost

Motor power of moulding machine: 3000 W.

Let's convert this number to kilowatts by dividing by 1000, to get 3 kW.

To produce one blade 8 minutes is needed,

Let's convert 8 minutes, into hours by dividing by 60, so 8 minutes is 0.133333 hrs.

The moulding machine that has been on for 0.133333 hours, have consumed

$3 \text{ kW} \times 0.133333 \text{ hours} = 0.4 \text{ KWh}$ of energy.

For non-domestic use the electricity tariff in Delhi is 5Rs / KWh,

Finally, since energy costs 5.00Rs/kW-hr, the device will cost:

$0.4 \text{ KWh} \times 5Rs/KWh = Rs. 2$

So, total cost = raw material cost + chemicals cost + manufacturing costs

= $(22.5+14+0.562+0.08+4.86+0.14+8.33+2)$ Rs

Total cost = Rs. 52.5 per blade

So one composite blade costs about 52.5 rupees which is lower as compared with the price of one aluminum blade which costs about 100 to 150Rs.

V.CONCLUSION

For the production of jute fabric reinforced PLA compos-

ite, chemical modifications of the fabrics were carried out as, alkalization, acetylation, silane and maleic anhydride treatments. The differently treated fabrics have been characterized. Jute fabrics treated with 5 % alkali followed by 0.5 % Silane treatment shows the highest tensile strength, young's modulus, specific tensile strength and specific young's modulus followed by fabrics treated with 5 % alkali only. The untreated jute fabrics show lesser tensile strength and young's modulus. 5 % Alkali treated+ Acetic acid treated with an MLR of 1:20 shows the poorest tensile strength and 5 % Alkali treated+1 % Maleic anhydride treated fabrics shows the poorest young's modulus. From the breaking strength-elongation graph it is observed that the elongation at break percentage is found to be much highest in 5 % Alkali+1% Maleic anhydride and 5 % Alkali + Acetic acid treated with an MLR of 1:20 treated fabrics. This is because these two differently treated fabrics exhibits lower tensile strength values and when the fabric is breaking the constituent fibres slips rather than catastrophic failure which of course contribute for the load sharing. Besides the changes in the mechanical properties, Colour changes have also been observed after chemical treatments. The Alkali treated fabric gets darkened, Acetylated and maleic anhydride treated jute fabrics gets brightened/faded because of further purification on the removal of hemicelluloses, lignin and cellulosic components from the fibre after alkali treatment and that of Silane treated jute fabric colour gets into dark golden.

So, composite blades were prepared from jute fabrics treated with Alkali+Silane on a compression molding machine at a temperature of 190°C, with a pressure of 15 bars for 8 minutes followed by air cooling at room temperature. The composite blades were prepared at three different fibre volume fractions; 50:50, 60:40 and 70:30. The samples were tested for tensile and shear strength as per ASTM standards and also compared with the existing aluminum blade, Aluminum Alloy 1050 H14. The composites which showed better and comparable mechanical properties have been chosen as the blades. Composite blades with 50:50 fibre volume fractions and having a weight of 75g and a thickness of 2mm was found to be the lightest and showed a tensile strength of 47.1 MPa (referring to Table 3 and fig. 6), which is half of the value of the aluminum alloy and having an ILSS (Inter-laminar shear strength) value of 8.88MPa (referred in Table 4) has been chosen as the composite blades. By performing surface modifications of the jute fabric, the ILSS value has been increased from 6.84MPa to 8.88MPa which is 23% increment on the shear strength.

The composite blades are made with average pitch angles of 10.130 and 120. The performance parameters have been tested and compared with Usha ceiling fans. An air velocity of 836 and 846 ft/min and an air delivery of 251 and 254 CFM were achieved for the composite blades with the pitch angles of 10.130 and 120 respectively (re-

ferring to Table 7). From the results it can be seen that the air velocity of composite blades is higher than Usha ceiling fans which has 713 ft/min but due to the reduced surface area of the composite blades i.e. 0.3ft², the air delivery is lower than Usha fans which is 357 CFM having a higher blade surface area of 0.5ft².

An average power savings of 15.65Watt has been achieved with the use of the composite blades while operating at the maximum speed of 5 (referred in Table 8), which is about 20% power reduction and due to this a minimum of 630 million Rupees or 63 crore rupees per annum can be saved if we use the blades in Delhi only.

The total cost to produce one composite blade is calculated to be 52.5Rs, which is lower as compared with the price of one aluminum blade which costs about 100 to 150 Rs.

Acknowledgement

I avail this opportunity to extend my hearty indebtedness to my guide Prof. R.S Rengasamy, for his valuable guidance, constant encouragement and kind help at different stages for the execution of this dissertation work.

I also express my sincere gratitude to, Dr. Sunder Balakrishnan, General Manager of Natur- tec India pvt. Ltd company for providing me the sample PLA films free of any charges. I am also thankful to Mr. B. Biswal, Mr. VikasKhatkar and Mr. Vijay, Textile protective lab, Textile testing lab and Ph.D. Student respectively, for their help in conducting the experiments.

Special thanks to my friends and other members of the department for being supportive and helpful in every possible way.

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➤ DIGITAL TEXTILE

GREEN FUTURE OF DIGITAL TEXTILE PRINTING – A FAST GROWING AREA FOR TEXTILE DECORATION



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Introduction

Digital textile printing is described as ink based method of printing colorants onto the fabric. Digital textile printing is referred to when identifying printing smaller designs onto garments and printing larger designs

of a dye-sublimation printer in the early 1990s, it became possible to print with low energy sublimation inks and high energy disperse direct inks directly onto textile media, as opposed to print dye-sublimation inks

onto large format rolls of textile. Digital textile printing was started in the late 1980s as a possible replacement for analog screen printing. With the development

of a dye-sublimation printer in the early 1990s, it became possible to print with low energy sublimation inks and high energy disperse direct inks directly onto textile media, as opposed to print dye-sublimation inks on a transfer paper and, in a separate process using a heat press, transfer it to the fabric. Digital textile printing is an excellent reflection with a right blend of classic and elegant view. Also known as direct to garment printing, the process prints designs on fabrics from the computer without any other sources like designing on paper and printing. It enables for changes in color and design easily, and quickly prior to printing. This technology offers faster production technology, cost effective print runs, and provides majority of the worlds printed textiles. This process consumes less water, and dyes, thereby proving to be environmentally friendly. Consumers

of today are more demanding with specific choices relating to style, design, and color combinations. This business enables quick turn-around, economic and flexible, efficient set-up and speed. Main advantage of this process is color applications through latest printers, and software applications. Recent concepts of shimmering, shadow, reflection, blurring, layering, and superimposing is also possible through digital fabric printing. The art of digital printing has influenced both the style and process of textile printing. For decades, digital printing for the textile, fashion, décor, industrial, and graphics industry was relegated to sampling and short run printing. With the aid and advantages of innovative inkjet technology, the industry is now addressing the demand for environmentally responsible output, innovative designs, and the need to improve supply chain operation.

Textile Digital Printing Transformation

The textile printing market has been changing to adopt new innovative technologies aimed at addressing a new generation of consumers, brands, as well as the supply chain. This massive industry, with over a trillion and a half dollars in annual business value in the apparel and accessories sector, is undergoing a transformation. Brands must adjust to appeal to a new generation of consumers who shop in both brick-and-mortar stores as well as through online retailers. With the digital age now an economic certainty, brands as well as textile mills must adapt. Many of these changes have evolved in the past decade as early high-speed production digital textile solutions emerged.

Product Life Cycle Management (PLM)

When brands plan their next season, they usually resort to the use of a Product Life Cycle Management system (PLM). These tools are aggregators of all the components needed to usher in a new successful season. From managing resources (ERP), de-

sign components, collection and ensembles, to patterns and product photography, these collaborative platforms enable all the functions and processes in the creation of next season's products - a coordinated effort from brands, designers, textile mills, and cut & sew operations to the logistics that move products to shelves or ship them out in packages.

Just-in-time Manufacturing (JIT)

While just-in-time (JIT) manufacturing has technically been a term that has existed since the 1960s, it has grown in applicability in recent decades. JIT manufacturing allows new businesses to get their product lines to market in days or weeks, rather than months. For larger organizations, it can mean rapid response to the fashion industry needs to meet seasonal demand. Seasonal variations can be on shelves on time, giving textile companies better ability to please their customers.

Reduction in Overstock and Warehousing

The shift toward digital printing can also mean improved inventory planning, resulting in less overstock and warehousing needs. As textile service providers move away from longer runs and shift toward short, varied, targeted production - they have been better able to match product to client need. Clothing can now be made as needed rather than in bulk order, letting companies spend less on inventory that may or may not sell. These capabilities ushered in a new type of fabric suppliers - On Demand manufacturers. These companies use a Purchase Activated Manufacturing business model, whereby production commence only once an order was received and paid for in advance. There are no finished goods in the warehouse just blank raw materials.

Mass Customization

With the supply chain being shortened using innovative print technology and continued advancements in workflow, new players have been entering the space over the last several years, empowered by easy online

tools that make it simple to start selling customized clothing commercially. These fit into the growing uses of e-commerce in the apparel industry at large, where continued growth will drive estimated revenues up to \$145 Billion by 2023 according to Statista 2018 digital market Outlook. Several suppliers epitomize this trend, pointing out to the need for customization for a community of like-minded people and, on a larger scale, addressing the needs of the masses with diverse customized products.

Advancement in Digital Textile Printing

Performance of Printheads

The component at the heart of the printing system is the inkjet printheads, and development of improved printheads is a highly important factor enabling industrial printing. The major factors in printhead performance are maximum jetting frequency, number of nozzles, drop volume, jetting straightness and uniformity, operating window and cost. For many years piezo drop-on-demand printheads have given the best compromise in speed, quality, robustness and range of ink types that can be used, and are used in almost all textile applications. Other possible technologies include continuous inkjet, which has been used in the past and maintains some interest, and thermal drop-on-demand, which may yet show some promise in textiles. The rise of digital textile machines to industrial applicability has almost entirely been dependent on one printhead up to now. The combination of high speed, aqueous compatibility, large nozzle count and greyscale capability with a suitable range of drop sizes for textile printing meant that successful printers could be built around it. These range from scanning machines with one printhead per colour, up to single pass machines with several hundred printheads in total. Increasingly alternative printheads are becoming available to system manufacturers, often based on silicon (Si) MEMS (micro-electro-mechanical systems) con-

struction that has become a popular approach to building industrial piezo printheads. The advent of single pass printer architectures has generated a need for printheads with higher nozzle counts, tighter packing densities and smaller drop sizes. This need for miniaturisation fits well with precise feature size control inherent in the photolithographic and micromachining techniques used in MEMS processes. Silicon and silicon oxide provide excellent chemical compatibility with most ink families used in inkjet textile printing. Careful selection of upstream construction materials and bonding epoxies help to push the envelope for applications requiring compatibility with complex crosslinking inks, functional materials and aggressive maintenance fluids. Finally, silicon MEMS manufacturing holds the promise of enjoying the economies of scale so important in the semiconductor industry. As the total number of units shipped grows and printhead manufacturers learn how to take advantage of this, the high fixed cost of operating a MEMS fab can be spread across a larger number of units, lowering the per unit cost of manufacture (and potentially therefore the per nozzle cost of printheads when purchased by system manufacturers). It remains to be seen how rapidly, and with what effect, the adoption of Si-MEMS printheads will progress in the textile market, but it remains a very promising technology.

Supply of Ink Jet System

While often treated as a secondary item, the ink supply system that ensures the ink is delivered to the printheads is vital in ensuring reliability in an industrial production context. While simple in principle, the ink supply is often a source of problems that can be extremely difficult to track down. The ink supply has to maintain the correct ink temperature, pressure and flow rate under varying external conditions, while also preventing particles and other contaminants from reaching the printhead and avoiding chemical interaction

and other reliability problems. Importantly, it also needs to be easy to use and refill under production conditions. Inks are complex chemical fluids with a wide range of possible constituents, including particulates and binder resins in the case of pigmented inks. This makes it very difficult to find materials for the parts of the ink system in contact with the ink that will not interact with that ink chemically. Piping in scanning systems has to be carefully designed to avoid pressure fluctuations that lead to banding in the printed result. It is only continued learning and development of ink supply systems and components that has allowed inkjet printing systems to gain sufficient reliability to be a realistic option for production textile printing.

Automated Maintenance of Nozzle

As the nozzle/printhead count in systems increases and the requirement for uptime in production limits the time available for nozzle maintenance, the need for fast, automated maintenance configurations becomes more pressing. In fact in many large systems, manual nozzle maintenance is simply impossible as many of them are inaccessible. Nozzles become compromised due to satellite ink and misting collecting on the printhead faceplate, debris being trapped in non-printing nozzles, vibration leading to ink seepage, dust and fibres from the substrate and other contaminants from the printing environment, air bubbles either being drawn into the nozzle or in suspension in the ink, and ink drying in the nozzle. All of these can cause jetting to be compromised or stopped altogether.

Many systems in production today in textile mills rely on manual nozzle maintenance, and the development of reliable and fast automated maintenance is a significant factor in the continued adoption of inkjet into production textile printing.

Substrate Handling and Motion Systems

Motion systems are required to move the substrate or printheads, or both, in order to scan the entire textile and produce the printed result. An industrial motion system for digital printing, no matter what the configuration, needs to have smoothness and consistency of motion, accuracy of positioning, handling of substrates to ensure dimensional stability during printing, and the suppression of vibrations that can lead to visible print artefacts. There are a number of specific problems faced by motion system designers, as systematic errors in dot placement are highly visible to the human eye and generally undesirable. A combination of sound mechanical design and (in some cases) compensation for issues using software is required for optimum print quality. While promoting dimensional stability of textile substrates using 'sticky rollers' has been known for many years, the requirement and challenges are more testing for digital printing. The rotary screens in conventional printing act to hold the textile in place, while with inkjet the non-contact nature of the printing provides an additional challenge, which becomes ever more difficult as printing speeds increase. Again, significant development has been required to give good textile handling performance for production, and new and more difficult problems needed to be solved for single pass systems.

Single Pass Printing Systems

Single pass printing systems, where the printheads remain stationary in a complete line across the textile roll and the substrate moves beneath them in a continuous manner, allow for greatly increased throughput from a single printing system. Single pass printing systems have productivities that rival rotary screen systems for the first time, with the trade-off of greatly increased cost over scanning systems. A potential issue with single pass printing is the fact

that there is no opportunity to use interlacing of multiple print swathes, as is commonly used in scanning printers, to help in masking print defects. Another factor to consider is that with single pass printing there is no opportunity to perform nozzle spitting during a print run – a process that is commonly used in scanning printers to ensure all nozzles continue working correctly. These factors mean that single pass print production is at a higher risk of rejection due to print defects, with the high printing speeds also meaning these print defects can extend over large areas before being recognised.

For these reasons, single pass printing has not been adopted widely so far in production textile printing, with many textile mills choosing to add productivity to their factories by ordering additional scanning machines rather than going down the single pass route. However, some of the largest textile mills have been using single pass systems successfully for several years, and the introduction of new entrants into this market suggests that single pass systems may show larger market penetration from now on.

Development in Software and Electronics

Another important area is the printing software that manages the printing system and controls the supply of data to the printheads. Development of powerful and easy to use software is a significant factor in adoption of industrial printers, especially in a production environment like a textile mill. A good user interface allows easy access to the most important controls, while enabling more detailed changes to be made by qualified users. Meanwhile the image pipeline is responsible for converting an input image file into the data that deter-

mines when each nozzle fires as the textile is being printed. This involves a number of steps including colour management (to ensure the printed colours are as expected), screening (to reproduce continuous tonal variations in the best possible way using a matrix of dots), and splitting (deciding which data to send to each print-head depending on the printer configuration). Single pass systems again make huge demands on electronics and software to handle the large data throughputs required and development in this area has been crucial to allow single pass systems to be successful. Textile-specific software is needed to handle textile design images, including flat and continuous tone designs and separation files. Also required are the acceptance of a wide variety of image file formats from CAD design and screen separation programs, handling of very large image files, support for spot and process colours with expanded process colour sets, colourway variations of designs, real time image repeating, and many more functions. Screen simulation features bridge the gap between digital and screen-printed fabrics, especially if both techniques are still to be used. Several software vendors have incorporated features useful in simulating and matching to screen printed production fabric, such as simulating screen resolution/mesh size, colour mixing and overprinting, colour trapping, and incorporating gradation curves for tonal separations. Another area where software has a part to play is in the automated recognition and compensation of print defects. Advanced vision and analysis systems have the potential to be able to recognise a wide variety of print defects (much of this work still relies on the human eye in many printing applications, including textiles). Automation of defect recognition promises to be faster,

more objective and more reliable, while also enabling rapid response to the defect by triggering maintenance action, reprinting a job and even using nozzle compensation schemes where a neighbouring or backup nozzle is pressed into service to replace or hide a missing nozzle.

Conclusion

As digital technologies improve, more and more traditional textile printing companies are looking at the benefits of digital printing, which include shorter lead times, customization options, improved design aesthetics, workflow efficiencies and cost reduction. The advancements in digital printing provide innovative solutions for increased flexibility and speed to textile printing products. Applications such as home textiles, soft signage, automotive & fashion are moving in the new technology. People basically use reactive ink for cotton fabric, direct disperse for polyester fabric or Dye sublimation is used as it's more familiar to print on paper and then transfer on under percent polyester fabric and then we have acid that is usually use for silk and wool fabric. Pigment is the real innovation because pigment is the only one inks can be used for all the substrate. The future is to develop a complete green process, so not only green inks but a full completely green process for a greener future of the textiles.

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“ Democratic socialism means that we must create an economy that works for all, not just the very wealthy.

Bernie Sanders

”

NO RESPITE TO FALLING BASIC TEXTILES EXPORT

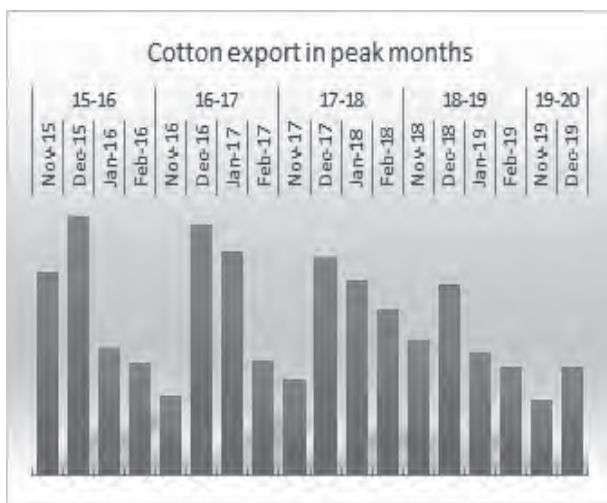


NITIN MADKAIKAR

Textile Beacon

In December, basic textiles comprising fibres, spun and filament yarns shipment declined 27% YoY, both in terms of US\$ and INR worth US\$641 million or INR4,521 crore, accounting for about 2.3% of total merchandise exported from India during the month. A year ago, the same group of basic textiles had accounted over 3% of total merchandised export. Meanwhile, the INR to an US\$ weakened to average INR70.55 this December from INR69.35 last year.

Cotton Export



December is usually the peak month for cotton export and the third month of a new marketing season. No other month, match the volume of the last month of a calendar year. This December, shipment was less than 7 lakh bales (170 kg each), taking the seasons (2019-20) total to 13.3 lakh bales or 1.33 million bales. The volumes in corresponding period of 2018-19 was 24.2 lakh bales, 21.1 lakh bales in 2017-18, 21.6 lakh bales in 2016-17 and 34.3 lakh bales in

notes demonetisation. Does this imply that the impact of demonetization still persist or not faded? May be yes, because there was no large crop failure caused by either monsoon or pest attack in 2019-20.

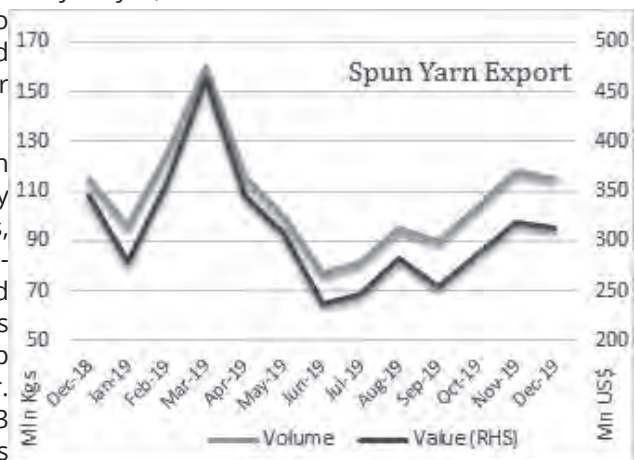
This season's drop in export is attributed by CAI to multiple factors, including higher domestic prices compared to international prices because the thin crop last year. With 13.3 lakh bales export-

ed this season worth US\$359 million, imply an average price realisation of INR112 a kg or US cents 71.74 per pound. This was lower compared to Cotlook A index, the global spot price benchmark for cotton and Gujarat Shankar-6, the benchmark for domestic spot price. During the three months, Cotlook averaged US\$74.20 per pound and Shankar-6 US cents 72.16 per pound. So attributing pricing to be a cause for export dropping is apparently unfound. In December, Bangladesh was the largest market for Indian cotton export, followed distantly by China, Indonesia and Vietnam. Negligible volume (570 bales) was shipped to Pakistan, which was one of the largest market with shipment of 2.20 lakh bales in December 2018.

2015-16. It also shows that export in the first three months have been on a rapid decline since 2016-17, the year of value currency

Yarn Export

Spun yarns shipment totaled 115 million kg (slightly below last year) worth US\$312.50 million (down 9%) or INR2,204 crore (down 8%). The unit value realization of all types of spun yarn averaged US\$2.71 per kg, lower by US cents 28 from a year ago and up US cent 1 from previous month. Bangladesh reemerged as the largest market for spun yarns, topping both



in terms of volume and value, having risen year on year.

Cotton yarn export was 91 million kg worth US\$250 million (INR1,766 crore), down 14% from a year ago level. 78 countries imported cotton yarn from India in December at an average price of US\$2.752 a kg, up US cents 3 from previous month but down US cents 27 from a year ago.

Bangladesh was the top cotton yarn market, as it increased its import 12% by volume and 3% by value this December. During the month, export to Bangladesh was 24 million kg worth US\$67 million. China followed Bangladesh with volume and value decreasing 22% and 32% respectively, year on year. Egypt and Portugal were the other major export market for cotton yarn during the month, with former recording 22% increase in value and latter jumping 35%. 14 countries did not import any cotton yarn from India this December as they had imported

yarn worth US\$14 million worth in December 2018. No shipment was reported for Pakistan this December. Last year, export to Pakistan was 2.7 million kg worth US\$10.4 million. However, the lost markets were replaced by 14 others which imported yarn worth US\$3.96 million. Iran and Nepal were the major new market this December compared to last year. Argentina, Spain, Greece and Portugal were among top fastest major importers of cotton yarn in December, while Chile significantly reduced their imports compared to last year.

100% man-made fibre yarns exports surged 39% in November extending the rally seen in the previous month. They comprised 3.1 million kg of viscose yarn, 3.6 million kg of polyester yarn and 1.9 million kg of acrylic

yarn. The rise was led by viscose yarn, which almost doubled in terms of volume and up 40% in value.

Viscose yarn worth US\$8.7 million or INR61.3 crore was exported at an average price of US\$2.76 per kg in December. They were exported to 29 countries with UAE, Turkey and Iran were the major markets. Export to UAE was worth US\$1.54 million, followed by Turkey at US\$1.38 million and Iran worth US\$1.11 million. Bangladesh was the fourth largest importer of viscose yarn during December.

Polyester spun yarns export was worth US\$7.88 million and were exported to 48 countries at average unit price of US\$2.20 a kg, down US cents 36 from last year. Turkey was the largest importer of polyester

yarn, followed by Brazil and USA.

Blended spun yarns worth US\$40 million were exported in December, up 3% YoY. During the month, 9.9 million kg of PC yarns was exported worth US\$23 million while 3.7 million kg of PV yarns were exported worth US\$9.50 million. Egypt was the largest importers of PC yarn from India while Brazil emerged was the second largest market for PC yarn followed by Turkey. Turkey was the single largest importer of PV yarns from India followed distantly by Iran.

All kinds of filament yarns shipment totaled 69 million kg (up 15% YoY), valued at US\$104 million (down 3.6% YoY). Only nylon and polypropylene filament yarn exports were up in value terms with significant increases.

FIBRE PRICES STABLE TO DOWN IN DECEMBER

Polyester

Polyester staple fibre markets in China reversed the downward trend seen in November on low inventory levels and firmer support from feedstock costs. However, downstream buyers had almost finished replenishing ahead of the upcoming Spring Festival in late January. Offers for 1.4D direct-melt-spun PSF in Jiangsu and Zhejiang were lifted while offers in Fujian were also up. Offers for 1.4D direct-melt PSF rose to 6.85-7.00 Yuan a kg (US\$0.98-1.00 a kg, up US cents 3) in Jiangsu and Zhejiang while the same in Fujian and Shandong were at US\$0.99-1.01 a kg. Export offers were heard at US\$0.92-0.95 a kg FOB NE Asia.

In Pakistan, producers lowered offers in the first two weeks of December and raised back in third as downstream buying was supportive and stable. 1.4D PSF offers were at PakRs.179-181 a kg (US\$1.15-1.17 a kg, down US cents 2-3 from November).

In India, producers maintained their

offers flat through entire December on sluggish cost and stable demand during the month. Offers were at INR85.00 a kg (US\$1.19 a kg) for 1.2D and for 1.4-2D at INR84.25 a kg (US\$1.18 a kg).

Nylon

Nylon-6 staple fiber offers dipped in China as upstream caprolactum as well as polyamide or nylon chip cost eased modestly during December. High-end wool-like and low-end for core-spinning type nylon staple maker continued to face poor margins despite cost easing. 1.5D offers was down to 13.85-14.50 Yuan a kg (US\$1.98-2.07 a kg, down US cents 3-5 on the month).

Acrylic

Acrylic staple fibre market sentiment was quiet in Asia this December and prices declined in the second week of the month. The fall was caused by sharp downturn in upstream acrylonitrile cost that week. However, fibre prices stabilised later, unaffected by feedstock cost. Taiwan origin 3D

bright acrylic fibre tow offers were down to US\$1.70-1.75 a kg FOB Taiwan by end-December.

In China, reference prices of cotton-type staple fiber, tow and top were range bound in December after falling in the last week of November. The industry run rate averaged 57% during the month as producers maintained steady operation, leading to stable supply. Demand was lackluster as downstream spinning mills made fewer procurement. Medium-length and cotton-type acrylic fibre prices were down at 13.90-14.20 Yuan a kg (US\$1.98-2.02 a kg).

In India, acrylic fibre producers were lowered for December on easing cost in November. Offers were down to INR151.50-152.00 a kg (US\$2.13-2.14 a kg, down US cent 13 on the month).

In Pakistan, overseas offers for acrylic fibre were rolled over in December. 1.2D ASF offers in Karachi market were maintained at PakRs.350 a kg (US\$2.26 a kg).

Viscose

➤ YARN REPORT



Viscose staple fibre markets were stable to weak in China, India and Pakistan in December. In China, following large-volume deals at lower levels done in early weeks of the

month, some producers continued to conclude orders at lower prices. However, fresh deals were limited, as only some mills made sporadic procurement ahead of upcoming spring festival in late January. Average spot offers for 1.5D were down at 9.85 Yuan a kg (US\$1.40 a kg) while 1.2D were at 10.02 Yuan a kg (US\$1.43 a kg).

In Pakistan, offers from overseas suppliers from Indonesia and Taiwan were rolled over in December after they were sharply revised down in mid-November. Offers were stable in Karachi markets with 1.5D VSF at PakRs240-245 a kg (US\$1.55-1.58 a kg, down US cent 1 from November).

In India, producers' offers for 1.2-2.0D viscose fibre remained unchanged in December. 1.2-1.5D were at INR195-197 a kg (US\$2.74-2.77 a kg).

➤ SURAT

More than 42 thousand buyers visited 'SITME-2020': 450 crore worth business expected

The three-day textile exhibition 'Sitme-2020' held in Surat has given a new impetus to the textile sector. High speed embroidery, digital textile printing machines displayed in different 60 stalls have received bumper response. SGCCI has claimed that with the sale of 250 to 300 new machines to all the exhibitors, it is expected to generate an estimated 450 crore business in the next two-three months.

The Southern Gujarat Chamber of Commerce and Industry (SGCCI) and Surat Embroidery Association (SEA) has jointly organised Suart International Textile and Machinery Expo 'SITME-2020', between January 3-5, 2020 at the Surat International Exhibition and Convention Centre (SIECC). In 60 stalls, A collection of highspeed embroidery, digital printing / ink, non-woven, circular knitting, sawing, laser, spare parts, threads / brocade machinery and accessories were displayed.

The Chairman of the Exhibition Committee of the SGCCI, Devesh Patel said, the exhibitors showcased new modern highspeed machines, which

received good response. More than 42 thousand buyers visited the exhibition. The textile exhibition 'Sitme-2020' features paper sublimation digital textile printing machine along with high speed embroidery machine. Four head sublimation digital printing machine has been presented for the first time in the event. This machine produces 4500 meters of fabric a day and uses less electricity.

Booking orders of machines on the spot itself shows the enthusiasm of entrepreneurs for upgradation in industry. The exhibition attracted buyers from Delhi, Tirupur, Haryana, Amritsar, Bhiwandi, Malegaon besides Surat, Ahmedabad. The exhibitors have expressed the hope of selling 250 to 300 machines in the coming months.

Domestic rapier and Schiffli embroidery machine will get TUF subsidy benefit

A meeting with the Textile Commissioner in Mumbai has yielded good results for the textile industry of Surat. Now, locally produced modern rapier machines along with foreign will also be given the benefit of subsidy under the TUF Scheme. The buyer will get the benefit of subsidy on taking electronic jackard and dobby with the rapier machine. In the embroidered

sector, schiffli machines are also included in the category of subsidy benefits. This decision will encourage modernization in textile industries.

The Federation of Indian Art Silk Weaving Industry (FIASWI) has made several representation to increase TUF subsidy and inclusion of domestic rapier machines in the scheme. A meeting with the Textile Commissioner was held in Mumbai on various issues.

The member of FIASWI Mayur Golwala, who was present in this meeting, said that earlier, the benefit of subsidy was available only on the imported rapier machine. The rule has been improved after successive representation. Now domestic rapier machine will get the benefit of TUF subsidy on taking electronic jacquard and dobby with rapier machine.

The textile industry of Surat had been looking for this decision for a long time. With this relief, the modernization will be encouraged in the powerloom sector. In addition, schiffli embroidery machine have also been included in the TUF Subsidy Scheme.

It was informed at the meeting that under the A-TUF and RR-TUF scheme, out of the remaining subsidy for a long time, 140 crore subsidy has been released by the Textile Commissioner. Assurance has also been given

➤ SURAT

for redressal of the remaining subsidy of the Scheme.

Synthetic yarn prices surge upto Rs 3/kg.

As geopolitical tensions mount between the U.S. and Iran, crude oil reached a 6-month high of more than \$70 a barrel in the last few days. The rise in prices of petrochemical raw materials such as PTA and MEG along with the rupee fall has made synthetic yarn costlier.

The yarn spinners have increased the synthetic yarn prices by almost Rs 3 per Kg. In last few days, the prices of roto and crimp based quality has increased by rs. 2/kg. Various deniers of

filament yarn has increased upto rs. 3/ kg. in surat yarn market.

The daily production of polyester fabric is pegged at 4 crore meter per day. However, the recession in the industry from the last few months has reduced the production at less than 2.5 crore metre per day.

Focus on textile engineering for overall textile development : Smriti Irani

Union textile minister Smriti Irani said, the entrepreneurs should focus on textile engineering. To enhance exports and for overall development of textile industry, the textile machin-

ery manufacturing sector emphasised. She was in the city for civic conference.

She has asked businessmen and Southern Gujarat Chamber of Commerce and Industry (SGCCI) to work out a plan to make Surat a manufacturing hub of textile machinery. The representative of textile industry has briefed about development, growth and capacity of textile yarn, weaving, embroidery and processing industry of Surat. She asked textile entrepreneur to participate in the expo which the government proposes to hold in August for textile machinery, and come up with plans to develop Surat as textile engineering hub.

➤ NEWS

ACCESSORIES THAT WILL BOOST THE PERFORMANCE OF YOUR MONFONGS 6500 STENTER!

Monforts Fong's Textile Machinery Co., Ltd is a joint venture between Fong's Industries Co., Ltd., Hong Kong and A. Monforts Textilmaschinen GmbH & Co. KG. Till date, more than 3000 Monfongs machines are in use in textile factories around the world – an indication of the precise manufacturing techniques and German technology that Monforts Fong's offers. The Monfongs 6500 is the flagship stenter of Monforts Fong's as it provides end users with energy savings, flexibility, and high productivity.

With A.T.E. providing sales and service, the Monfongs 6500 stenter has

become one of the most widely used stenters in the Indian textile industry – it is economical to operate, can be used in the finishing of both woven and knitted fabrics, and has several energy saving features. By adding on some optional accessories, it is possible to enhance the performance of the Monfongs 6500 stenter even further.

Eco-booster heat recovery system:

The Eco-booster heat recovery system for the Monfongs 6500 stenter is an advanced heat recovery module with an automated cleaning system. The

Eco-booster helps users save heat energy during the drying, finishing, and heat setting processes in the stenter. The new and improved version of the Eco-booster

has also eliminated oil dripping on fabric to a significant extent.

Disc-O-Clean

During the operation of the stenter, it is a common practice to manually clean the fluff (collected inside the chamber filters) regularly to ensure the free circulation of air inside the chambers. If this cleaning is not done frequently, the filter gets choked with fluff, impeding the circulation of air and hampering the evaporation of moisture, thereby lowering productivity.

The Disc-o-clean is a fully automatic and continuous lint cleaning system that can be fitted in the hot air chamber filter. It continuously cleans the two rotating screens, while the stenter is in operation, ensuring uninterrupted and optimal performance of the stenter. This optional accessory is recommended for the first 4 chambers of the stenter, where the accumulation of fluff is high in the filtering system.



IITEXPO MUMBAI 2020 (INDIA INTERNATIONAL TEXTILE EXPO) 05-07 MARCH 2020

NESCO, Bombay Exhibition Center, Mumbai, Maharashtra

Powerloom Development & Export Promotion Council (PDEXCIL) set up by the Ministry of Textiles, Govt. of India, promote, support, develop, advance and increase powerlooms and export of powerloom fabrics and made-ups through its various activities. To promote export of textiles and garments, PDEXCIL has again come up with a grand Reverse Buyer Seller Meet (RBSM), connecting the international market with Indian textile exporters and traders.

The main objective of conducting this RBSM is to provide a direct platform to Indian textiles exporters to interact with buyers from all over the world in their home country at a very low participation charge. The SME sector is highly motivated to participate in

it and increase their export activity. Also it will showcase India as a reliable source of supply with such varied product range.

With the vision to provide a reliable international network and practical know-how on all key sourcing markets, latest trends and standards in export, about 60 foreign buyers from various countries are invited such as Bangladesh, Sri Lanka, UAE, Kenya, Senegal, Zimbabwe, Russia, Australia and many more.

About 80 Indian textile exporters will be displaying a wide range of products with latest trends and qualities under one roof. The product range will be suitable for all types of markets whether emerging or developed ranging from yarn, fabrics to garments and made ups. The exhibition is happening in Mumbai, Maha-

rashtra having vicinity to some of the largest cluster of powerloom such as Bhiwandi, Ichalkaranji, Solapur, Surat, Ahmadabad etc. to producing grey, dyed, printed and yarn dyed fabrics for apparel industry, sarees, dress material, towels, napkins, furnishings, industrial fabrics, medical textiles, etc. Mumbai is one of the most important trading hub of India for textile products.

IITExpo Mumbai 2020 will be a one stop source for all textiles requirements of worldwide buyers. It will be a unique platform for Indian participants, who they can gather information on all latest developments and trends in order to gear the development and manufacturing of their products in future.

For more information please visit: www.pdexcil.org

ORGANISERS AFFIRM GROWING INTEREST IN MUMBAI EDITION OF GARTEX TEXPROCESS INDIA



tile machinery 'Gartex Texprocess India', which is held annually in New Delhi, is all set to mark its launch in Mumbai in March 2020 owing to the demand generated by garment and textile manufacturing industry in Indian and overseas markets.

As per India Brand Equity Foundation's latest report, exports in the textiles and apparel industry are expected to reach USD 300 billion by 2024-25, resulting in a tripling of Indian market share from 5% to 15%. Also with government's efforts in developing a competitive textile sector in India through its latest Textiles

Policy 2020, the demand is expected to rise even further. Keeping in mind the new developments, the organisers of Gartex Texprocess India - Messe Frankfurt Trade Fairs India & MEX Exhibitions Pvt Ltd - added the new location 'Mumbai' this year with the primary objective of reaching out to major textile hubs of West and South India. This edition will complement the existing New Delhi edition while also increasing the expanse of the show by reaching out to smaller-sized companies and start-ups in the region.

Mr Raj Manek, Executive Director

& Board Member, Messe Frankfurt Asia Holdings Ltd said: "Even as the domestic consumption is surging, India's textile and apparel exports are expected to lead to a tripling of the country's market share globally. Witnessing the tremendous opportunities at the first unified Gartex Texprocess India, the industry strongly hinted at the show's potential as an instrumental venue for collaborations. As organisers, it is our combined endeavour to strengthen our exhibitors' reach in their target markets or potential areas of their business interest, and therefore we decided to

bring the platform to Mumbai so as to provide stakeholders greater accessibility to their buyers in the western and southern regions.”

Exhibitors, who have signed up for the event, are all geared-up to present the latest innovations, machines, plants, processes and services to various stakeholders in the industry, including manufacturers and suppliers. The Mumbai edition of the show is scheduled to be held from 19 – 21 March 2020 at Bombay Exhibition and Convention Centre. The highlights of the show include ‘Garmenting & Apparel Machinery’ that will provide insights on technological developments in the garment & apparel manufacturing sector. Besides this, innovative

products and technologies, defining latest trends in the industry, will be showcased to the visitors at the four concurrent shows - Denim Show, India Laundry Show, Fabrics & Trims Show and Digitex Show during the three-day event.

Echoing the stance, Mr Gaurav Juneja, Director, MEX Exhibitions Pvt Ltd said: “Gartex Texprocess India is a great platform that has been instrumental in unifying various stakeholders within the garment and textile manufacturing supply chain. Now the show is being held for the first time in Mumbai and we are immensely hopeful that this edition will diversify the reach and expanse of this highly popular trade event. Our association with

Messe Frankfurt Trade Fairs India has been especially fruitful in taking the show towards the desired direction. It is our combined endeavour to provide a lot more opportunities for the garment and textile manufacturing industry, and we will strive to work towards that.”

The event is also aimed at providing business opportunities to the international and national suppliers as well as trade visitors through networking sessions with industry experts and engaging in investment opportunities during the show.

For more details, please log on to www.gartexindia.com

DENIM SHOW ANNOUNCES EXHIBITORS FOR 2020 MUMBAI EDITION



The show is India’s largest gathering of Denim manufacturers and is now all set to be launched in Mumbai after tremendous success of its New Delhi edition.

Denim has transcended all boundaries of fashion to emerge as a highly versatile fabric that can be put to use in diverse applications. In tune with the fact that it offers limitless opportunities for its stakeholders, the organisers of India’s most comprehensive exhibition on Denim – ‘Denim Show’ - have expanded its span and taken the show to Mumbai. The show’s New Delhi edition is already very popular amongst industry professionals and sees participation of almost every major brand in the country. It became the largest denim value chain show in the country with its 2019 edition clocking record number of exhibitors and visitors.

The Mumbai chapter of Denim Show is a premium show that will attract quality buyers from across the globe. With the combined strengths of MEX Exhibitions Pvt. Ltd. and Messe Frankfurt Trade Fairs India, the show is aimed at bringing the most influential brands of the industry under a single roof. This year, participation has been confirmed by some of the leading names in denim including Raymond UCO Denim Pvt. Ltd., Jindal Textiles, Nandan Denim Limited, Ginni International, Arvind Limited, Partap Spintex Pvt. Ltd., Vinod Denim Limited, Anil Exports, LNJ Denim (Unit RSWM Ltd.), Oswal Denims, K.G. Denim Ltd., Vishal Fabrics Ltd., Ultra Denim Pvt. Ltd., Mahak Synthetic Mills Pvt. Ltd., Hans Denim (Mahak Creation Pvt. Ltd.), Deval Distributor, Sidhi Weaves Pvt. Ltd., PP Texo Denim, Suryalakshmi Cotton Mills Limited, Anubha Industries, Lenzing Aktiengese-

ellschaft – India, Vardhman Threads, Dystar India Pvt. Ltd., Indorama Industries Limited (INVIYA), amongst several others.

These companies will showcase their best-in-class products, solutions and technologies, enabling buyers to explore endless sourcing options for their business ventures. Besides this, Denim Show will also be instrumental in providing a platform for effective buyer-seller networking that will assist them in forging long lasting professional bonds. The show is targeted at any company – big or small – that aims to create a space for itself in this highly competitive market.

Denim Show will be held from March 19-21, 2020 at Bombay Exhibition Centre in Mumbai. Visit www.denimshow.com for more details.

TEXCARE FORUM INDIA - LAUNDREXNET TO FOCUS ON DIGITISED SOLUTIONS IN THE WAKE OF TEXTILE CARE SECTOR IMPLEMENTING INDUSTRY 4.0

Texcare Forum India - LaundrexNet 2020 is scheduled to be held in India with the aim to provide best-suited digitised and automated solutions on laundry and dry-cleaning.

Organised by Messe Frankfurt India and Virtual Info Systems Pvt. Ltd, the one-day conference Texcare Forum India - LaundrexNet will take place at the Bombay Convention and Exhibition Centre, Mumbai on 15 February 2020. The conference is being held concurrently with Laundrex India Expo 2020 and will highlight on digitalisation in laundry & dry cleaning business, introduction of newer and innovative technologies, elevating customer experience and future industry trends with impactful panel discussions; giving an opportunity to the attendees to gain advantage from flowing knowledge on business success in the industry.

Renowned industry experts from Germany, UK, Singapore and India, including Mr Elgar Straub - Managing Director of VDMA Textile Care, Fabric and Leather Technologies, Germany; Mr Andrew Glassford, Director, New-

Gen Business Services; Mr Keith Tan Chee Meng - Regional Sales Executive at JENSEN; Mr T M Nagarajan - Vice President at Wipro Water; Mr Sagar Sodha - Zonal Head - West at Jyothy Fabricare Services Ltd; and Mr Venkata Chary - Vice President - Business Development at World Water Works India Pvt. Ltd., among other top speakers will be addressing the laundry and dry-cleaning industry.

The one-day conference is expected to witness a notable presence of over 150 attendees, and will emphasise majorly on textile care implementing industry 4.0 and challenges that come in hand with it. The fourth industrial revolution will make the laundry supply chain systems more responsive, allowing businesses to reach end customers directly and tailor their business models accordingly with an opportunity of mass customisation and increased interaction.

A special session on "How to Escalate Laundry Business Profits & Performances" will be conducted by the industry experts to discuss proven practices, including right marketing & sales strategies, to help increase

profits and scaling-up the dry cleaning and laundry business.

Texcare Forum India is a sister event of Texcare International, the world market for modern textile care. Every four years, Texcare International provides an international venue for the textile-care sector in Frankfurt, Germany. The upcoming Texcare International will be held from 20 - 24 June 2020.

For more information about the event, please visit

www.texcare-india.in.messefrankfurt.com and for further details about Messe Frankfurt's textile care shows www.texcare.com/brand.

Virtual Info Systems Pvt. Ltd, which has successfully completed 20 years, is the organiser of leading trade shows, including Clean India Show, Laundrex India Expo, Waste Technology India Expo, Car Care Expo, Smart Mobility; and Conferences. It is also the publisher of renowned publications Clean India Journal and TrafficInfraTech magazines. For further details, please visit www.visgroup.com

➤ NEWS



Mr.J.K.Srivastava, B. Sc, MBA, has been admitted as Fellow of the Society of Dyers and Colourist (FSDC) U.K.

Achiever of the Year.....

and awarded an Chartered Colourist, (CCol) by this Society in October, 2019 based on his contribution and work experience in the field of Coloration for Synthetic Fibers via Spin Dyeing technique, wherein the Color Concentrate termed as Masterbatch is added to the polymer prior to the melt-spinning process .In this process, the use of the precious resource like water is largely eliminated and thus environmental sustainability of the products is enhanced.

Prior to Fellowship conferment he had been elected an Associate, ASDC, benchmarked by NARIC an equivalent to U.K. Bachelor Honors Degree in Colour Science and Technology by The Royal Chartered Society and Colourist U.K. in the month of May-2017

Mr. Srivastava is professionally qualified in Textile Chemistry and has vast experience of more than 35 years in various capacities in Synthetic fiber, textile dyeing & processing and research. He is a specialist in dyes and

➤ NEWS

pigments and their application both for conventional (Exhaust dyeing) as well as Mass Colouration (via solid master batches or colour concentrates) systems. He has many technical papers to his credit which has been published in prestigious maga-

zines e.g. Colour Research Application, U.S.A., Journal of SDC U.K., Indian Journal of Textile Research, Man Made Textile in India and Colour Age etc

Keeping in view his contributions in the field of Textile Trade & Industry

and Textile education, Textile Association (India), has awarded him as Fellow of Textile Association, FTA in the month of March, 2019. He is also a Senior Member of American Association of Textile Chemist and Colourist, USA.

➤ EVENT REPORT

TECHTEXTIL NEXT HACKATHON: REVOLUTIONISING THE SECTOR THROUGH COLLABORATION AND SUSTAINABILITY

Bringing inventive solutions and intriguing conversations to the desk, India's very first technical textile hackathon at the last Techtextil India led thrilling debates via a design thinking approach on what's best for the sector on an Indian and Global scale.



Entrepreneurial innovation is driving change across industries. Technological advances and the internet economy lend support to new ways of reaching customers and innovative business models. The technical textiles sector is especially a potent hotbed of emerging solutions to real world problems.

Known as India's sunrise industry, the technical textile industry is undeniably one of the most crucial sectors of India with its 12 widespread application areas contributing massively to the economy. The sector permeates every aspect of our modern living, ranging from fashionable and funky apparel to the far-reaching infrastructure and agriculture, thus raising its prominence even beyond

fashion.

Despite its unprecedented potential, the sector has been bogged down with gaps in knowledge sharing between stakeholders and the lack of avenues enabling entrepreneurial collaborations. While the government has been fairly generous in supporting the sector through subsidies and start-up initiatives, there is an essential need for promoting better awareness and collaboration in the industry. Techtextil NEXT hackathon, as India's very first hackathon in technical textiles targeted such issues and brainstormed considerable ideas for growth of the sector. The hackathon witnessed stirring debates between investors, textile associations, designers, start-ups and entrepreneurs.

With an intense flair for breakthroughs, the founders, investors and other leading professionals like Mr Saumil Shah (Co-Founder of Broadcast Wearables Pvt. Ltd), Mr Rajiv Indimath (An Investor and Co-Founder of High Performance Sports Coaching in Stealth Mode), Mr Mohit Rana (Managing Director- Raina Industries), Miss Neha Rao (Head of Product Innovation, Boheco), and Mr Dayal Mehta (Senior Marketing Manager of Nonwovens, Technical Textiles and Protective Textiles) steered discussions on introducing better standard of innovations.

On the other hand, discussing alternatives to promoting sustainability in

technical textiles, were (Sustainable Development Goals) SDG promoters, textile associations and other major fields of the sector including Mr Shrikar Dhole, (Founder and CEO- SDG Foundation), Mr Anup Rakshit (Executive Director- Indian Technical Textile Association), Mr Mohapatra (Bombay Technical Textile Association) and Miss Niharika Gautam (Advisor- United Nations SDG and Chairperson- All Ladies League).

As these experts led discussions on various challenges faced by the segment, the knowledge and collaboration gaps hampering a sustainable approach and thereby innovation were observed as the two most predominant areas that needed attention. As an example to presenting a prime solution to sustainability, the experts factored the use of biodegradable and recyclable materials as a worthy replacement for pollutive composites, also leading way to fair wages and proper working condition for workers. One of the notable applications mentioned in this space was as follows - The millions of tonnes of plastic dumped in the ocean every year; if used as a replaceable raw material in manufacture of various technical textiles could shrink the extensive use of synthetic composites, reducing the cost of procurement and eliminating excess pollution emitted in the process of their extraction.

On the domestic front, the compre-



hensive seminars and workshops headed by India's Centre of Excellence institutions have proven to be a great knowledge platform for raising awareness about the fast-pacing

sector, however a lack of collaboration still persists within the industry. To resolve this issue, the hackathon flagged integration as the answer. With the dispersed application areas of technical textiles strongly supporting each other through their individual resources and innovations, the sector could achieve exponential growth and garner massive attention towards its flourishing potential.

The Co-Founder of a start-up known as 'High Performance Sports Coaching in Stealth Mode', Mr Rajiv Indimath, shared his impression of hackathon at the end of an enthralling session: "The hackathon has been a

great melting pot and a great platform for expanding horizons and mindset. The sharing of experiences and fresh radical ideas are what made the Tectextil NEXT hackathon so great."

Generating unique takes from across the various streams of technical textiles, Tectextil NEXT hackathon witnessed a brilliant response throughout the session and will lead way to more dynamic discussions as the second Tectextil NEXT hackathon is set to occur during Tectextil India in 2021.

heimtextil

QUALITY OVER QUANTITY ANNIVERSARY EDITION OF HEIMTEXTIL SETS THE THEMES FOR THE NEW FURNISHING SEASON

With a content-driven programme, the 50th edition of Heimtextil delivered strong impetus for the start of the new furnishing season. Sustainability was placed firmly at top of the agenda, outshining all other topics. 63,000 visitors gathered information about the major themes dominating the international industry from 2,952 exhibitors at the world's leading trade fair for home and contract textiles. As expected, the unusually early date led to a drop in visitor numbers.*

'The industry is currently facing huge challenges. And some of those taking part at Heimtextil have really felt this. However: exhibitor satisfaction has remained at the same high levels as last year**. And visitor satisfaction has even increased from 93 to 95 per cent. In addition to the early date, the reasons behind the reduced visitor numbers are mainly down to strong consolidation of specialist shops and developments in the stationary retail trade in the direction of ecommerce. The trend has also experienced an

economic slowdown', explains Detlef Braun, CEO of Messe Frankfurt. 'This is in line with the fact that as many as 34 per cent of our exhibitors rate the current economic situation in the sector as poor, compared with just 18 per cent the year before'.

Industry-focused content in line with the times

The anniversary edition of Heimtextil offered the richest event programme in its history: over 150 lectures and panel discussions, 30 guided tours of the trade fair and numerous other programme events supplied inspiration in relation to the most exciting new products and encouraged exchanges between representatives of industry and trade, design, interior architecture and hospitality. Above all, the highly frequented 'Trend Space' with its unique trend showcase provided important industry content that was absolutely in line with the times. 'Inquisitive traders who make a difference in the market and keep up with the times are gathering in-

spiration for the new season here in Frankfurt. As the world's biggest trade fair, Heimtextil is of existential importance for our industry. No other trade fair offers such a wealth of information', says Ottmar Ihling, spokesman for the DecoTeam and draws a positive conclusion for the Association of German Home Textile Suppliers in hall 8.0. 'We had a great number of visitors to the DecoTeam with good and high-quality customers and delegations from large companies'. Peter Gumbel, General Manager of Aro Artlaender, also draws a positive conclusion about their presence in hall 11.0 and illustrates how the visitor structure at Heimtextil has changed to incorporate more international buyers: 'All the customers we expected to be there were there. Although the German specialist trade was somewhat lacking, as far as exports are concerned, it was a very good fair. Compared to 15 years ago, buyer delegations have certainly become a little smaller, but the decision-makers are

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still at Heimtextil – they may spend a little less time here, but they have very concrete plans’.

All roads lead to sustainability

For the first time, the United Nations Office for Partnerships presented the worldwide ‘Sustainable Development Goals’ at Heimtextil and invited industry participants to take part in an intensive dialogue. ‘Heimtextil was the next step on our tour to present the Sustainable Development Goals in collaboration with Messe Frankfurt’s Textpertise Network and the Conscious Fashion Campaign. The United Nations Office for Partnerships welcomes and appreciates the innovative work of the exhibitors and the variety of sustainable textiles presented in Frankfurt.

The feedback on our booth and talks was extraordinary. Together with Messe Frankfurt and the Conscious Fashion Campaign, UNOP welcomes the opportunity to reach a broad and professional audiences, raise awareness of the goals and galvanise support”, says Lucie Brigham, Chief of Office at UNOP and guest of honour at the Heimtextil opening press conference. Whether start-up or traditional company, no manufacturer will be able to avoid environmentally friendly materials and production processes in 2020. Even big names are placing value on textiles made of certified materials and avoiding plastic packaging. The Krefeld-based company Deco Design Fürus with its OceanSafe brand is one of the pioneers in the field of recycling management. ‘Heimtextil 2020 was an exceptionally successful trade fair for us. The many discussions we have had here have made it very clear: our customers can now distinguish very clearly between greenwashing and cradle-to-cradle recycling’, says Manuel Schweizer, CEO of Deco Design Fürus from hall 8.0.

Know-how for architecture, hospitality and sleep experts

As another top theme, Heimtextil focused on the furnishing of hotels and public buildings. Around 370 companies specialising in contract business and the new ‘Interior. Architecture. Hospitality Library’ illustrated the diverse properties of functional textiles and provided interior designers and hospitality experts in particular with new solutions. ‘We try to view textiles as an architectural element. As such, they give us the creative freedom to freely design the various types of rooms: entrance, zones of well-being, guidance systems. And places that make you want to linger a while. This is where the new materials on show at Heimtextil offer enormous flexibility’, says Fokke Moerel from the MVRDV architecture firm.

An even greater reception was enjoyed by the ‘Sleep! The Future Forum’, with which Heimtextil provided concentrated know-how on all aspects of sleeping and exciting product innovations in the fields of sleeping systems, bedding and bed linen. Here, too, experts dealt with the question of the challenges manufacturers face if they want to operate and produce sustainably. The panel discussion ‘Securing the future of the next generations – sustainable strategies for manufacturers and retailers’ was one of the highlights of the four-day programme. It presented practical examples from Lenzing, Vossen and IKEA and introduced the new state-run ‘Grüner Knopf’ textile seal and the global Sustainable Development Goals of the United Nations to the interested trade audience.

The next Heimtextil will take place from 12-15 January 2021.



DOMOTEX 2020: AN EVENT MARKED BY SUSTAINABILITY, HIGH-CLASS ATTENDANCE AND INTERNATIONAL APPEAL



From 10 to 13 January, the latest edition of DOMOTEX – the world’s leading showcase for carpets and floor coverings – again stood out as the industry’s biggest, most pivotal hub for trends and innovations. A total of 35,000 attendees – 70% of them from abroad – were on hand for the four-day event to explore the latest trends, products and solutions presented by over 1,400 exhibitors from more than 60 different nations. The show’s keynote theme of “ATMYSHERE” highlighted the aspects of flooring prod-

“We have been truly impressed with the positive reception and special spirit at this year’s DOMOTEX. The attendance figures reflect an ongoing trend towards increased market concentration. The further rise in the percentage of high-caliber professionals is an important factor in business growth for 2020. Around 90% of the show’s visitors have decision-making authority at their companies, with half of them at top management level,” noted Sonia Wedell-Castellano, Global Director for DOMOTEX.

scout Andrés Jobet of Piso Urbano Alfombras, based in Santiago, Chile.

The high quality of this year’s event was also highlighted by Arman J. Vartian, proprietor of Vartian Carpets in Vienna, who had this to say after returning to exhibit at DOMOTEX following a five-year hiatus: “It seems to us that DOMOTEX is heading down the right path. The stands are now more attractive and appealing, and the show is clearly committed to supporting our industry.” Anke Hattingh, Marketing Director of Mapei GmbH in Grossostheim, Germany, praised the great diversity of exhibits as a “major source of inspiration.” And according to Bernhard ter Hürne, CEO of ter Hürne GmbH & Co. KG in Südlöh, Germany, “In terms of its reach, DOMOTEX delivers like no other European tradeshow can.”

Olivier Bossuyt, Sales Director at ivc group in Avelgem, Belgium summed things up by saying: “We opted to return to DOMOTEX after a two-year break because the show’s strong international pull enables us to meet with important trade partners and generate promising new leads – a fact reconfirmed by DOMOTEX 2020.”



Impressive visitor mix: high in quality and internationality

Exhibitors affirmed the success of their industry’s flagship fair with regard to two key performance indicators: “Our main concern here is not high attendance figures, but rather the right kind of attendees,”

ucts that contribute to a sense of wellbeing and promoted naturalness and sustainability – topics thoroughly reflected by the products on display.

“DOMOTEX is and remains our most international tradeshow. We are delighted that the event attracts attendees from around the globe, who come for 2.3 days on average – 60% from Europe, 25% from Asia and 10% from the Americas, with the remainder from Africa and Australia,” said Dr. Andreas Gruchow, the Deutsche Messe Managing Board member in charge of DOMOTEX.

xplained Hakan Dinc, CEO of Stefany Hali Tekstil in Turkey. This aspect was also clearly appreciated by visitors: “I made the decision to come to Hannover because this is where I can see what is happening across the global marketplace, which enables me to make the right choices for our customers,” remarked trends





One out of two attendees generates new leads at DOMOTEX

Based on this year’s visitor survey, almost half of all attendees (44%) used the event to generate new leads. Fred T. Keller, Marketing Director of Theo Keller GmbH in Bochum, Germany, reported a high number of walk-in visitors and new customers. He attributed this mainly to ongoing enhancements to the event, particularly the new hall layout launched in 2020, which he saw as a major step forward. “This new design has resulted in many more spontaneous customer contacts than previously, and we couldn’t be more delighted. DOMOTEX is definitely the most important trade fair for us.”

Attending DOMOTEX was also a “must” for Mirco Schäpe, Product Manager LVT at JAB Teppiche Heinz Anstoetz KG in Herford-Elverdissen,

Germany. He spends several days at the event every year to meet up with existing and potential suppliers and “get a feel for emerging trends,” as he put it. Michael Massmann, National Sales

Manager & Vice President of Textile Trading Group, Winter Park, USA, said he used DOMOTEX mainly to generate new leads, adding that: “We are naturally also keen on establishing new, preferably long-term customer relationships, while at the same time deepening our relations with existing customers and suppliers. We have attended every DOMOTEX since our business was founded three years ago, and that’s not going to change.”

“ATMOSPHERE” as a common thread

The show’s keynote theme was also well received by exhibitors. For example, Bernhard Reinkemeier, CEO of Reinkemeier Rietberg based in Riet-

berg, Germany, referred to it as being a “good match” for his company’s objectives, adding: “We very much welcome the keynote theme and its flanking measures, all of which are highly attractive and have helped us reach our goals.”

“The keynote theme perfectly reflected the spirit of the times, and its significance was clear to see throughout the halls. We are already busy exploring ways of featuring sustainability to even greater advantage at DOMOTEX 2021,” remarked Wedell-Castellano. “I also very much look forward to teaming up with the show’s players from the business community and the skilled trades so as to generate even more benefit for the industry and its clientele next year.” The next DOMOTEX will be staged from 15 to 18 January 2021 at its traditional venue in Hannover, Germany.



“ZERO-HARM CULTURE IN MANUFACTURING” IS THE NEED OF THE HOUR IN TODAY’S SOCIAL REVOLUTION’ SAYS JUGAL KISHORE PANSARI, PRESIDENT, ITAMMA.

Mr. Jugal Kishore Pansari, said that we may develop state-of-the-art innovations, however in order to sustain it commercially in today’s International Market following the trend of Social Revolution, aspects like “Zero-Harm Culture in Manufacturing” are very essential.



Welcome speech by Mr. Jugal Kishore Pansari, President, ITAMMA

I am pleased to share that we have signed a collaboration agreement today at a ceremony in Mumbai to further the need to promote the Zero-Harm Culture across various Machine Manufacturers in India.

The partners to this mandate shall be ITAMMA and SITRUST-the Global Skill Center for Occupational Safety institutionalized and conceptualized by Siemens in India with support from Siemens Germany.

Apart from working on promoting the Safety culture we shall jointly work towards developing competencies of professionals through our concerted efforts and the vast global knowledge base that Siemens brings along with it.

Accordingly we organized an “Interactive Session” of Experts on the topic “Importance of Safety, Innovation, Patent and Exports for the manufacturers’ of Textile Machinery and Accessories.” Whereby Ms Anupam Nidhi, Head - Corporate Citizenship at Siemens AG having Post Gradua-

tion in Management from Symbiosis, Pune, Masters in Labour Law, and Honor’s degree in Agriculture with 18 years of experience in both corporate and development sectors with roles spanning from advisory, strategic planning to execution; has contributed her views and suggestions on Safety Manufacturing and the further Road map of ITAMMA and SITRUST-the Global Skill Center to take it further through training programmes. We shall be creating need based modules for the Textile industry and the members of ITAMMA from our exhaustive content of Machine Safety, Occupational Safety, Material-Handling Safety, Infrastructure, Electrical Safety etc. said Ms Nidhi.

Dr. Gopakumar G. Nair-Registered Patent & Trademark Attorney (IPR Consultants & Advisors) having Ph. D & M. Sc. Organic Chemistry, L.L.B Mumbai University, IIT Post Doc. Fellow (CSIR), Diploma in Management (Jamnalal Bajaj Institute),(Operations/Marketing), Diploma In Patent Law & Practice, (Institute of Intellectual Property Studies), with 40 years’ experience in Pharmaceutical and Chemical Industry explained the importance of “ Patent Registration” in order to safeguard your interest and sustain commercially in the Global Market. He has given number of Case Studies to understand the severity of this aspect in a very simple way.

Mr. Laxmikant Rathi, - President, Ideal Group of companies with Master of Business Administration (M.B.A.), Diploma in international trade management in NMIMS, Engineer’s Degree in Textile in VJTI and Licenses & Certifications in Leadership Development for top management at ISB Hyderabad; informed the importance of Innovations and technology driven products while exporting in International Market. He also informed on his wide experience the scope of exports for In-

dian products in International Market and the countries encouraging the Indian Textile products.

Mr. RT Doshi - Sr. partner of PC Ghadiali & Co LLP is qualified chartered accountant, company secretary and law graduate and academically gold medalist in graduation, with 14th rank holder in CA examination having 40 years of varied experience in Industry informed

Mr Kirti Rathod, Chairman of the Award Sub-Committee was the Moderator of this Session making a very fruitful and live.

We all are aware that today connectivity is the main MANTRA of success. ITAMMA have been connecting its Members with the various organizations for enriching knowledge and enhancing business through the MOUs being signed with more than 28 agencies at National level and about 10 agencies at International level. Today also we signed MOU with SITRUST-the Global Skill Center for Occupational Safety institutionalized and conceptualized by Siemens in India with support from Siemens Germany for organizing trainings on Safety Manufacturing.

We have also exchanged MOUs already signed during last week with Binational India-PERU Chamber of Commerce (INCHAM-PERU) and with Association of GHANA Industries (AGI) to foster cooperation and understanding for promoting the development of bilateral trade and investment between India and both the Countries in the textile sector.

We also had Award Function whereby “ITAMMA Export Excellence Awards for 2018-19” were offered to about 13 members in various categories whose details are given below.

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Sr. No.	Details on the Award	Who Received
1	M/s Lakshmi Ring Travellers (Cbe) Ltd., Coimbatore for winning TOP RANK Award under the category "Spinning Accessory Sector-Large Scale Manufacturers" [Jayantilal Roy Endowment Fund] ITAMMA EXPORT EXCELLENCE AWARD (2018-19)	Mr. Jagan Mohan Balaji, Head Marketing
		of the Company
2	M/s Century Inks Pvt. Ltd., Mumbai for winning TOP RANK Award under the category "Processing Accessory Sector -- Micro, Small & Medium Enterprises (MSMEs)" [Jayantilal Roy Endowment Fund] ITAMMA EXPORT EXCELLENCE AWARD (2018-19)	Mr Om Prakash Mantry and Mr Pi-yansh Mantry
		of the Company
3	M/s Maksteel Wire Healds Pvt. Ltd., Vadodara for winning TOP RANK Award under the category "Weaving Accessory Sector-Large Scale Manufacturers" [Jayantilal Roy Endowment Fund] ITAMMA EXPORT EXCELLENCE AWARD (2018-19)	Mr. Ankur Patel, Manager Operations
		of the Company
4	M/s Precision Rubber Industries Pvt. Ltd., Mumbai for winning "Highest Export Excellence Award" under the category "Accessory Sector" [Jayantilal Roy Endowment Fund] ITAMMA EXPORT EXCELLENCE AWARD (2018-19)	Mr. Diven Dembla, MD, Mr. K. Padmanaban, VP Sales & Mktg., Mr. O. T. Agarwal, Export Manager & Mr. Prashant Barve, Export Manager of the Company
5	M/s Ideal Sheet Metal Stampings & Pressings Pvt. Ltd., Ahmedabad for winning "Export Excellence Award" under the category "Spinning Accessory Sector-Large Scale Manufacturers" [Jayantilal Roy Endowment Fund] ITAMMA EXPORT EXCELLENCE AWARD (2018-19)	Ms. Khushi Palkiwala, Managing Director of the Company
6	M/s Precision Rubber Industries Pvt. Ltd., Mumbai for winning "Export Excellence Award" under the category "Spinning Accessory Sector -Micro, Small & Medium Enterprises (MSMEs)" [Jayantilal Roy Endowment Fund] ITAMMA EXPORT EXCELLENCE AWARD (2018-19)	Mr. Diven Dembla, MD, Mr. K. Padmanaban, VP Sales & Mktg., Mr. O. T. Agarwal, Export Manager & Mr. Prashant Barve, Export Manager of the Company
7	M/s Gurjar Gravures" Ahmedabad for winning "Export Excellence Award" under the category "Processing Accessory Sector -- Micro, Small & Medium Enterprises (MSMEs) [Jayantilal Roy Endowment Fund] ITAMMA EXPORT EXCELLENCE AWARD (2018-19)	Mr. Kaizar Mahuwala & Dr. Zabeen Mahuwala
		of the Company
8	M/s Gurjar Images., Ahmedabad for winning "Merchant Export Excellence Award" under the category "Textile Machinery and Accessories." [Jayantilal Roy Endowment Fund] ITAMMA EXPORT EXCELLENCE AWARD (2018-19)	Mr. Shubair Mahuwala & Mrs. Sakina Mahuwala of the Company
9	M/s Super Tex Industries., Mumbai for winning "Special Award" under the category of "Micro & Small Enterprises" [Jayantilal Roy Endowment Fund] ITAMMA EXPORT EXCELLENCE AWARD (2018-19)	Mr. Pradip Kumar Pansari, Partner of the Company
10	M/s Yogesh Dyestuff Products (P) Ltd., Mumbai for winning "Special Award" under the category "Dyestuff and Chemical Products" [Jayantilal Roy Endowment Fund] ITAMMA EXPORT EXCELLENCE AWARD (2018-19)	Mr. Jugal Kishore Pansari, Managing Director of the Company
11	M/s Siddhi Engineers, Ahmedabad for winning "ITAMMA PRESTIGIOUS MAKE IN INDIA AWARD (2018-19)" [B. K. Mehta Endowment Fund] ITAMMA EXCELLENCE AWARD (2018-19)	Mr. Shailesh Patel, Partner, Mr. Narendra Thakor, Sr. Innovation Engineer and Mr. Utsav Patel, Production Engineer of the Company

12	M/s Siddhi Engineers, Ahmedabad for winning "ITAMMA OPERATIONAL EXCELLENCE AWARD (2018-19) [B. K. Mehta Endowment Fund] ITAMMA EXCELLENCE AWARD (2018-19)	Mr. Shailesh Patel, Partner, Mr. Narendra Thakor, Sr. Innovation Engineer and Mr. Utsav Patel, Production Engineer of the Company
13	M/s Siddhi Engineers, for winning "Special Award for Recognition of ' Patents for Papers Published' " [B. K. Mehta Endowment Fund] ITAMMA EXCELLENCE AWARD (2018-19)	Mr. Shailesh Patel, Partner, Mr. Narendra Thakor, Sr. Innovation Engineer and Mr. Utsav Patel, Production Engineer of the Company
14	M/s Maksteel Wire Healds Pvt. Ltd., Vadodara for winning " "Letter of commendation" for the category ' ITAMMA PRESTIGIOUS MAKE IN INDIA AWARD (2018-19)' [B. K. Mehta Endowment Fund] ITAMMA EXCELLENCE AWARD (2018-19)	Mr. Arpit Siddhpura, Director of the Company



Mr. Kaizar Mahuwala, Immediate Past President, ITAMMA delivering felicitation speech



Dr. Franco Bonello, Managing Director, Savio India Ltd., delivering the Chief Guest Address



Vote of Thanks delivered by Mr Chandresh Shah, Vice -President, ITAMMA



Felicitation of Mr. Kaizar Mahuwala, Immediate Past President, ITAMMA by Staff Members of ITAMMA

The Award Function was followed by the Programme of "Felicitation & Farewell Dinner to Immediate Past President, Mr. Kaizar Mahuwala," who got an opportunity to be the President of ITAMMA during the very auspicious and historical Platinum Jubilee Year 2018-19.

Dr. Franco Bonello, Managing Director, Savio India Ltd., was the Chief Guest had delivered a thought provoking speech giving insight on the present trends of Textile Industry

in India & across the World. He also mentioned about the scope for India to be the World leader in Textiles in near future based on the statistical figures of the last 2 decades and the estimated growth in coming 4-5 years. He stressed on the diversity / exploring of new markets for increasing the present strength and Exports. Role of Government in formulating the appropriate new Textile Policy and that of Association in pushing and supporting the Units for achiev-

ing the goals will play a vital role. He mentioned about the 75% production is from Powerlooms, at the same time lots of improvements required in Warp Knitting & Wet Processing. While in Garmenting the capacity is very low and needs improvement. He concluded that the future Growth will come in taking care of weak links.

The event was concluded by Mr Chandresh Shah, Vice-President, ITAMMA with Vote of Thanks.

SMART FACTORIES, FTAS AND EMERGING MANUFACTURING DESTINATIONS

**BIGGEST DISRUPTIONS IN TEXTILE SECTOR;
INVESTMENT IN LARGE SCALE FACILITIES, NEW TECHNOLOGIES AND MANUFACTURING EXCELLENCE IS
THE WAY FORWARD FOR INDIAN TEXTILE INDUSTRY SAYS FICCI AND WAZIR ADVISORS TEXTILE REPORT
“WINNING IN DISRUPTIVE TIMES”**

MUMBAI, 24 January 2020: “Global textile and apparel Industry is going through disruptive times. Buyers are looking to diversify beyond China and opening opportunities for other countries. However, China is still disrupting the global value chain and investing in emerging manufacturing destinations like Vietnam, Bangladesh, Ethiopia etc. on a large scale and also building smart factories that will give them a competitive advantage. In order to compete globally and win in the disruptive times, India needs to adopt manufacturing excellence and service orientation” as per a FICCI – Wazir Advisors Textile industry report on Winning in disruptive times released at FICCI TAG 2020 annual seminar in Mumbai today.



Opening session: L To R: Mr Deepak Mukhi, Head, FICCI-MSC, Mr Manoj Kumar Patodia, Member, National Executive Committee, FICCI and VC and MD, Prime Urban Development India Ltd, Shri Sanjay Katkar, Deputy CEO, MIDC, Government of Maharashtra, Shri S P Verma, Joint Textiles Commissioner, Ministry of Textile, Government of India and Mr Prashant Agarwal, Co-Founder and Jt. MD, Wazir Advisors Pvt Ltd

“India comprises a large fragmented industry and hence it is important for large anchor players to engage with smaller players and integrate the supply chain for bringing efficiencies. Further Indian companies need to adopt latest technologies and build smart factories that are digitally enabled with the value chain. Skilling of mid-

dle and top management is also important so that they are geared to follow best practices and build efficient and service oriented business. Indian domestic market is also growing and needs to be serviced with agility” said Prashant Agarwal, Co-Founder and Joint MD, Wazir Advisors while giving a presentation on the report.

Report also stressed upon Government’s policy intervention to help in neutralizing cost disadvantage with global competitors and also help build infrastructure to produce large scale manufacturing zones with focus on manufacturing excellence and sustainability.

Indian industry has become cautious in investing due to global disruptions. We need to have better risk taking capabilities and ability to speedily align with emerging mega trends to remain in the business opined a panel of CEOs during the conference.

Mr R D Udeshi, President – Polyester Chain, Reliance Industries Ltd stressed upon the product delivery time and quality and finishing of product as per the international standard to remain competitive in the global market and companies should focus on value addition and skill development. He also said that Indian textile industry can have advantage over its competitors like China, Bangladesh, and Vietnam etc with the manufacturing excellence and scale of the factories.

Mr Rahul Mehta, Managing Director, Creative Garments Pvt Ltd was of the opinion that Indian companies should stop being scared of scaling up and start manufacturing clothes closer to the place of raw material and cheaper labour instead of being close to the place of market.

Agility, speed and transparency is the key to win in disruptive times said

Mr Rajendra K. Rewari, Executive Director & CEO, Morarjee Textiles Ltd. He also said that we should bring young talent in the business in this disruptive time and to attract this talent we have to change the system of our business and make our industry more remunerative.

Earlier in the opening session, Shri Sanjay Katkar, Deputy CEO, MIDC shared opportunities for Textile Industry in Maharashtra and Shri S P Verma, Joint Textile Commissioner, Ministry of Textile; Govt. of India said that Indian companies should Integrate Market Intelligence and IT in their Processes more efficiently and Utilize textile Centre of Excellence to its full capacity.

The theme of the TAG 2020 conference is very contemporary. In these disruptive times it’s important that the industry experts discuss the issues and challenges and seek possible solutions to overcome those. TAG conference offered an excellent platform for giving a clear roadmap in that perspective said G V Aras, Director, ATE Enterprises Ltd during a panel discussion.

With innovation, technology, versatile fibre availability and ample manpower resources, India should aim to be Superior Quality producer in the world said Anil Nair, President, Shubhalakshmi Polyester Ltd during a panel discussion.

Mr Vikas Sharan, Director – India Operations, Saurer Textile Solutions Pvt Ltd applauded the TAG 2020 conference and said that relevant topics on surviving through disruptive times, sustainability, size and scale of business, investments and interventions for winning the global race, were deliberated by industry’s stakeholders with active participation by the audience.

FIRST INFORMATION ON THE FINANCIAL YEAR 2019

• As expected, sales were significantly down on the previous year, falling by 29% to CHF 760 million

• EBIT margin of around 11% and net profit of around 7% of sales anticipated, non-recurring profit contribution from sale of real estate in Ingolstadt (Germany)

• Order intake up 7% on previous year; order intake amounting to CHF 401.6 million booked in fourth quarter 2019 (4th quarter 2018: CHF 119.0 million)

• First half of 2020 expected to be significantly lower than previous year in terms of sales and earnings

• Further capacity adjustment measures introduced

• Start of construction of Rieter CAM-PUS expected during 2020, subject to granting of building permit

The Rieter Group closed the 2019 financial year, as expected, with considerably lower sales than in the previous year. According to the first, unaudited figures, total sales of CHF 760.0 million were achieved, which is 29% down on the previous year (2018: CHF 1 075.2 million). At CHF 926.1 million, order intake was 7% higher than in the prior year period (2018: CHF 868.8 million). Rieter will publish the full annual financial statements and the 2019 Annual Report on March 10, 2020.

Sales by Business Group

As already reported, 2019 as a whole was characterized by the trade conflict between the USA and China, excess capacity in the spinning mills as

CHF million (unaudited)	2019	2018	Difference	Difference in local currency
Rieter	760.0	1 075.2	-29%	-29%
Machines & Systems	389.0	669.3	-42%	-42%
Components	230.2	262.3	-12%	-11%
After Sales	140.8	143.6	-2%	-2%

well as political and economic uncertainties in regions of importance to Rieter.

Thus, in the Business Group Machines & Systems, with a decline of 42% in the 2019 reporting year, sales of new machines were at a very low level.

Rieter Media Release: First Information on the Financial Year 2019, January 29, 2020

In the Business Group Components, the 12% decline in sales compared to the same period in the previous year is also due to the lower order intake as a consequence of reluctance to invest. Above all, this affected the business activities of SSM and Suesen. The wear and tear parts business continued at a normal level.

The 2% year-on-year decline in sales in the Business Group After Sales is

CHF million (unaudited)	2019	2018	Difference	Difference in local currency
Rieter	760.0	1 075.2	-29%	-29%
Asian countries [†]	293.5	433.9	-32%	-32%
China	136.7	148.6	-8%	-6%
India	99.9	146.2	-32%	-31%
Turkey	66.8	154.8	-57%	-57%
North and South America	105.8	108.6	-3%	-3%
Europe	41.2	47.3	-13%	-12%
Africa	16.1	35.8	-55%	-55%

[†] excluding China, India, Turkey

mainly attributable to the lower volume in the machinery business (low demand for installation services).

The market situation described above

is also reflected in sales in the Asian countries, in India and Turkey. Sales in China as well as North and South

CHF million (unaudited)	2019	2018	Difference	Difference in local currency
Rieter	926.1	868.8	7%	7%
Machines & Systems	562.8	468.3	20%	21%
Components	222.0	260.1	-15%	-14%
After Sales	141.3	140.4	1%	1%

America remained at the prior year level.

Order Intake by Business Group

The Business Group Machines & Systems posted an order intake of CHF 562.8 million, an increase of 20% compared to the previous year. This is primarily due to the fourth quarter of 2019, in which an order intake of CHF 307.0 million was booked. This figure includes orders from Cotton &

Textile Industries Holding Company, Cairo (Egypt), for the delivery of compact and ring spinning systems in the amount of around CHF 165 million.

In the Business Group Components, order intake of CHF 222.0 million was down by 15% compared to the previous year. Due to weaker macroeconomic conditions, order intake in the fourth quarter of 2019 was CHF 49.1 million, lower than in the previous quarters. Overall, the decline in the year under review can be attributed to a low level of investment by customers in the Business Units SSM and Suesen.

With an order intake of CHF 141.3 million, the Business Group After Sales recorded a year-on-year increase of 1%. The fourth quarter of 2019, in contrast, with an order intake of CHF

➤ FINANCIAL UPDATE - RIETER

45.5 million, was significantly higher than the previous quarters, which is largely attributable to the installation services for the Cotton & Textile Industries Holding Company project in Cairo (Egypt).

At the end of 2019, Rieter's order backlog amounted to about CHF 500 million (December 2018, 31: about CHF 325 million).

First Half of 2020 Expected to Be Significantly Lower Than Previous Year in Terms of Sales and Earnings

Due to the low order intake in the 2019 financial year, Rieter expects sales and earnings in the first half of 2020 to be significantly below the prior year level.

Further Capacity Adjustment Measures Introduced

The Rieter Group is planning further measures to adjust capacities due to structural changes in the market situation. This concerns the locations Winterthur (Switzerland), Suessen

and Gersthofen (both Germany), Enschede (Netherlands) and Boskovic (Czech Republic).

In the Business Group Machines & Systems, the assembly of machines is to be discontinued at the Winterthur location. This is expected to affect 87 jobs out of a total of 980 jobs in Switzerland.

In the Business Group Components, a total of 90 jobs are likely to be lost at the locations Suessen, Gersthofen, Boskovic and Enschede.

The consultation processes with employee representatives begin today, January 29, 2020.

With these measures, Rieter aims to cut running costs by around CHF 15 million from 2021. For the implementation of the adjustment measures, Rieter anticipates non-recurring expenses of approximately the same amount in 2020. The goal remains to successfully implement the ongoing innovation program and to be able

to respond quickly to increasing demand.

Start of Construction of Rieter CAMPUS

Rieter applied for a building permit for the Rieter CAMPUS at the end of 2019. The Rieter CAMPUS comprises a new Customer and Technology Center as well as an administration building. The Board of Directors of Rieter Holding Ltd. has decided to start construction work on the Rieter CAMPUS most probably during 2020, provided that the legally building permit is issued in good time.

Profit Outlook for 2019

In financial year 2019, Rieter anticipates an EBIT margin of around 11% (2018: 4.0%) and a net profit of around 7% of sales (2018: 3.0%). This includes the non-recurring profit contribution from the sale of real estate in Ingolstadt in the amount of around EUR 60 million at the net profit level.

➤ FINANCIAL UPDATE - KEWAL KIRAN

KEWAL KIRAN CLOTHING LIMITED

FINANCIAL RESULTS – Q3FY20

Net revenues grew by 13.2% to Rs 126.19 crore EBITDA was at Rs 13.35 crore and PAT was at Rs 11.55 crore Volumes grew by 16% across all brands

Kewal Kiran Clothing Ltd., owners of Killer Jeans and a leading branded apparel conglomerate, has declared its financial results for the quarter ended December 31, 2019.

Key Financials (Rs. in crore) - Consolidated

The Board of Directors had declared interim dividend of Rs 15 per equity share during the quarter amounting to total dividend of Rs 22.28 crore.

Operational Highlights – Q3FY20

- Revenue from "Killer" and "Easies by Killer" together increased by 20.1% on year on year basis to Rs 77.18 crore. The two brands contributed 61.2% to the total net revenues

- Revenue from other brands, Integriti and LawmanPg3 stood at Rs 19.76 crore and Rs 18.16 crore respectively. Revenues from LawmanPg3 grew by 20.7%

Particulars	Q3FY20	Q3FY19	YoY (%)	9MFY20	9MFY19	YoY (%)
Net Revenue	126.19	111.45	13.2%	403.03	369.54	9.1%
EBITDA	13.35	15.53		73.61	84.83	
EBITDA Margin	10.6	13.9		18.3	23.0	
PAT	11.55	12.67		57.26	60.15	
PAT Margin	9.2	11.4		14.2	16.3	

➤ FINANCIAL UPDATE - KEWAL KIRAN

- Jeans segment accounted for 50% to the total net revenues
- MBOs (Multi-Brand Outlets) continued to have largest share of 39% in total revenues. Revenues from MBOs stood at Rs 49.21 crore; an increase of 10.3%
- Revenues from K-Lounge retail stores stood at Rs 19.99 crore; increased by 25.4%
- National Chain Stores (NCS) and E-Commerce have registered revenues of Rs 35.84 crore and Rs 11.19 Crore

Commenting on the Results, Mr. Kewalchand Jain, Chairman & Managing Director, said, "We are delighted to

achieve a growth of 13.2% during the quarter which was primarily driven by volume growth across our brands by 16%, which is very positive sign in the current times. We have seen good demand for our exclusive range of collection during the festive season. We are confident of maintaining better volumes in the coming quarters which will drive our revenues."

He further added, "Domestic consumption scenario is expected to improve further with liquidity situation easing out. We are also witnessing good response for our newly launched women's western wear brand 'Desi Belle'."

➤ BTRA UPDATE

BTRA SCIENTISTS DEVELOPED BIO-DEGRADABLE SUPER OLEOPHILIC AND SUPER HYDROPHOBIC SORBENT FOR OIL SPILL CLEAN-UP FROM COTTON WASTE. SCIENTISTS FROM THE BOMBAY TEXTILE RESEARCH ASSOCIATION CLAIMED TO HAVE DEVELOPED BIO-DEGRADABLE, ECO-FRIENDLY OIL SORBENT FROM COTTON WASTE.

"The developed sorbent can be used to clean oil spills on land surface, water surface and even under water also", said Mr. M P Sathianarayanan, Senior Scientist and Principal Investigator of the R&D project.

There is a great potential for oil sorbents made from natural fibres to replace synthetic oil sorbents like polypropylene. In India, high cotton production is accompanied by generation of tons of cotton waste in each year in textile mills. Most of these wastes are disposed off by burning which in turn increases carbon emission in atmosphere. It leads to global warming and creates environment pollution. Hence, utilization of cotton

waste as oil sorbent will be a value addition and eco-friendly as well as a green initiative to control pollution in a dual manner, opined BTRA Scientist.

Cotton waste procured from textile mills in their various processes such as blow room, carding etc. was cleaned and processed to a non-woven fabric. The non-woven fabric was chemically modified to attain super oleophilic and super hydrophobic property. The chemically functionalized cotton sorbent was found to be superior to synthetic sorbent viz, polypropylene in terms of oil absorption capacities and water repellent properties. Sorbent can absorb 25 to

30 times of oil on the weight of sorbent. Sorbent has sufficient durability to reuse at least 5 to 6 times repeatedly and is bio-degradable under environmental conditions, thereby mitigating its disposal problem unlike synthetic materials.

"The developed sorbent has been evaluated for its efficacy for cleaning oil spill in land surface, water surface and under water, as it is extremely water repellent like a lotus leaf", BTRA Scientist, claimed.

Patent has been filed for this development and we are on the process of commercializing the product, said Dr. Anjan K Mukhopadhyay, Director, BTRA.



loading oil on water surface



Oil soaked sorbent



Lotus leaf effect



Under water oil spill cleaning

WOOL RESEARCH ASSOCIATION'S FACULTY ORIENTATION, TRAINING AND DEVELOPMENT PROGRAMME FOR NATIONAL INSTITUTE OF FASHION TECHNOLOGY (NIFT)

Wool Research Association conducted five days faculty orientation, training and development programme for National Institute of Fashion Technology (NIFT) from 30th December 2019 to 3rd January 2020. Ten faculties comprising of Assistant and Associate Professors from different centres such as Chennai, Bangalore, Delhi, Kannur and Mumbai participated in this five day's event. Two M. Tech. and two M. Sc. students from Department of Fibres & Textile Processing Technology, Institute of Chemical Technology, Matunga also attended the sessions. The training was broadly divided into five days 1st day covered Wet Processing of Textiles, 2nd day Colour Physics and Thermo physiological comfort properties, 3rd day Physical and Ecological testing of sportswear followed by further two days training on warp Knitting Technology, on Raschel and Tricot knitting machines.

Day 1 began with Inaugural session conducted by Dr Mrinal Choudhari, Joint Director, WRA welcomed faculties of NIFT followed by their introduction. In first Technical session Ms. Smita Bait, Asstt. Director delivered presentation on Pretreatment of Textiles. She gave detailed information about the processes, testing, advance technology and low effluent producing chemicals. After the technical presentation demonstration and training on laboratory instruments and machines were given.

Post lunch session Mr. Nilesh Kanagoo, Director, Uttar Techno Consultancy Pvt. Ltd. delivered a lecture on Finishing of Textiles. He gave detailed information about importance of finishing, different types of finishes and explained in detailed how finishing increase the aesthetic look of fabric along with functional properties of the fabric.

After tea break Ms. Smita Bait also delivered a lecture on dyeing of textiles. She spoke about the dyes and their developments and also about the advancement in use of applications.

Day 2: Technical session began with eminent speaker Mr. Dakshesh Desai, Vice President- Business Development, Sohan Dye-Chem Pvt. Ltd, Mumbai. He delivered a lecture on Colour Physics and Computer Colour Matching. He explained about the systems used in colour matching, the various factors playing important role in colour matching, application and the importance of it in market.

Mr. Shishir Tyagi, Assistant Director explained and demonstrated about Sweating thermal Manikin and sweating hot guard plate. He gave detailed information about how thermoregulation of a body is important in different weather conditions.

Post lunch technical session began with Mr. Dakshesh Desai's lecture on "Objective measurement of comfort properties". He gave detailed information about the importance of comfort properties and various parameters related to it and machines available for testing these parameters.

In practical demonstration and training Ms. Seema Patel, Joint Director, Testing explained about all the modules of Kawabata evaluation system and Moisture Management tester. She also explained other testing parameters related to performance of sportswears. Mr. Mayur Basuk, Assistant Director demonstrated the infrared camera and explained in detailed about its working.

Day 3: Day began with laboratory visits, during Eco laboratory visit various instruments like Particle size ana-

lyser, HPLC, Gas chromatography, Atomic absorption spectroscopy, Inductive coupling plasma (ICP) etc were shown and their applications and uses were covered. During visit to Physical testing lab various testing like instruments tensile strength, tear strength, bursting strength, water repellency were shown and explained in detailed.

Post lunch Mr. Sumit Gupta, Deputy Director GOTS and representative of India and Bangladesh, had delivered a lecture on Eco Concern and Sustainability in Sportech Sector. He gave detailed information about the GOTS and explained how important role it is playing to maintain sustainability in textiles sector. He explained in detailed about GOTS certifications in textiles.

There was another lecture by Mr. Mohnish Hasrajani from BASF, Sports and Leisure Performance Materials, on TPU coating solutions for sport textiles. He explained about the processing, properties and applications of TPU and new avenues in textile sector.

Day 4: Technical session began with eminent speaker Mr. Shrillesh Trilokekar, Retired Textile Technologist; he spoke about Warp knitting technology. He gave detailed information about the types of warp knitting, the machineries' used and developments done using these machines.

Post lunch practical demonstrations were conducted in pilot plant on RASCHEL and TRICOT knitting machine. The detailed information about these machines parameters such as speed, production rate was shown and shared. Also it was demonstrated how certain change in parameters can affect the construction of fabric.

➤ WRA UPDATE

Day 5: on last day Technical session began with eminent speaker Mr. Manish Mashilkar Manager-Sales A.T.E. Enterprises Pvt Ltd, Mumbai India. Mr. Mashilkar spoke about the warp knitting machine. The session was informative and useful. Also he showed many samples which were developed on Karl Mayer machine.

Mr. Devvert Ruhela gave lecture on sample analysis and designing of Comez Draw software. He demonstrated how designing of knits on software makes it easier to reciprocate on machine during production.

Training session ended by Valedictory function, Dr. MD.S. Rahaman, Direc-

tor, Wool Research Association presented Memento's to all participants from NIFT. Mr. K.K. Misra, COO, Wool Research Association, presented certificates to all the participants of NIFT. Vote of thanks was delivered by Dr. Mrinal Choudhari.



NIFT faculty members with Wool Research Association's staff



NIFT faculty members with Wool Research Association's staff, and Mr. Sumit Gupta, from GOTS alongwith, Mr. Mohnish Hasrajani from BASF

➤ NEWS

FASHION FOR GOOD SELECTS FIRST START-UPS FOR SOUTH ASIA INNOVATION PROGRAMME



Zack Whaley – Chief Supply Chain Officer of Purfi, Parth Patil – CEO and Managing Director and Ravi Agrawal – Co-founder & investor of Infinichains, Amit Gautam – CEO and Founder of Textile Genesis, Katrin Ley, Managing Director of Fashion for Good, Shikha Shah – Co-founder and CSO of AltMat, Krunal Patel – COO of Indra, Fidal Kumar – Founder and CTO of JSP Enviro, Keshav Deo Sharma – Co-founder of Descatuk. Absent from the image are Graham Ross – Founder of Block Texx and Dr Rachana Shukla – Scientist 'B' at Sasmira. Credits: Umed Jadeja

Today Fashion for Good's South Asia Innovation Programme officially starts with the selection of 9 new innovators. With innovations in raw materials, wastewater management, dyeing

solutions, textile waste solutions, blockchain, AI and machine learning innovations, the first batch of regional start-ups join a global selection of start-ups at the cutting-edge who are

driving the industry's transformation towards a circular system. Fashion for Good's Managing Director Katrin Ley opened the Fashion for Good South Asia Innovation Programme yesterday. Regional launch partners, Aamir Akhtar, CEO of Arvind Mills, Lakshmi Poti, Programme Manager Sustainable Raw Materials at Laudes Foundation (formerly C&A Foundation) and Dipali Goenka, Joint Managing Director of Welspun Ltd., were amongst the jury members who selected the innovators to join the programme.

The selected innovators in the first ever South Asia Innovation Programme batch are: Alt Mat, Block Texx, Descatuk, Indra, Infinichains, JSP, PurFi, Sasmira and Textile Genesis.

"We are staunch ambassadors of industry-wide collaboration. With the launch of our regional Programme in South Asia we strengthen our network and position us to better serve local manufacturers, key supply chain actors, brands and innovators. By

connecting them to our global network and leading players in the fashion ecosystem, we help the innovators' solutions and technologies reach scale." Katrin Ley, Managing Director – Fashion for Good.

Sixteen innovators from across the region attended the launch of the Fashion for Good South Asia Innovation Programme to pitch their innovations for the opportunity to join the Programme. The jury, consisting of members of the Fashion for Good Advisory Council including: Managing Director India at adidas, Neelendra Singh; Director Sourcing at C&A Bart de Meirsmen and Director of Corporate Responsibility South Asia at PVH Corp., Tejas Sampat; as well as regional launch partners: Programme Manager Sustainable Raw Materials Lakshmi Poti of Laudes Foundation (formerly C&A Foundation); Joint Managing Director, Dipali Goenka of Welspun Ltd.; CEO Aamir Akhtar of Arvind Ltd. and Managing Director of Fashion for Good, Katrin Ley selected the final 9 innovators from the group who will participate in the Programme as of today.

"The Fashion for Good South Asia Innovation Programme brings together the most promising innovators whose technologies are set to transform the industry with manufacturers, like us, on the ground. The platform provides a pool of incredible talent that we can tap into and implement in our own on-going efforts to move our supply chain towards circularity, and we are pleased to support the Programme and lead the way in sustainability." Dipali Goenka, Joint Managing Director – Welspun.

Over the next four months, the 9 innovators, will receive mentoring, bespoke coaching and support from Fashion for Good and its Corporate Partners, as well as access to a global network of partners and like-minded organisations, providing these innovators with the tools they need to grow. With the addition of the new innovators to its Programme, Fashion for Good is seeking to scale these promising innovations from and for this region with a particular focus in raw materials, wastewater management, dyeing solutions, textile waste solutions, blockchain, AI and

machine learning innovations. Launch Partners Arvind and Welspun will provide support for these innovators in the form of local and manufacturing expertise and the possibility to partner on pilot projects to test the viability of their innovations in real-world, manufacturing processes.

In addition to the selection of the innovators, several keynote speakers from across the industry were invited to share their insights and guidance during the launch of the Innovation Programme. Nicole Rycroft, Founder and Executive Director of global sustainable sourcing organisation Canopy provided her perspectives on impact. Bob Assenberg, Director of Good Fashion Fund, which was initiated by Fashion for Good to drive the financing of innovative, industry solutions in India, Bangladesh and Vietnam, addressed the audience on the topic of investment.

"South Asia is a critically important region for the global fashion industry, and indeed, one of the priority geographies for Laudes Foundation. We are thrilled to be able to support this group of creative and ambitious innovators who are each contributing to making fashion a force for good." Leslie Johnston, Executive Director – Laudes Foundation (formerly C&A Foundation).

The 9 selected innovators in the first ever South Asia Innovation Programme batch are:

ALTMAT : AltMat (previously Canva Fibre Labs) uses a mixture of mechanical, chemical and enzymatic process to produce industrial fit fibre and yarn made of agri-waste such as hemp and banana waste sourced directly from farmers and hemp producers.

BLOCKTEXX : BlockTexx turns textile waste into a resource, stimulates the production of new products and meets consumers demands to reduce the environmental impact of our everyday clothing.

DESCATUK : Descatuk has developed a process of fibre extraction and yarn creation from grass to produce a fabric that has a similar look to linen but a lighter touch. Grown in the highlands of India, the wild grass needs neither water nor pesticides. Descatuk also has a positive impact on livelihoods

by providing fair job opportunities for locals.

INDRA : Indra has developed affordable, fully automated wastewater management treatment and packaged re-cycling solutions. The process is capable of a variety of water treatment through novel innovations in electro-coagulation, electro-chemical oxidation, two-phase solids separation, disinfection, distillation and pollutant monitoring hardware.

INFINICHAINS : InfiniChains is a leading end-to-end track and trace solution using blockchain, AI and Cloud Computing to help brands and manufacturers to digitise sustainability practices. Through real-time data, efficiency and storytelling, they bridge the fragmented gaps between the different sustainability systems of farmers, manufacturers and brands.

JSP ENVIRO : JSP Enviro treats common effluents with Microbial fuel cells technology. The technology treats effluent water that can be reused, simultaneously producing energy thereby reducing the need for external energy, making it a self-sustainable waste-water treatment.

PURFI : PurFi rejuvenates pre-consumer textile waste back to virgin quality fibres virgin quality products from corporate waste streams to create a closed loop solution. The technology can process cotton, PET, cotton/poly blends as well as separate out elastane.

SASMIRA : Sasmira has a wide range of innovations and one of them is a supercritical CO2 dyeing technology. This cost-effective technique is waterless and does not use any chemicals. The remains of the dye is collected for reuse and carbon dioxide used in the process is recirculated back into the system.

TEXTILE GENESIS :TextileGenesis is a blockchain traceability system specifically created for the apparel sector that focuses on sustainable fibres such as wood-based fibres, organic cotton and organic wool. Consumers can scan the barcode with their mobile device to see the various steps that were taken to create the product..

FEBRUARY 2020

- 5-6 Textile Opporctunities 2020 UK
Worcs, WR9 8ED/UK
<https://www.technical-textiles.net>
- 6-8 YARN FABRIC & ACCESSORIES TRADE SHOW
2019-2020
Panipat /Haryana /India
<http://www.yfatradeshow.com/>
- 10-13 Trade Fairs Trends
Paris / Le Bourget
<https://www.in.messefrankfurt.com/mumbai/en.html>
- 11-12 AI Application & Digi-Tech Summit & Expo
Bengaluru/ India
<http://www.ciiaidigitech.in>
- 12-13 The European Biopolymer Summit 2020
www.wplgroup.com
Zaragoza, Spain
- 12-15 IPF Bangladesh 2020
Dhaka / Bangladesh
<https://www.eventseye.com/fairs>
- 14-16 ITME AFRICA 2020
Ethopia / Africa
www.itme-africa.com
- 14-17 FABEXA 2020
Gandhi-nagar/Gujarat India,
<https://fabexa.in/events.html>
- 15-17 World HRD Congress
Mumbai/Maharashtra/India
www.worldhrdcongress.com
- 15 Texcare Forum India
Mumbai / India
<https://texcare-india.in.messefrankfurt.com/mumbai/en.html>
- 20-23 DTG 2020
Dhaka/ Bangladesh
www.bangla-expo.com
- 25-26 FiltXPO™ 2020
Navy Pier/Chicago IL/USA
www.filtxpo.com
- 25-27 4th ALGERIA FASHION & TEX 2020
d` Alger/CIC Algeria
<https://textyle-expo.com/en/>
- 26-28 Filtxpo – 2020
Navy Pier/Chicago IL/USA
<http://www.filtxpo.com>
- 27-29 YARN FAIR ISTANBUL
Istanbul / Türkiye
iplikfuari.com

- 29 TAI SEMINAR
Vapi/ Gujarat/ India
www.textileassociationindia.com

March 2020

- 2-6 CII Mission on Design
Taipei, Taiwan
<http://www.ciidesign.in>
- 5-6 Texcon – 2020
Indore MP/ India
www.svvv.edu.in
- 5-7 IITEXPO MUMBAI 2020
Mumbai / India
pdexcilmumbai@gmail.com
- 11-13 CHIC 2020
shanghai / China
<http://enmar.chicfair.com>
- 11-13 Yarn Expo 2020
Shanghai/ China
yarn-expo-spring.hk.messefrankfurt.com
- 11-13 Inter-textile Shanghai Apparel Fabrics
Shanghai / China
[hk.messefrankfurt.com](http://intertextile-shanghai-apparel-fabrics-spring.hk.messefrankfurt.com)
- 11-13 PH Value 2020
Shanghai / China
<http://en.phvalue.org/>
- 13-15 HOME TEX EXPO 2020
Haryana / India
<http://www.hometexexpo.com/>
- 17-20 Inlegmash 2020
Moscow / Russia
www.inlegmash-expo.ru
- 17-19 Ind – Texpo March 2020
Coimbatore / India
<https://www.ind-texpo.com/>
- 19-21 Denim Show 2020
Mumbai / MH / India
<https://www.denimshow.com/>
- 19-21 GARTEX INDIA
Mumbai / MH/ India
<https://www.gartexindia.com/>
- 24-27 Intermediate Nonwovens
USA
www.inda.org
- 24-27 INDA Headquarters
Raleigh, North Carolina USA
www.inda.org

LIVA FABRIC WITH CO BRANDING ENTERING INTO RETAIL MARKET



Liva Fabrics

Liva was always launched as a fabric because it is consumer facing brand and the consumer relates to the garments brand as much as the fabric which has made it, so if you see the consumer does not relate much to the fibre, that is why Liva the fabric was launched and it had our Birla Cellulose fibre as an ingredient. We were always launching Liva as fabric only but today what we are doing is we are going deeper into our tagline to say natural, fluid fashion and the consumer finds facing brand like Liva we need to go deeper and share with them the reason to believe why is it fluid, why is it natural and what account and what work we do to make it fashionable because our tagline is natural, fluid, fashion.

Fluidity is something you work heavily on as a fashion team because that need to Liva as a fabric, flows, dress you can call it in that language but fluidity is more of an emotional connect with the consumer. It also stands for effortless, dynamism, deep flowing nature, moving on. That's how we work on the fluidity part.

Natural part we have Liva Eco launched about a year back, just to really share about the sustainability, co-efficient of Liva fabric, and its 5-6

benefits to the consumer, that's the rework we have taken on the natural part. Sustainability is quite an important aspect for the globe today. Fashion and clothing industry has a role to play in 2 ways. Team has rolled up the whole

more sustainable manufacturing process. In Viscose we have a packet of benefits, because when you tell a consumer that we make fibre from wood, they would wonder whether we are giving the rights to forest or social forestry. Liva Eco has 100% FSC certified fibre. And all of Birla cellulose 100 percent of our produce are certified by either FCEP or FSI. In Liva eco it is only FSC because that is treated that of gold standard by brand, so the fact is that every product is certified and this is FSC alone others we have FSC FSI PFC all blended together. None of it for us is non certified so we are already up there for sustainability. Liva Eco is about the manufacturing process and we are working on the close loop manufacturing system, so we are having a clear roadmap for EU backed – respect available technology of EU. For Liva Eco water consumption is the lowest, it creates less than 20 cubic meters for a ton of fibre, if you see the global websites they say that 200 cubic meters per ton of fibre, and the norms are so high. Water which is an important element for any country and more for in India Liva Eco has the lowest. Then for another manufacturing aspect the close loop is over which we are working on and water what we have shared. And the third one is speak index we have a facility of speak/heat index

called for 350. For Birla Cellulose, has more than 89 as a score for us, city index on a scale of 100. So the world average is less than 50. This rates us right on top on the way we create of systems and our synergy working so that is also available for Liva Eco and that is good enough for all. Liva Eco the fourth point is that it has a greater insight, you can see the origin of the fibre, you can know whether it is Liva eco or not, even at the garment stage, fabric stage, yarn stage, pre-yarn stage, if a small sample is given we can tell whether it is Liva eco or other fibre. The fifth one is a block-chain traceability system. To the consumer if the brand wants to pass it on to them, to see the entire chain from forest to garment. Then we also offer branding services for Liva eco, sharing marketing stories. Thus these are the differences of Liva eco which make it the most sustainable fibres of any calibre in the world.

Consumer activities are we planning for future

Liva fabric is already available for last 4 years, but we make innovations share with you. Since the last 4 years that we have launched we are known as Liva fabric only. Now looking into what is new, the Liva Eco collection is new completely. Then Liva eco viscose and liva eco modal, then Liva Eco liosel we have our collection. We have Liva eco fabric for menswear also. Liva has been a part of a forum for making menswear fabric for Liva. Now we have women's day launch coming up for Liva, Within the fabric, there has been more of innovations in different structures amidst specially, in the world of new structures amidst, which is even flatness which has come out with new collections, it blends with acrylic, blends with redefining wool, so that's modal which is

➤ BRAND UPDATE

new. Then from the viscose perspective, water and viscose has been having on real time fighting because on the yarn stage it is much lower than cotton. Cotton was and viscose vet have been the new product which gives the benefits of both the fibers. You can get the fluidity and works in a balanced way, both viscose and cotton have a similar orientation. But with the value chain get uniform dyeing in most of the colours, because the same class of texture is used for dyeing both cotton and viscose and normally deeper absorption, and higher sheen. To make it solid also we have done some research here and have been able to do earlier solidity in most of the colours. Water viscose blend has been going along for long but here we have got some exclusive prints. Every 2 month we will be having prints collection, the 6 month collection will be starting this year. These are the fabric aspects which shun new in Liva.

Liva Fabric Availability in International Market

We penetrate in 6 countries deeply where Liva fabrics are available. Every liva fabric should have liva standards, it should have a set of parameters, it should pass through a set of replications it has and also it should also have LAPF, Other than in India, they also do it in Bangladesh, China, Turkey, Indonesia, Sri Lanka are the markets which we are deeply working on. There has been a major shift in the last 9 months. Our teams are working with the plans that we have created mostly for Liva Eco and Liva. These markets are really important for us. We have good customers in Italy, Pakistan and Thailand but we have not gone deep there. The above mentioned 6 markets are very important for us since we have brands and Liva fabrics there.

Liva Studio across World

We have our studios, opening of a studio next month at Jaipur, we will sending invite, similar to what we have in Noida and Tirupur, New York. The next studio is coming up at Jaipur,

because it is a very important garmenting centre today for domestic brands. Large garment stores mostly purchase garments from this region hence this region requires a good fabric supply and also a system which helps them understand the specifications, the technical things and the services required for brands.

Liva Fabrics in Retail Market

Yes, that is also available like Ruby Mills is our partners, we have a huge number of fabric which is available off the counter. Busy Lizzie is a big name for Ruby, Busy Lizzie with Liva or powered by Liva. It is more of a co-branding thing. Liva as a fabric is available in retail for women's wear in these 3 stores ie. Ankur textiles of Arvind group, Mafatlal stores and Ruby Mills Stores. Liva is marked and tagged as Liva and it will be mentioned as powered by Liva., Mafatlal by Liva. In garments also we have co-branding and you do not get Liva garments. Similarly for fabrics it is co-branded with a fabric partner.

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Vora
Associates

Digital, Knitting, Embroidery, Plain
Dobby, Jacquard Fancy Garentment Clothes

Export & Import

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MIP ENTERING INDIA WITH HIGH PERFORMANCE TEXTILES



TOR LUND, President & CEO
MIP Inc

Company background and objective of entering brand in the Indian market.

MIP is a manufacturer and distributor of high performance textile and related products to healthcare facilities and distributors and outsourced laundry service providers. The company is a market leader in Canada and enjoys significant and growing market positions in the United States, United Kingdom and continental Europe. MIP has manufacturing facilities in Quebec, China and Germany. MIP is owned by Banyan Capital Partners, a Canadian private equity group, and its senior management team.

Objective of entering brand in the Indian Market:

“The Indian health care market is growing rapidly and increasingly becoming more sophisticated and we have had the fortune of teaming up with a local team that has the

passion, dedication, knowledge as well as shared values with the MIP culture. In addition, there seems to be an increasing need for high quality textile products that support the world class medical infrastructure and expertise that currently exists.”

Investment in Indian market.

MIP INC will heavily invest in training of the executive, who will be front line service provider. Primary objective of MIP INC focused is product handling on end to end cycle basis. Reducing human touch during handling is a big challenge and that is the prime rea-

son for taking up ‘Train the Trainers Program’. This team will be able to provide training to each hospital and nursing home executive, who will be handling the product on a daily basis. Team from India will be stationed at Scotland for over 15 days to take this training in the month of January 2020. The year 2020 will be a pilot project for MIP to get into various hospitals and care giving centres for evaluation of life cycle cost. This full year will be dedicated to learning and understanding the pain and pleasure of the user and bringing changes to the product and customizing the products accordingly. 2020 will be Year of Investment for training and collecting data from India on their need.

Marketing set up.

We are starting with marketing setup, shipping time from Shanghai is just 18 days by sea so the supply support will not be effected at the moment.

Manufacturing set up in India is a part of the future plan.

Direct entry

MIP INC would like to keep the control under the brand itself. Simple reason, product handling is an important part and without the learning and knowledge our Product will not have the correct representation. So, now we will be in full control of the market through our own executive.

Expected revenue, market share in first year of entering Indian market.

Year 2020 will not have any business expectation neither we will go for aggressive marketing. So, our financial projection will have no numbers for India.

Product range in brief and its price.

MIP INC as a brand and manufacturing unit produces anything on Bed, anything on nurse or on doctor that any hospital or nursing home uses. Since we are a manufacturer, who believes “Every product is not suitable to everyone”, we will be customizing each of our product and the price will be worked out jointly in discussion with each unit.

Distribution channel model in India.

We aim to establish point of contact at all the metro cities of India within 2020 and very next year we will be able to take a call on what is best suitable for India

Promotion strategies for branding in India for brand awareness.

Our marketing team based out of Canada is yet to finalize the best method of awareness programme other than our team direct interaction with various units of India.

INDONESIA EMERGING BETTER MARKET FOR INDIAN TEXTILE MACHINE MAKERS



RAGHUNATH KHADILKAR
Director
Phoenix Textile Engineering

Pune based , Phoenix Textile Engineering is a 3-decade old organization that caters to the needs of yarn and fabric manufacturers across the world. In an exclusive chat with Textile Value Chain, Raghunath Khadilkar, Director of the company says some of the key trends in the Indian textile industry like banks declining loans for spinning mills stating cotton price fluctuation, Bangladesh venturing into newer segments and increase in the adoption of Indian products on along with the other global counterparts.

Raghunath says that the situation is not-so-good as in recent times, there have been no big projects coming to India. If there are no OEM or supplier orders, there will not be any orders for the replacements too. According to him, many companies from China outsourcing their yarn projects to Bangladesh and Vietnam and thus the demand for winding machines had reduced to a great extent. "Bangladesh today depends fully on the textile in-

dustry. Now they are getting their roots deeper with yarns, cotton, spinning and even to the level of procuring the raw materials.", he says telling that Indian companies should think innovatively in terms of technology and geographical reach to match the global competition.

New Markets and focus area:

Phoenix has a market share of more than 60% to 70% in the India market supplying 1.3 million parts of Uster brand. The Indian supplier is

getting upgrading according to the industry demands. "Our thought process should align with the needs of the market. There are many talks around geo-technical, technical textiles, medical textiles. Thus we will be supplying machines and equipment for such manufacturing", says Raghunath further adding that Indonesia a better market for exporters. According to him, Indonesia is a better market for machine manufacturers. "There is a lack of engineering in that country. If a machine life is said to be for 2 years, Indian textile entities have the capability and back-end support for more than four years, thanks to their extreme knowledge in the background. However, the same product most of the textile entities in Indonesia might not want to take the risk and will be cautious when the machine ages to 1.5 years", he said. Raghunath also recalls the construction of the plants in Indonesia-proper layout, ample space between machines and after-support mechanism.

On the focus area of the company, in terms of machines, he said, Pawan Bandh Yarn Splicers and Pawan Yarn Suction Devices. "The key challenge, Indian machine makers face is the price factor. There are many agents across India selling products that look-alike like a quality product but at a cheaper cost. While the look and feel might be almost equal, there will be a huge difference in the price factor", he concluded.

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REFUBRISHED RINGS ARE KEY COST-SAVING FACTOR FOR SMALL TEXTILE UNITS



B MURALI MOHAN
Founder
Bezz Enterprises

Mumbai based Bezz Enterprises is in the production of spinning rings for more than 4 decades in India. They majorly focusing on companies that are in yarn-spinning. Their key idea is to bring innovation and ideas in spinning rings at affordable rates. B Murali Mohan, Founder of Bezz Enterprises spoke on why refurbished rings are a boon for small companies at this economic slowdown.

Speaking on the same, Murali Mohan said, "While the original cost of the ring from a manufacturer costs around INR 180, we can provide a refurbished product at the rate

starting from INR 60 which can be the best alternative for companies wanting a replacement of faulty machines and want their productivity not to suffer"

According to him, the market size is huge in India with close to 5 Thousand spindles across the country which is equivalent to 4 to 5 cores of rings. The average life of spring rings are around 5 years, while the synthetic spring ring can be used around 3 years on an average. "India is in a tough phase because we are producing rings and selling it to China. There is also competition from Vietnam producing yarn at a rate lesser than India, a major challenge faced by India.", he said.

"Currently the spinning mills have to replace the rings for every 5 years for better productivity. A hard chrome plating plot is the major unit of the refurbishing process. In India, hard chrome plating process is vital, thanks to the wide market we have. The key markets for refurbished rings are in Maharashtra, Punjab, Rajasthan, Gujarat, and Andhra Pradesh", he says.

Speaking on the advantages of refurbished rings, he says, that for the long terms use, cheap-cost of rings will be the key element in the coming days. " Speaking on the merits of his product, he said, better productivity is the major element of my rings. We believe small-medium textile companies which are going through challenging times should adoptive cost-saving measures to avoid a further loss", he says.

On suggestions for small companies, in terms of technology, he feels that modernisation and development is the only way that makes the textile industry to develop to the next level. "We are in the firm belief that the textiles miles and small industry players should adopt latest technologies development only way to make success. The companies which refrained from adopting technologies had lost in this negative wave textile sector is going through", he concluded.

Business Information :

TYPE OF ORGANIZATION :

Manufacturer Consultant

Trading Company Association/Council

Dealer/Agent/Distributor Government Office

Retailer Education Institute

Merchant Exporter/Importer Research Center

Service Provider Testing Center

VALUE CHAIN SEGMENT :

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Yarn/Spinner Trimming

Fabric Fashion Accessories

Processing Fashion Designer

Garment Retail

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texcare

forum **INDIA**

LaundrexNet

15 February 2020

Bombay Convention & Exhibition Centre,
Mumbai

Industry Turning to Laundrex 4.0

Messe Frankfurt India and Virtual Info Systems Pvt Ltd are organising **Texcare Forum India - LaundrexNet 2020**, a comprehensive forum on Laundry, Dry-Cleaning and Textile Care, scheduled on the **February 15, 2020 at Bombay Convention and Exhibition Centre, Mumbai**. The conference will be held parallel to Laundrex India Expo 2020 –India's exclusive and only exhibition for the laundry segment.

The forum convenes industry experts and thought leaders who are laundromat owners, manufacturers and textile care experts. It is an ideal platform to learn about best-in-class laundry and dry-cleaning products, equipment, latest technologies through a number of keynotes, presentations and panel discussions while getting an opportunity to also network and interact closely with top manufacturers, suppliers, service providers and other industry professionals.

Who should attend?

- Service Providers
- Government Laundries
- Laundry and Dry-cleaning Store Chains, Franchisees and Consultants
- RFID and Tracking Systems
- Laundry & Housekeeping Managers from Hospitality, Healthcare centres, Hostels, Manufacturing Industries

Key Topics of Discussion

- Industry 4.0 - Atomisation & Digitalization of Laundry & Dry Cleaning
- Indian Railways talks to the Industry
- Best Practices to Differentiate Laundry Care Business
- The Science of Drying Clothes: Wet Cleaning and Dry Cleaning
- Linen Talk: Evolving Linen and Emerging Trends

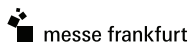
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