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# TEXTILE VALUE CHAIN

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Anniversary  
issue

Textile Industry  
Sees Good  
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2022

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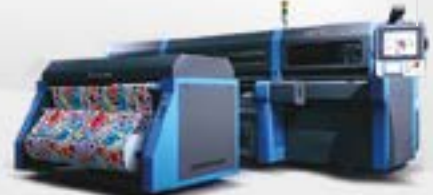
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## MAKING USE OF THE 'NEW NORMAL' SITUATION

Three textile-related exhibitions were held in India towards 2021-end and in January 2022. They reconfirmed the industry's faith in the hybrid editions of exhibitions, drawing a good number of footfalls and sentiments mostly of optimism. The 'new normal' feeling of acceptance of the pandemic as an endemic and living with it is prevailing among the industries. This has given the industry renewed enthusiasm to participate fully in the forthcoming events related to textiles. The very fact that there has been a good number of innovations in the textile industry demonstrated that the Covid-19 has not completely robbed the industry of novel products. There were other signs of hopes too. The undiminished interest in R&D by the industry clearly showed that without investment in research there cannot be veritable stake in the future for the industry. Besides, collaborations are being touted among industries to build a stronger foundation for the forthcoming challenges for the industry. Also, some sections of the industry have used this situation for automation and digitalisation and upgraded the technologies. This is commendable.

Many of the contacts that the Textile Value Chain spoke to reaffirmed the cheerful sentiments that all is not lost in the Covid waves and the fact that fashion is an ever-changing factor in the textile sector has given credence to the 'new normal' situation prevalent today. At this crucial turn of events, your magazine, TVC is celebrating its 10th Anniversary by launching its January Issue as the Anniversary Special Issue. We have given importance to innovations, hopeful sentiments for the future by providing space for special features and articles.

What we ask our readers are opinions and views about the developments in the magazine so that we can take care of the future needs of the industry. For ten years we have given serious thought to serious subjects, and we have space to cover more in the months to come. We take the vow to fill the pages with materials that reflect the pulse of the industry. We thank all our readers, advertisers, suppliers, employees, well wishers, critics, industry contributors who have supported us in the journey of 10 years. We expect the same support in the coming years. We look forward to your feedback for improvement to give industry a meaningful contribution through our media.

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# TEXTILE INDUSTRY SEES GOOD RECOVERY IN 2022

TVC Editorial Team

Going by the optimistic sentiments in the textile industry, one can boldly say that the industry will do better in 2022. Hybrid editions of exhibitions and better performance in the last three months of 2021 have given new wings of optimism to the industry, driving out to a large extent the setbacks the industry suffered in 2020 & 2021.

The years 2020 and 2021 were a challenging time for the Indian textile industry. Production schedules slipped and products mix went for a toss. Unfazed by all the setbacks, overall, the industry weathered the storm and a cross-section of the industry that the Textile Value Chain interviewed and spoke to felt that good times are ahead in 2022.

The renewed enthusiasm and optimism came from many fronts. First, towards the 2021 end and the beginning of 2022 gave wings of hopes by way of exhibitions, which are both physical and also digital. The hybrid editions of Techtextil India, Gartex, and SITEX 22 kindled the optimistic strain in the minds of the visitors, who feel that the trend of this 'Phygital' (Physical + Digital) events are bound to continue in the months to follow. Some of the international exhibitions like the ITM in Turkey and the India-ITME are slated to open to the business in the rest of the year 2022.



Many of the chiefs of companies reflect what **Mr. Ripple Patel, Managing Director, Fiotex Cospin Pvt. Ltd.**, says: "The Year 2021 was a full surprise year packed with fear and thrill. Year 2021 was good, Industry had good margins and entire textile value chain flourished positively and overall, it was a big boost to Indian Textile industries. We at Fiotex this year

raised our one step to fulfil our 50% green energy needs from renewable energy and this year we achieved 30% of our needs with help of renewable energy installing 2.6 MW

WTG. The Spinning Industry had seen a big sigh of relief after last year's bloodshed market, we also focused on efficiency leading to profitability. Also, at the same time we saw a huge price hike in cotton at the end of the year which is a dangerous situation."

On expectation & outlook for 2022, Mr Patel has a word of caution: "Year 2022 will be full of surprises, as Cotton Spinning Industries has seen a good year, but this year will be a bit tough, and Cotton Spinners will face challenges because of lower yield of cotton, this year at the end of this cotton season, we will be net importer of the cotton and this shortfall in crop may lead to disastrous situation. Overall margins will come under pressure. As domestic and international demands are changing, the dynamics also are changing. The textile value chain without China can face some challenges, overall, as a Cotton Spinners this year a lot will depend on domestic circumstances."

Meanwhile, Consumer ratings business ICRA is confident that 2022 will see a stabilisation of India's textile sector with cotton spinning and apparel export segments faring especially well. Cotton spinning and apparel exports could increase by 15% to 20% in the 2022 financial year, it said. Fabrics and domestic apparel segments could grow by between 30% to 35% and 35% to 40%, respectively. However, these segments are expected to have seen steeper declines in the 2021 financial year.

"As demand continues to normalise in domestic as well as export markets, we expect the textile sector performance to recover to pre-Covid levels in FY2022 at a broader level," says a senior from the Corporate Sector Ratings, said. Thanks to vaccination rollouts and increased positive con-

sumer sentiment, ICRA is confident that the worst of the pandemic is over. With economies opening up and a boost in domestic and export demand, the textile sector sees the positive sentiment of the recent third quarter of the 2021 financial year to continue in the upcoming quarters.

At the same time, the global textile machinery industry had its own problems in 2021.



Says **Ms. Verena Ruckh – Head of Marketing & Advertising Dept, BRÜCKNER Textile Technologies GmbH & Co. KG, Germany:** “In general 2021 was a very good year for our company. However, it was characterized by supply bottlenecks especially in the field of electronic components and extreme price

increases for many raw materials. As a result, we were not always able to deliver or assemble our machines on time. In addition, the pandemic was still present throughout the year, making travelling difficult or even impossible. All this will continue to accompany us in the coming year. However, as we are very well positioned as a company in terms of both personnel and finances, I am very confident that we will continue to be a strong and reliable partner for our customers in the future.”

On her expectation & outlook for 2022, Ms Ruckh says “Many of our customers held back or postponed investments during the pandemic. In the meantime, we see a clear need to catch up here, which in principle promises a good year for us. However, the shortage of raw materials is still present, as are the significantly increased prices, which we cannot simply pass on 100% to our customers. However, we see this as a great opportunity for us and the entire textile industry to develop new solutions and work on cost- and energy-saving technologies. We have already developed promising concepts that now need to be implemented.”



Says **Alessandro Zucchi, President of ACIMIT:** “2022 will still be a year of deep uncertainty for the global textile industry. We observed the resurgence of the Covid-19 pandemic in recent months. There are problems related to our daily business due to the considerable increase in the

cost of raw materials and shipping, the lack of electronic components, etc. But I am optimistic. Over the years the Italian textile machinery manufacturers recovered from financial and economic crises. In 2022 the target of Italian companies is already ITMA 2023, which will take place in Milan from 8 to 14 June, 2023. ITMA will be an opportunity to show the whole world our technologies. Already now our companies are working on technological innovations that international visitors to ITMA Milan will be able to appreciate in the Italian exhibitors’ booths.”



Says **Ms. Cornelia Buchwalder, Secretary General of SWISS-MEM, Swiss Textile Machinery Association:** “Looking back to 2021, most of our members reported a very strong year. The business climate has recovered faster and stronger than could be expected. Despite this positive and rapid

recovery, there were some challenges to overcome. The still complicated and highly expensive transports, the scarcity and long delivery times of raw materials and the complexity of travel planning. For Switzerland, there was also the additional challenge of the strengthening Swiss currency, mainly compared to the Euro. As an association, we had a very busy year too and were able to support our companies in the legal area, but also, for example, in their virtual presentation.”

Ms Buchwalder adds: “ Also for 2022 companies stay cautiously optimistic, as it is not yet clear how sustainable this now very large catch-up effect of 2021 is. But it is clearly noticeable that companies are gradually planning again for the time after the pandemic. From both a company and an association perspective, the many exhibitions in 2022 are an important contribution to meeting customers and partners physically again. Swiss Textile Machinery plans to participate in Techtextil in Frankfurt, CAITME in Tashkent, ITMA Asia + CITME in Shanghai and India ITME in Delhi, among others.”

Some of the companies went for new products and machinery. A lot of time was available for the R&D and most of the companies were engaged in research and tried out with reduced staff. Techni-



cal textile companies were quite optimistic about 2022.



Says **Mr. Shujaul Rehman, CEO, Garware Technical Fibres Ltd:** “The COVID pandemic did have some impact on the overall technical textile industry. As far as GTFL is concerned the impact we experienced due to COVID was relatively less compared to rest of the industry. This is because almost

50-60% of our solutions are directly or indirectly related to the food production sector. We were very happy to see that our customers continued to place their orders on us in these difficult times and trust us to deliver on their expectation. Moreover, those companies which had a flexible manufacturing set up were able to balance the shift in demand between different segments thereby ensuring better capacity utilization. In our case most of our manufacturing set up is fairly flexible and hence we benefitted from that inherent capability.”

**Adds Mr Rehman:** “As far as 2022 outlook is concerned, we are optimistic and feel that the demand would be stable and continue to increase. Since GTFL is largely focused on the areas of Agro-tech, Sport-tech, and Geo-tech within the broader field of technical textiles, each of them, on its own, offers a significant prospect for growth, both in terms of internal consumption and exports. We have made good progress in all of our major market segments, both internationally and in India, by delivering new and innovative solutions that have been well appreciated by customers. We envision the technical textile sector as a whole will continue to grow given the positive momentum due to various progressive schemes from the government and active collaboration with the industry partners.”



Says **Mr. Mukesh Surana, CFO, Garware Technical Fibres Limited:** “We understand that the upcoming budget is extremely crucial for the Indian economy because of the timing as country has now witnessed two long years of fight with Covid. Consumption and production have both taken a hit during this time, capex spends have been

very low and inflation seems to be a soaring problem for

everyone. We expect from the Honourable Finance Minister to rationalise and allocate more funds for appropriate export tax incentives and interest subventions particularly for identified, focused, potential and scalable industries such as man-made fibres and technical textiles, in order to boost manufacturing/ make in India and export. India’s manufacturing, export growth, foreign currency inward remittance, and employment prospects will all benefit considerably as a result of this.”

**Mr Surana opines:** “We also anticipate a continuous reduction in the country’s fiscal deficit, resulting in a healthier economy. The government can also look at taking forward its disinvestment strategy to boost the cash flow. Relaxation in personal income tax, high surcharges, and a lower GST shall also boost consumption, which can bring the economy back on track after the Covid-19 pandemic. Government should also look at rationalising the LTCG tax on equity along with the tax on dividends. Lastly, removing the cap of Rs.7.5 lakh contribution to PF and NPS can ensure that retirement benefits are well incentivised as per the global trends.”

Some companies used these two years on activities like digitalisation and pruning departments to make the company light and more efficient. India’s textile exports during April-December 2021 touched \$29.8 billion, up 31% year-on-year. The Textile Ministry said that the textile sector has maintained trade surplus with exports higher than imports. In FY21, there was a deceleration in textile exports due to pandemic disrupting the supply chain and demand.

“During April-December, 2021 the total Textiles & Apparel including Handicrafts exports was \$29.8 billion as compared to \$21.2 billion for the same period last year. Growth signals an economic rebound,” as per the ministry’s statement. Overall, textile sector’s exports, comprising textile, apparel, and handicraft, rose 14.6% year-on-year during April-December. Cotton yarn, fabrics, made-ups and handloom products rose 43% on year during the period, and jute products exports increased 33%.

Centre has set a target of \$44 billion worth of exports for the sector for this fiscal, and 67% of this target has been achieved. The industry is hopeful that export target will be met. India’s exports in December rose a record 37% year-on-year to \$37.29 billion. This is the highest-ever monthly achievement of exports so far. Exports stood at more than \$27.22 billion in December 2020. The exports growth in December is also a 37.55% jump over December 2019,



when it stood at \$27.11 billion.

The textile machinery and accessory segments also did somewhat better in 2021 though the capacity utilization of the industry declined from 49% to 46%. Globally, textile machinery industry has been doing well. The Italian industry is exhibiting at Colombiatex in January.

## Start-up Valley by Cematex



CEMATEX, the European Committee of Textile Machinery Manufacturers, has launched a new initiative to support start-ups with new and innovative offerings, and to inspire innovation for the textile, garment and fashion industry.

The owner of ITMA and ITMA branded exhibitions, CEMATEX will provide selected young enterprises with solutions for the textile and garment industry with a grant to exhibit at the Start-Up Valley during ITMA 2023. The CEMATEX Start-Up Grant will cover the rental costs of a special design stand and fittings, as well as entitlements such as business matching.

**CEMATEX president Mr Ernesto Maurer**, said: “We are excited to launch this initiative to attract innovative start-ups to ITMA 2023. The Start-Up Valley will be a good complement to the ITMA Research & Innovation Lab”.

“As the largest textile technology exhibition attracting leading textile and garment manufacturers from around the world, ITMA offers young entrepreneurs a useful platform to put their innovations in front of a global audience, to find investors and collaborators and to leverage industry connections and professional networks.”

In addition to exhibiting at ITMA 2023, Start-Up Valley exhibitors can also take part in various onsite activities, including speaking at the Innovator Xchange and participating in the ITMA Sustainable Innovation Award and Innovation Video Showcase.

**Eligibility and selection:** To be eligible for the grant, start-ups must have a product or service that is within ITMA 2023’s exhibit profile. The company should also be incorporated for not more than 8 years, and has either generated revenue for at least a year or raised capital from investors or grants from other incubator programmes.

A key selection criterion is the environmental, economic and/or disruptive impact of the innovation, solution or product. Other criteria include the scalability of the innovation and its relevance to ITMA’s theme: Transforming the World of Textiles, and the four trending topics, namely advanced materials, automation and digital future, sustainability and circularity, and innovative technologies.

Applicants are also advised to share information such as reference partners to institutions, associations, or commercial partners and the innovative and intellectual content for their products, services, patents or applications, and if they have won any awards.

A panel of industry experts has been invited to form the selection committee to evaluate the start-ups. It comprises:

Mr Chris McHugh, Dry Fibre Development Manager, Advanced Manufacturing Research Centre (AMRC) with Boeing (United Kingdom); Ms Elin Larsson, Programme Manager, RISE Research Institutes (Sweden) and Mr Ruggero Frezza, President, M31 Italia Srl (Italy).

Interested start-ups may apply for the CEMATEX grant by 30 June 2022. Successful applicants will be advised by 28 October 2022. ITMA 2023 will be held at Fiera Milano Rho, Milan, from 8 to 14 June 2023. The exhibit profile has been expanded to include a dedicated chapter on textile reinforcement structures for composites. The deadline for stand space application is 15 March 2022.

Meanwhile in India, Members of the Economic Advisory Council to the Prime Minister (EAC-PM) are optimistic about real and nominal growth prospects of India and feel that the real rate of growth may touch 7 to 7.5 per cent in 2022-23. Once capacity utilisation improves, private investments should also recover. “However, this should not mean that the Union Budget for 2022-23 should project unrealistically high tax revenue or tax buoyancy numbers,” the EAC-PM members said recently.

The Union Budget for 2021-22 was applauded because of reform measures, as well as transparency and realism in the numbers. EAC-PM members are of the view that these dimensions should be carried forward into the 2022-23 Budget too, signalling use of the extra revenue in the form of capital expenditure and human capital expenditure, since COVID-19 has led to a human capital deficit. “There should also be a clear road-map for privatisation and the growth orientation of last year’s Budget should also be maintained,” the release said.

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# DOUBLE-DIGIT GROWTH FOR MAJOR MARKETS: ACIMIT CHIEF

Alessandro Zucchi, President of ACIMIT



Through an email interaction, Mr Alessandro Zucchi, President of ACIMIT (Italian Textile Machinery Association) replied to a set of questions from Samuel Joseph, Advisor (Editorial & Marketing), Textile Value Chain.

Excerpts:

## How has been 2021 for the members and industry in Italy?

2021 was still conditioned by Covid-19 pandemic, but nevertheless represented, for most Italian textile machinery manufacturers, a year characterized by a great recovery. Indeed preliminary figures for 2021 show that Italian textile machinery production and exports will grow by about 30% compared to 2020. The value of Italian exports for the 2021 January-September period has already overtaken the pre-crisis value of 2019 same period and the order intake for Italian manufacturers in the first three quarters of 2021 marked a +95% over 2020.

## Which are the markets that showed strength in matters of orders?

Based on data for the first 9 months of 2021 all major markets for Italian companies have grown compared to the previous year. China, Turkey, the United States of America, Pakistan and India are the main markets for Italian machinery exports. All of them recorded double-digit growth.

## How did the Italian industry fare in the Indian market?

On the Indian market, Italian textile machinery sales are doing very well. In the period January-September 2021, Italian manufacturers exported machines worth 74 million euros to India (+90% over the same period in 2020 and +88% over 2019). The most requested Italian machines in India are weaving machines (+69% compared to 2020) and spinning ones (+182%).

## How does Acimit look at the New Year 2022?

2022 will still be a year of deep uncertainty for the global textile industry. We observed the resurgence of the Covid-19 pandemic in recent months. There are problems related to our daily business due to the considerable increase in the cost of raw materials and shipping, the lack of electronic components, etc. But I am optimistic. Over the years the Italian textile machinery manufacturers recovered from financial and economic crises. In 2022 the target of Italian



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**“ In 2022, ACIMIT activities to promote the Italian textile machinery sector will be as numerous as ever... ”**

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### **What are the programmes and projects for the year ahead?**

In 2022, ACIMIT activities to promote the Italian textile machinery sector will be as numerous as ever, thanks to the cooperation of Italian Trade Agency and Italian Ministry of Foreign Affairs and International Cooperation too. The attendance at some important trade shows (ITMA ASIA, TECHTEXTIL, ...) is scheduled. Incoming missions of textile operators from different Countries to Italy are also planned.

### **Will it be participating in international exhibitions? What are the expectations?**

As I mentioned ACIMIT will be present at the main trade fairs of the sector scheduled for 2022: ITMA ASIA, TECHTEXTIL, TECHTEXTIL NORTH AMERICA, CAITME, COLOMBIATEX... Obviously, the hope is that there will be no further limitations to the transfers that would affect the smooth running of the exhibitions. I believe that everyone in the industry is eager to participate in the physical events. In our industry the direct relationship with the customer is an important component of daily business. Remote connections can be useful in this pandemic period, but we hope that it will be back to normal soon for the sake of the machinery manufacturers and their customers.

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# **COLORJET HAS STRONG R&D BASE INHOUSE: JITENDER PAL SINGH**



ColorJet is India's largest manufacturer of Digital Inkjet Printers which has participated at the SITEX Exhibition with full enthusiasm which was held in Surat recently. Mr. Jitender Pal Singh, Business Head, Textiles, ColorJet replied extensively to the Textile Value Chain.

## **Excerpts:**

### **How was the SITEX Exhibition for your company?**

Overall, the exhibition was a very good experience but the footfall for our machines which we wanted was very less, we had less customers visiting the exhibition this time due to this Covid Pandemic.

We had invited a lot of Customers from North as well as South but they couldn't turn up due to the current situations. The response was very mediocre for 1.5 days, as it can't be said that what would happen at the very last day of the exhibition.

### **How was your business in these 2 years of Pandemic i.e., 2020-2021?**

Every business was affected due to this Covid pandemic and ColorJet was also impacted by this no doubt, but the Textile Industry has rebounded very fast as compared to other industries. As we are in India and India happened to be one of the biggest Textile Markets in the World. Indian Textile Market recovered very soon, buyers recovered, production hit the peak and the demand for

digital printing increased and a lot of Machines have been sold in Surat this year. We had a fantastic business in Surat this year, and the loss which we incurred in the pandemic was recovered this year.

### **Is Surat your Main Market?**

Not as such, but Surat is the largest Market for the Textile Industry for any kind of industry such as digital printing, conventional printing or any other Textile Industry. Surat is one of the largest Markets for us because here 60+ of our machines are currently working. After Surat, Punjab Market is the one that grabs our attention, and particularly Ludhiana and Amritsar, the Delhi NCR, then the new market is in Varanasi and Kolkata Market and South is a potential Market and we focus on these Markets all over India. Even today more than 55% of the market share is held by us due to our new digital printing machines. ColorJet is at the Top in Machine Sales now. ColorJet is known all over the world, we make best machines in India with superb of quality and supply all over the world from Bangladesh to Pakistan to Indonesia, Thailand, Europe, Africa, Brazil, Turkey and all major countries

now have ColorJet Machines installed and we have our sales and distribution setup.

### **Do you have your Franchisee Module?**

In some Countries we have a Direct Module whereas in some countries it is through Dealership.

We have our own sales and setup in Pakistan and Bangladesh and also a dedicated sales and service in South East Asia. Almost in all countries we have dealers now, like Thailand, Indonesia. Apart from this we have a Master Distributor in Germany who covers the entire European Market, we also have dealers or direct service centres in Zimbabwe, Argentina and in all major countries.

### **How do you see the market ahead in the coming year 2022?**

Digital printing as a market is bound to grow and we see the overall growth in the whole world of textile printing. The volume of digital printing is just 7% and even if it grows by 1% that means thousands of machines are required in the world and the digital printing world and it is a fast growing industry. Digital printing is also facing challenges because of the conventional printing and this changes as per the needs and wants of the customers. Digital printing consumes 1/10 of the water consumed by the conventional printing. We should also consider the environmental norms and conditions and work accordingly in the coming future. Conventional printing can produce a huge volume whereas digital printing can still not reach that much of volume. Conventional printers will have a sampling machine of digital printing as that can be done very fast.

### **Is there a separate machine for sampling?**

The machine is same but the work of sampling is fast, the only thing is that you want to use that machine for actual printing or just sampling, this is one of the steps or ways for conventional printer to get into digital printing. Setup is a huge cost for the production in digital printing whether it is sampling or the actual printing.

### **What is the cost of the digital printing machines?**

Our digital printing is direct to replicator, and costing of the machines starts from Rs 35 lakh and it can go up to Rs 1.5 crore, depending upon what configuration you are going for.

### **As the cost of the machine reaches up to Rs 1 crore and how do people spend that much of huge amount just for the Sampling?**

When you take sampling into consideration, you can get a machine for sampling approximately at Rs 30-35 lakh.

### **You can also develop a different machine which can be used for sampling?**

We are looking into these possibilities, as soon as the demand increases in the market for different sampling machines, even ColorJet can make one. Our Research and Development is Inhouse and specifically in India. We can make and develop a new product in a less time span and we have proved that as well which had a good reach in the market. Today we have 32 head machines as well which can give a production of 5000 to 6000 meters per day and we have a machine which can give up to 500 meters also per day, so we are covering almost the entire range. We can make a new product for the market and that isn't a big deal for ColorJet, we can do that fast as we understand and learn the market and make a product according to them.

### **Do you have your own Research and Development Centre?**

ColorJet's Research and Development setup includes, electronics, software to work out that machine, all are developed by us, from the body of the machine, design, main parts, there are certain standard parts which we need to buy from the standard global suppliers only like print heads and belts, etc. The main Research and Development and main designing of the machine is done by us only.

## How many people work in Research and Development?

About 30 to 40 people work in Research and Development Department, we have a different department for Research and Development and a different department for product development.

Product development department takes the feedback from marketing team and makes the



changes accordingly, whether it is a new product or enhancement or improvement of an existing product.

Product development department coordinates with the Research and Development department and they develop the systems and programmes for the machines. Our Manufacturing team is in Noida, we have 2 plants in Noida, 1 plant is only for the fabrication of the machine, body and finishing whereas rest is the overall assembly of the machine.

## Out of overall turnover, how much percentage do you invest in Research and Development Department?

Out of all other departments, Research and Development Department is the one where we invest the most. We take 2 years to launch a particular product and the Research and Development Department starts working on it from 2 years so that we can get an end product in the market after 2 years, this new year also we are planning to

launch a new product. By launching that we will see the response of the market and how it works out for the market.

## As per the Government norm, zero discharge liquid plant is necessary for any manufacturing unit, and as digital printing has a lot of chemicals and dyes used in it so how will you cope up with it?

The dyes which are used in our digital printing are liquid based so they are not that hazardous and zero discharge liquid plant is becoming a very important aspect nowadays. As we come under orange category (Industrial Sectors having Pollution Index score of 41 to 59) is not that harmful and at many places like Surat as that is the largest textile industry, have facilities provided by the Government for zero discharge liquid plant. Digital printing ColorJet machines have been proven and tested that they consume the least amount of water for the same quantity of fabric that is printed.

We consume the least amount of water because we have an effective water recirculation system that reduces the water from the machines by almost 75% of the times.

## What is your advice for the upcoming new startups in this industry?

My advice to the young entrepreneurs or any startup is to invest in both products and technologies which are sustainable, environment friendly and which do not depend on the conventional way of working because the market is changing day by day.

ColorJet's philosophy of making a machine is based on 3 E's which is called, Efficient, Environment Friendly and Economical. Every entrepreneur should invest in Efficiency, Environment Friendly and Economical systems.

Digital printing is a huge industry for the young entrepreneurs, getting a machine is easy whereas making the machine work out and make it do the work is difficult. First and foremost the entrepreneur should think where to sell the machine and how to go about the marketing and do all the background research is to be done before getting into this industry.

## INTERVIEW



# OUR MACHINES ARE 25% MORE PRODUCTIVE: NAVIN AGRAWAL

A.T.E. Enterprises Private Limited is a multifaceted engineering group offering exceptional products and solutions in diverse segments. A.T.E.'s businesses encompass manufacturing, industrial sales, distribution, and service and have gained expertise in handling turnkey projects. Mr. Navin Agrawal, Vice President, A.T.E. Enterprises replied to a questionnaire from the Textile Value Chain.

### Excerpts:

#### How was the response of SITEX Exhibition?

This is the first time that A.T.E has participated in SITEX. While we do represent big brands such as Karl Mayer, we wanted to showcase SMIT's Italian rapier weaving technology at SITEX. Even though we did not display any machines, we received a good number of visitors who wanted to know more about us and the services we provide. SMIT's 2FAST (Flexible Advanced Shuttleless Technology) loom generated a lot of interest at SITEX.

We anticipate 2022 being a good year for us as we already have customers who use SMIT's machines. We have an edge over Chinese manufacturers because our machines give 20-25% more productivity than Chinese machines.

#### As you know there are a lot of Chinese machines and the market is already set, so how will you enter the market with your European machine?

Surat is a very large market, approximate 400 to 450 looms are purchased every month from here. While it is true that the majority of the machines are of Chinese origins people who have Chinese machines right now want to go for European machines. The 380 cm Chinese jacquard machines run at speeds of around 250-260 picks per minute, whereas European machines with innovative hook technology run at speeds of 300 picks per minute. SMIT's machines go even further - SMIT's free flight technology and newer features can achieve the speeds of 350+ picks per minute which translates into a higher productivity by 20-25%.

As far as pricing is concerned, while European machines are priced about 30-35% more than



Chinese machines, and double that of Indian machines, the improved build quality, and increase in production justifies this pricing.

## How were these 2 years of pandemic and what about the coming years: 2022 & 2023?

It is true that pandemic caused a slowdown in the textile industry in 2020. However, we were ready for the 2nd wave in 2021, which helped us mitigate its impact greatly. We now see that investment has increased for new machines, so I am inclined to believe that the next few years will be a golden period for the textile industry.

By 2025 the growth of the we anticipate the CAGR (Compound Annual Growth Rate) of textile industry, which is currently around 8-9%, will go over 10%. One of the reasons for this will be the PLI (Production - Linked Incentive) scheme that was introduced by government last year. And other benefits like Textile Technology Development Scheme (TTDS) replacing ATUFS with better advantages.



## How your company manage during the pandemic?

We did not layoff or furlough any employees at A.T.E. Instead, we supported, motivated and gave them online training for soft skills. A number of our employees took advantage of the pandemic and participated in online courses to upskill themselves.

We also had an internal drive to ensure that everyone and their families were vaccinated.

any employee from our company, we supported, motivated and gave them online training for soft skills. We got everyone vaccinated.

## What are the criteria of selecting a distributorship of any company?

Principals are evaluated based on a list of criteria such as the product portfolio, reputation and brand image, and other parameters. We usually prefer European manufacturers as principals.

## What about the research and development department of the company?

Most of the machinery we provide to the textile industry is manufactured by our principals. We have tied up with some of the world's most prominent textile machinery manufacturers such as Trützschler, KARL MAYER, Fong's, and more. Our tie-ups give Indian textile manufacturers access to advanced textile manufacturing technologies that give them the competitive edge in global textile markets. We also have well-trained teams that support our customers throughout the lifecycle of the machine – from selection of the right technology, installation and commissioning, training, and finally providing critical aftersales services.

Some of the other critical challenges that we are helping textile manufacturers overcome are energy conservation, resource optimisation, and improving product quality. We also help our customers upgrade their legacy machinery.

In-house, we have also developed several state-of-the-art technology products and solutions such as precision spinning machinery components, eco-friendly products for space and process cooling, concentrated solar thermal systems, wastewater treatment solutions, industrial IoT solutions, static and ink control, and register control, as well as vision and defect detection systems. Our solutions are used in a wide range of applications and industries – from the automotive and engineering industries to food and beverages, pharmaceuticals, and of course, textiles.

## What is your advice for the new startups in this industry?

I would advice new startups to be passionate, dedicated and honest in their work to achieve success in any kind of industry.

# LATEST RAGE IS TECHNICAL TEXTILES: BTRA CHIEF



**Dr. T V Sreekumar**  
 Director, BTRA

## Share your Education and Professional Journey

After completing my PhD from Department of Textile Technology IIT Delhi, I worked a short while with NITRA. I got great professors as my PhD guides at IIT, Prof. Pushpa Bajaj and Prof. Kusal Sen. In 2001, got an opportunity to work in the United States. I was appointed as a research scientist at Georgia Institute Technology, Atlanta. The work was related to Carbon Nanotubes and the fibre programme was led by Prof. Satish Kumar and Prof. Richard Smalley, who was 1996 Nobel prize winner. I could publish and patent several technologies related to nanomaterials with them. In 2004, I was selected in-absentia to DRDO as Scientist and I returned to India. From 2008 to 2017, I worked with Reliance Industries in various responsibilities from GM to VP Petchem business development. I am the co-founder of Technorbital

Advanced Materials Pvt Ltd (TAMPL) and was leading the organisation for three years before joining BTRA in 2000. TAMPL manufactures ultrafiltration membrane (based on a polymer I synthesized) and is being used in all TATA SWATCH water purifiers. For this invention, I was invited to the United Nations headquarters in New York and delivered a lecture to the UN sustainable innovation programme. I am also appointed as Distinguished Visiting Professor (DVP) by AICTE-INAE.

## Being an educationist, your journey in industry life and interaction.

Over 25 years of experience in senior management, technology strategy, research and development, teaching, testing and quality assurance in Academic, Chemical, Material and Textile Industry. Winner of Technology Day Titanium Medal and certificate from Scientific Advisor to Defence Minister. Invited for giving lectures at

reputed organisations and universities such as United Nations, New York, Deakin University Australia, Georgia Institute of Technology USA, Indian Space Research Organization (ISRO), Indian Institute of Science (IISc), Indian Institute of Technology (IIT), DRDO and several other Indian engineering colleges/ Universities. I am an IN-AE-AICTE Distinguished visiting Professor.

### **Being a Director of BTRA share Future Prospects and Vision for BTRA**

BTRA is now in fast track. We have started modernising every lab with infrastructure and aesthetics. We have decided to convert BTRA into a world class laboratory in the next five years.

### **As a Mentor, what qualities, capabilities you choose in your PHD students**

I taught many students as DVP of AICTE-INAE and guided only one PhD student who completed PhD from Deakin University Australia. I personally feel that the students should start PhD after a few years of industrial experience. This gives them a good understanding of what is needed for the industry and gets an idea how their research can be of any use to Industry and how it can be implemented. Most of the time the PhD research results end up in a few journal publications and not a product.

### **How has the industry evolved in the last few years?**

I feel the industry has got a big shift related to infrastructure, telecommunication (composites) and high performance materials. Corona has forced the world to work on medical textiles. Many are looking for antimicrobial testing at BTRA. We have seen a great increase in antimicrobial testing.

### **What are the latest trends in the industry?**

Latest trend is technical textiles.

How Research and Development is part of important process in the industry, industry adoption, investment of same or industry limitation for research and development.

Sustainable growth of industry is possible only by

investing in research and the right people with an innovative mindset. Industry should continuously innovate and come up with an edge over the competition. Also, research only can provide any company product variation to cater to a broad customer base.

### **Sustainability, carbon footprint, waste management; how these are relevant and important?**

This is a very important point. Most of the time the industry employs unskilled workers to operate their ETP plant. Waste treatment is a scientific method. Effluent treatment requires the right kind of chemicals, pH, bacteria level etc. This is where BTRA can help industry. We have come up with an excellent training programme in collaboration with MPCB and NEERI on zero liquid discharge process and other effluent treatment. We are now helping MPCB for third party auditing of textile units.

### **How Data Analysis, Machine Learning, AI, Block Chain is important for the industry and how we can implement in textile and apparel industry?**

Block chain, ML and AI are highly disruptive technologies and may revolutionise the way we work and perceive. Industry has to be ready for this and open to changes. Disruptive innovations have always changed the world and many big companies and economies have collapsed due to rigid thoughts.

### **Educationist Research hardly applied on commercial production of the industry, what is the reason. How we can integrate industry with educationist to get maximum productivity of research.**

I don't agree with this statement. I myself being an educationalist became a cofounder of a successful company which is now serving with clean water to millions of households. Now most of the IITs having come with incubation centres are creating new entrepreneurs. We need to give training of how to start a business from school itself.

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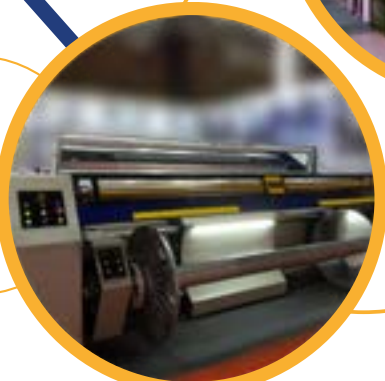
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# MORE SPACE IN NEXT SITEX: SURESH PATEL



Mr. Suresh Patel  
Chairman of SITEX 2022

**S**ITEX 2022, held on a space of about 538100 sq. meter, was fully booked, said Mr Suresh Patel, Chairman of SITEX. He added: “ So, we have planned a second edition of SITEX 2 in March 2022, in which whoever was not able to participate this time, can participate in the March edition. For Visitors, as per government guidelines we have followed for exhibition and fully vaccinated visitors were only allowed for exhibition. A total of 12000-15000 visitors visited exhibition in 3 days. It’s purely B2B exhibition, and visitors came for pure business.”

Mr Patel further said: “SGCCI has 1 lakh sq. feet in which we have utilised 50% only. Till now its regional show, but it totally depends on market demand, ie both exhibitors and visitors are ready to come to Surat from international market we are ready. International Exhibitors like Staubli and ITEMA Weaving already participated this year, they ignored Surat till now but they understood that a supplier they need to be there near the market not away from market.”

Exhibition become international when buyers and seller both are international. Surat is capital of man-made fibres, whereas Mumbai is the financial capital. India is the production country; international buyers can come to buy fabrics and garments not machinery, Mr Patel clarified.

## SITEX and Business

In Surat every year the exhibition focus is different, as it depends on trend of the market Earlier additional focus was embroidery machine, circular knitting, and this year the focus was on rapier machine and jacquard machine. Exhibition focus is totally dependent on buyers perspective, ie which trend will be selling in future. As of now Banarasi dobby and jacquard were more in demand, Mr Patel said.

As per the new trend, business needs to be started, by whoever has textile knowledge. Export is expected to increase in fabrics , since yarn export is already doing well, said Mr Patel.

## BYTES

### JACQUARD WEAVING HOLDS GOOD POTENTIAL: GONDALIA



**A**s Surat is a hub for textile industries any exhibition related to textile industries is always a grand success for exhibitors as well as visitors both. More over thanks SGCCI for managing excellent exhibition pavilion with easy access and enough parking facility. So for response is concerned, it was reasonably good, according to Mr. Hansrajbhai A. Gondalia, Director of Aalidhra Group of Industries.

Mr Gondalia did not see any new innovation at SITEX 2022. He said: "Covid has definitely impacted all industries. In our case we could maintain profit, employees and operation with no growth within year 2020 & 2021."

"Volume-wise Indian textile industry is quite small compared to China's and hence value added fabrics, garment and yarn manufacture are a better option for Indian textile industries. Accordingly jacquard weaving has a good future in days to come," Mr Gondalia opined.

Talking about his company, Mr. Gondalia said that Aalidhra is dedicated to develop, manufacture and market high-tech machines on its own research &

development. "Our R&D department is sharing approximately 20% of profit every year. Aalidhra is only a principal manufacturer in India for many types of machinery for textile."

Mr Gondalia was all praise for the labour force in India, saying that "labour force available to owners of textile industries holds excellent intelligence & hardworking natures. So let-us utilise our natural gift and adhere to innovation, committed to quality and performance."

Aalidhra Group, with 8 companies under it, is located in places including Surat, Mumbai, Silvassa, Nansari, Sachin, Palsana and Vadodara. The Group is engaged in the manufacture of draw texturizing machines, air texturizing machine, air covering machine, draw assembly winder, precision high speed cheese winder, waterjet looms, cam driven rapier looms and two-for-one twister for filament yarn & spun yarn and silk yarn.

### OM SATYA PRESENTS NEW FLAT KNITTING MACHINE

**O**m Satya Exim Pvt Ltd, Surat is an Inspiration through its products, service and customer relationship. Om Satya is a supplier of Circulation Knitting Machines, Embroidery Machines and Hat Knitting Machines. Om Satya started their journey way back in 1996 and they have completed 25 years of foundation. Looking forward with the customer relationships and creative ideas they wish to reach greater heights, said Mr Ravi, Director of Om Satya.

On the sidelines of SITEX Exhibition, Mr. Ravi said that the Response was very good and many customers visited the Stall. "We have launched a New Flat Knitting Machine that makes Shoes, Upper, Collar, T-Shirt, and all other types of Clothes

are made as well. We have launched this machine in Surat for the first time and the response is very good because Om Satya is a very well-known name in Surat. “Our Circulation Knitting Machines are many types and our customers are very much satisfied with our product and looking at the previous response only we have launched this New Flat Knitting Machine and it is going very good till now,” said Mr Ravi.



“As the Covid Pandemic is going on so we need to live with it and following all the Covid Protocols and growing our Business, we are definitely going to reach to our success point. After the 2020 & 2021 situations where every business had a tough time, we are hoping that the year 2022 is going to be a very good year,” Mr Ravi said.

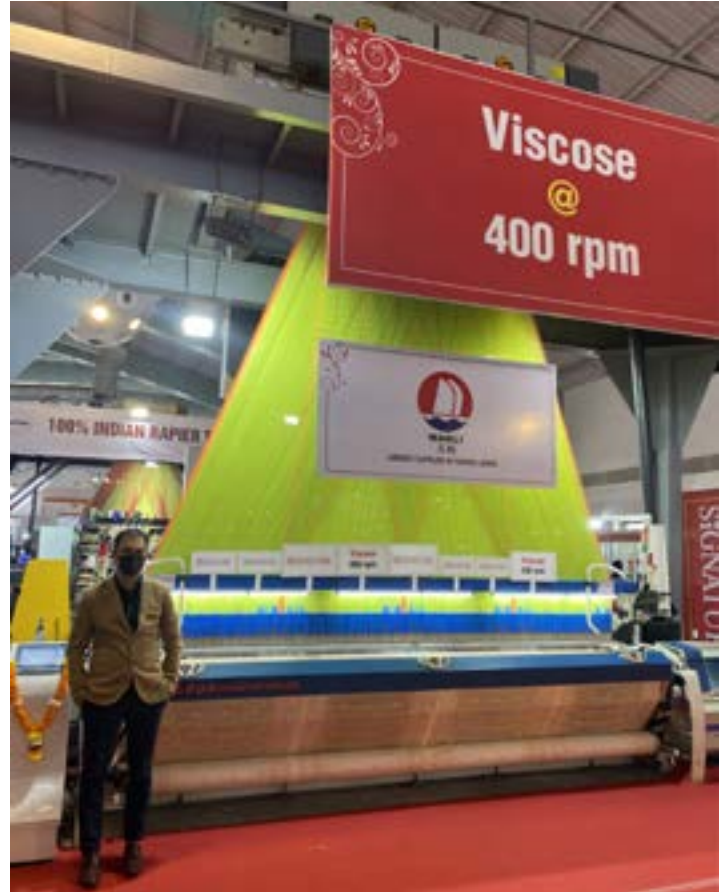
Mr Ravi opined: “As the young generation is entering into this business world after their graduation, they have a lot of scope as a lot of new machines and technologies are going to be introduced in the future. In this Digital World, there is a lot more exposure for the young entrepreneurs as we can find new things and concepts online at just one click.”

## DOUBLE BEAM RAPIER LOOM FROM SIGNATURE HOUSE

**A**shoka Enterprises has its own brand called “Signature House” of Embroidery which provides Rapier Looms, Dobby Looms, Jacquard Looms, Airjet Looms imported from China. Mr. Sunil is the owner of this Company & based in

Surat.

According to Mr. Sunil, the response was very good in the SITEX Exhibition. Said Mr Sunil, “Weaving is a hub for Surat, the entrepreneurship which is in Surat is amazing because people actually want to establish their own factory and get in this growing textile business.”



Apart from this, we are selling these Looms for last 10 years and other than this we have a New Innovation, ie, a Double Beam in Rapier Loom and Jacquard Loom, this we be out in the market in next 2 to 3 months and this will definitely take the market a level up. We are importing Looms from China but we will trying to make machines here itself within 3-4 years. We have a Team of 48 Technicians here to repair our Chinese Machines. Quality of the Product is same whether it is European, Japanese or Chinese Machines, but the cost is almost 50% cheaper,” said Mr Sunil.

“Our HR Team has managed everything effectively; we did not remove any employee and gave

them full salaries. Apart from this, our company was affected only in March & April 2020 when the Covid pandemic just started, after that our Sales haven't stopped and it is Continuous. Everyone has to accept the new technologies and get upgraded with the time as we are living in a digital world. All the upcoming and current Machines are Computerized so that is not new for the upcoming entrepreneurs or Startups. Our Market covers 4 places that is Surat, Kolkata, Banaras & Ichalkaranji," said Mr Sunil.

## TRUECOLORS TAKES DIGITAL PRINTING TO NEW HEIGHTS

**T** rueColors Impex, established in 2011 was built on the platform of highest quality standards, with the intent of providing excellent products & solutions to the digital printing industry in India.

Said Mr Pratik Mehta, General Manager of Truecolors Impex: "We being among the explorers have always focused on adding value and building a long-term relationship with each and everyone in the industry. TrueColor Impex is an undisputed market leader in the Digital printing that has transformed the industry from merely utilitarian to inspirational."



TrueColor Impex has given the most effective solutions to the world of digital printing, making dedicated efforts to take digital printing to great heights. "It was a very good experience for TrueColors, and there are a lot of Emerging op-

portunities for the upcoming startups and the new entrepreneurs. Pandemic was a tough time for these 2 years that is 2020 & 2021 for us and for everyone, but we also explored new things in this industry and by this we could see the futuristic vision," said Mr Mehta.

Said Mr Pratik Mehta: "We trained our employees, however on monetarily it was a negative impact on our business. But in this coming future we can get the real value of our investment & hard work in our business. Digital industry is going to be on high demand in the coming future, its transfer rate is 2-3% higher compared to conventional printing,"

The conversational rate is good and the growth is also touching great heights in the digital printing industry. It isn't that difficult to enter the industry, one can also start it with a low investment as well but having a vision is very necessary & planning is the most important part which needs to be done with a proper research and development, said Mr Mehta.

## VARIYA LAUNCHES BIGGER MACHINES

**S** aid Mr Suresh Variya: "At SITEX we got very good response and good customer visit and satisfactory order booking and our old client got extra knowledge about product diversification."

Variya Enngineering has launched machines like 2600 hook and 5400 hook which have been added to our product range of weaving machines. New category launched which is applicable to all industry, ie. exhaust fans with wide application products. "Surat is the textile hub; our product is of low cost with high efficiency. The machine cost is as follows: Weaving Machine is 1.5 lakh to 8 lakh, Exhaust fan cost is from Rs. 20,000 to 30,000, and the Eco ventilator cost is Rs. 4000-8000," said Mr Variya.

In covid, problems in savings and expense have been reduced and precaution of covid made a lot of changes in the industry. "Reducing manpower, high efficiency products are more in trend, speed of machine is important, efficiency of machine have reduced manpower," said Mr Vaidya.



Said Mr Variya: “In 2022 we are expecting 25 to 30% growth in the company. Major growth countries are China and India. India is most preferred country as sourcing hub due to genuine products and good relationship. Our technocrats, intellectuals, engineers across the world are dominated by Indians. The Next 2 decade is the sunrise industry in textiles. Textile is diversified to all states of India and Gujarat plays very important role. Surat surrounding industry is developing by high speed machines, rapier, and water jet, dyeing machines”.



#### Advice for new Generation

“Come and learn new things in industry, give innovation and efforts to industry. Dedicate 100% to work, whatever work is getting accept it, get interested in work and apply your ideas and give value addition to work and company,” opined Mr Variya.

## EMBROJIA EMBROIDERY MACHINES ARE CHEAPER: RAJUBHAI

**R**ajubhai, Director Embrojia, said that Embrojia has been importing computerised embroidery machines from China since 1992.

SITEX Exhibition has always been good for them but the covid pandemic has affected the exhibition. “The exhibition wasn’t that bad, but isn’t sta-

ble either and that is why it isn’t growing. But once we achieve stability then business can come back on the track. If everything is stable then it will be good for all the businesses,” said Rajubhai.

“New machine will soon be manufactured once we are stable in our business. Innovation completely depends on the financial level or financial condition of our company. We have a lot of things going on in our mind regarding innovation but we are facing a financial block due to the current situation,” said Rajubhai.



“We don’t make machines, we import computerised embroidery machines from China. There is no comparison between the machines, New Chinese Embroidery machines are comparatively cheaper than the European Embroidery machines but they are good and affordable. The European Embroidery machine’s price is very high and in India they don’t make heavy Embroidery machines, so we prefer Chinese Embroidery Machines only,” said **Rajubhai**.

“It is easier to give advice, but you should only invest in the business which you already know or have research enough to start something new which is efficient for the future,” said Rajubhai.



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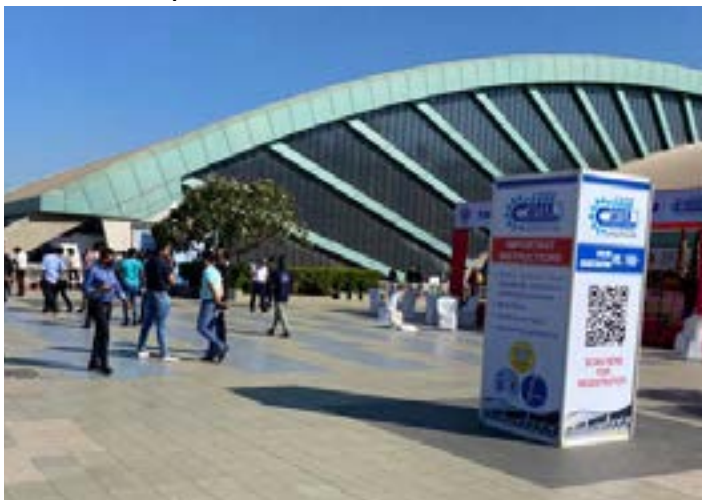
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# SITEX 2022 IS A 'NEW NORMAL', GENERATES BUSINESS WORTH RS 250 CRORE

TVC Editorial Team

The three-day Surat International Textile Expo (SITEK) 2022 that culminated on 11th January, 2022, the total amount of business worth Rs. 250 crore, according to the Southern Gujarat Chamber of Commerce and Industry (SGCCI), which organized the event along with the Southern Gujarat Chamber Trader and Industrial Development Council.



The exhibition of India and Europe made mega hi-tech weaving machines and ancillaries in the Textile Industry, commenced at the Surat International Exhibition and Convention Centre at Sarsana on January 8. It was inaugurated by Union Minister of State for Textiles and Railways Darshana Jardosh, in presence of state BJP president CR Paatil.

Colorjet is India's largest manufacturer of Digital Inkjet Printers who had participated in the SITEK Exhibition with full enthusiasm which was held in Surat recently. Mr. Jitender Pal Singh, Business Head, Textiles, colorjet replied extensively to the Textile Value Chain. Digital printing as a market is bound to grow and we see the overall growth in the whole world of textile printing. "The volume of digital printing is just 7% and even if it grows by 1% that means thousands of machines is required

in the world and the digital printing world and it is a fast growing industry. Digital printing is also facing challenges because of the conventional printing and these changes as per the needs and wants of the customers. Digital printing consumes 1/10 of the water consumed by the conventional printing. We should also consider the environmental norms and conditions and work accordingly in the coming future. Conventional printing can produce a huge volume whereas digital printing can still not reach that much of volume. Conventional printers will have a sampling machine of digital printing as that can be done very fast", says Mr. Jitender Pal Singh.

According to Mr. Navin Agarwal, VP of ATE Group "This is the first time that A.T.E. has participated in SITEK. While we do represent big brands such as Karl Mayer, we wanted to showcase SMIT's Italian rapier weaving technology at SITEK. Even though we did not display any machines, we received a good number of visitors who wanted to know more about us and the services we provide. SMIT's 2FAST (Flexible Advanced Shuttleless Technology) loom generated a lot of interest at SITEK. We anticipate 2022 being a good year for us as we already have customers who use SMIT's machines. We have an edge over Chinese manufacturers because our machines give 20-25% more productivity than Chinese machines."

Om Satya is a supplier of Circulation Knitting Machines, Embroidery Machines and Hat Knitting Machines, Mr. Navin Roy, Director of Om Satya. "We have launched a New Flat Knitting Machine that makes Shoes, Upper, Collar, T-Shirt, and all other types of Clothes are made as well. We have launched this machine in Surat for the first time and the response is very good because Om Satya is a very well-known name in Surat. "Our Circulation Knitting Machines are many types and



our customers are very much satisfied with our product and looking at the previous response only we have launched this New Flat Knitting Machine and it is going very good till now,” said Mr Navin Roy

Mr. Hansrajbhai A. Gondalia, Director of Aalidhra Group of Industries, Aalidhra Group, with 8 companies under it, is located in places including Surat, Mumbai, Silvassa, Nansari, Sachin, Palsana and Vadodara. The Group is engaged in the manufacture of draw texturizing machines, air texturizing machine, air covering machine, draw assembly winder, precision high speed cheese winder, waterjet looms, cam driven rapier looms and two-for-one twister for filament yarn & spun yarn and silk yarn. Mr Gondalia was all praise for the labour force in India, saying that “labour force available to owners of textile industries holds excellent intelligence & hardworking natures. So let-us utilise our natural gift and adhere to innovation, commit-



ted to quality and performance.”

Sources in SGCCI said that over 75 exhibitors from Surat and other parts of the country took part in this year’s SITEX with machines made in European countries, as well as China and Japan. Buyers were registered from across the country.

Mr. Variya is the Owner of the Variya Enngineering which has launched machines like 2600 hook and 5400 hook which have been added to our product range of weaving machines.

Said Mr Variya: “In 2022 we are expecting 25 to 30% growth in the company. Major growth countries are China and India. India is most preferred country as sourcing hub due to genuine products and good relationship. Our technocrats, intellectuals, engineers across the world are dominated

by Indians. The Next 2 decade is the sunrise industry in textiles. Textile is diversified to all states of India and Gujarat plays very important role. Surat surrounding industry is developing by high speed machines, rapier, and water jet, dyeing machines”. “Come and learn new things in industry, give innovation and efforts to industry. Dedicate 100% to work, whatever work is getting accept it, get interested in work and apply your ideas and give value addition to work and company,” opined Mr Variya.

The Centre of Attraction was the latest hi-tech machines like the double rapier weaving machines, dobby rapier loom machines, and 1000 rpm high speed Air Jet loom machines.

SGCCI chairman Ashish Gujarati, said, “The exhibitors got more inquiries and orders on the latest textile machinery. In three days, exhibitors did business to the tune of Rs 250 crore. We also expect capital investments in terms of installation of new machinery for the next four to six months will be to the tune of Rs 1,300 crore.”

“Earlier China was a major supplier of polyester bed-sheets for hotels and hospitals across the world, now the majority of such orders have come to Surat. This has resulted in a combination of man, machine and skills, for which updated machinery is required... hence this exhibition has played an important role.” He added.

“We being among the explorers have always focused on adding value and building a long-term relationship with each and everyone in the industry. Truecolor Impex is an undisputed market leader in the Digital printing that has transformed the industry from merely utilitarian to inspirational.” Said Mr. Pratik Mehta, General Manager of Truecolors Impex.

Ashok Advani, distributor of China-made machine brand in India, said, “In this exhibition, we have come up with the latest hi-tech updated technology high-speed weaving machines. We are expecting a business of around Rs 20 Crore through this exhibition. “

The three-day Surat International Textile Expo (SITEX) 2022 that culminated on 11th January, 2022, the total amount of business was worth Rs. 250 crore, according to the Southern Gujarat Chamber of Commerce and Industry (SGCCI), and further they’ll be making huge investments in this Textile Industry, especially on the Machinery Sector that will be around Rs.1300-1400 Crore.



# COLOMBIATEX: FIRST 2022 TRADE SHOW FOR ITALIAN TEXTILE MACHINES

TVC Editorial Team

For the textile machinery industry 2022 opens with the resumption of physical trade shows. It will be the next Colombiatex de las Américas, the main Colombian textile trade event, which will take place in Medellín from January 25 to 27, to open the new year. And Italian textile machinery sector will once again play a leading role in Colombia with a large presence. 19 Italian textile machinery manufacturers will be exhibiting in the exhibition area organised by Italian Trade Agency and ACIMIT, the Association of Italian Manufacturers of Textile Machinery.



The following ACIMIT member companies will be in this area: Bonino, Btsr, Color Service, Crosta, Fadis, Flainox, Kairos, Mactec, Mcs, Nexia, Ratti, Reggiani, Santoni, Savio, Smit, Sperotto Rimar and Tonello.

“For years, the Colombian market has been one of the main South American destinations for Italian textile machinery exports, confirms Alessandro Zucchi, president of ACIMIT. The development of a national fashion sector makes the demand for advanced textile technologies by Colombian companies even more dynamic”.

Italian exports to the important South American

market in the first nine months of 2021 reached a value of 9.3 million euros, in strong growth (over +130%), not only compared to the value recorded last year, but also to that of 2019. More than half of the demand for Italian machinery in Colombia refers to finishing machines.



The presence at Colombiatex of Italian companies with their own personnel is a further sign of confidence for the beginning of 2022. “Compared to previous editions of the event, states Mr. Zucchi, we note a greater number of Italian exhibitors, although the health emergency is far from over and there is great uncertainty characterizing the world economic scenario (due to the considerable increase in the cost of raw materials and shipping, the scarcity of electronic components, etc.). The Italian companies exhibiting in Medellín testify to the optimism with which the entire Italian textile machinery industry is looking towards this 2022 year”.

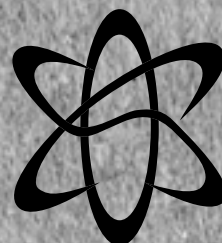
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# YOUR CLOTHES CAN CHANGE THEIR COLOUR WITH A SMALL TAP

By Maitri Gandhi



## Summary

What if you could change the colour and pattern of your clothes right away? Engineers at the University of Central Florida are weaving a new kind of smart fabric that is wired to every corner of the material and can be programmed to change colors. This is just one of the latest ways technology can merge with the fashion industry. The technology is woven into the fabric itself, and the app allows you to change colors and patterns at the push of a button. The actual fibres that weave the product physically change colour.

We are still in the early stages of technology merging with the fashion industry. Asimina Kiourti says, “Looking into the future, I see a lot of smart garments that people can use to interact with technology, May that be like augmented reality games or virtual reality. So the ability to interact either with gaming or smart home devices just by wearing your clothes or moving accordingly is the aim.” The future of fashion promises a new function but also a lot of fun.

**W**hat if you could change the colour and pattern of your clothes right away? Sounds crazy, but it’s real. Engineers at the University of Central Florida are weaving a new kind of smart fabric that is wired to every corner of the material and can be programmed to change colours. This is just one of the latest ways technology can merge with the fashion industry.

The technology is woven into the fabric itself, and the app allows you to change colours and patterns at the push of a button. Let’s say you wish to go

to the beach and also be trendy with your outfit. With the help of buttons on your phone, you can set a striped pattern from the plain one on your tote bag. It’s really cool!

It looks shiny but has no screen or lights. The actual fibres that weave the product physically change colour. This is done by a technical mix of colour-changing pigments, micro wires, and electricity. The fabric is woven by traditional machines, but the threads used for weaving are special and unusual as they are all conductive. Inside



the strands, there is a very fine copper wire covered with a material made of a special pigment that changes colour as the temperature changes.

Let's look back on your childhood to better understand the mechanism. Have you ever played with toys that change colour with hot and cold water? The reason for this is that the material resembles a solid at low temperatures and tends to change to a liquid crystal state when heated. Liquids, unlike solids, reflect light in a unique way. As the frequency of the reflected light changes, so does the color of the toy.



In this case, the chemistry is very similar. Instead of using water to create this temperature change, the electric current produces heat in the yarn itself. A computer chip is attached and programmed to pass current through various threads to create a pattern. All are powered by rechargeable lithium-ion batteries. Researchers also said

that the product requires only one wire, and for aesthetic reasons, the chip will be smaller. They also added that everything could be removed for proper cleaning if needed. In addition to the stripes, more complex patterns and other patterns are possible. You can mix up to 4 different colours. The possibilities are limitless. The UCF team has made this technology scalable so that it can be mass-produced using a process called textile spinning. The next step for the UCF team is to make dresses in different colours by collaborating

with fashion designers. The technical challenge is to make the fibres thinner and thinner, but not to lose its strength. This will increase the balance and flow of the dough.

We are still in the early stages of technology merging with the fashion industry. There is a lot of trial and error that happens before a product hits the market. Many early ideas that initially sound crazy and impossible end up getting implemented using strong leadership and management skills. Recently, Google has partnered with Levi's to create a chic denim jacket that lets you control your music with the tap of an area on your sleeve. Samsung is also experimenting with several clothing items. They sell smart suits with NFC built into the wrist buttons. Few other companies use smart exercise devices to track their activity. Researchers at Ohio University are developing antennas and power supplies that can be sewn on anything. However, the goal is to make the technology easy to clean. These devices can also be used to transfer data, improve mobile phone reception, and even control video games.

Asimina Kiourti says, "Looking into the future, I see a lot of smart garments that people can use to interact with technology, May that be like augmented reality games or virtual reality. So the ability to interact either with gaming or smart home devices just by wearing your clothes or moving accordingly is the aim."

The future of fashion promises a new function but also a lot of fun. The possibilities are endless. It would surely be fun to see the fashion industry evolving in the greatest ways and I'm sure the upcoming fashion weeks will be full of such innovations. The post-pandemic world is surely going to be a different world altogether but as long as we are having fun with it, we will be fine.



# DIGITAL PRINTING IS THE NEW FASHION

By

Muskaan Valecha

**D**igital Printing is the upcoming and most popular way of getting the fabrics printed in the colours and prints that you wish to. All the Fashion Designing companies can experiment and explore in the digital printing sector as it's a very growing sector and the machines of digital Printing have been made in new ways. Digitalisation while printing is much better than the traditional way of printing because it is fast paced and a commodity in high demand. You can customise your prints and the colours in those prints which are much better than the traditional ones.

choose and wear the fabrics you wish to. If you wish to design anything on your computer you can get it printed on a fabric. Even aerial photographs captured from my camera can be printed on any type of fabric.



## The Plus Points of Digital Printing:-

- **Quality of the Prints is Superior**

Printing on the fabric of a very superior quality. We will be having unlimited colour and design options which is a very wonderful thing about it. The end product will be more than your expectations compared to traditional printing methods. Moreover, now fashion designers have taken over the Digital Printing sector.

- **Design Limitlessly**

There are no limits in the designs you wish to create. You can find a picture online from any website and get it printed on the fabric digitally right there. The designs can be customised and you can

- **Virtual prints on any kinds of fabrics**

The fashion designers ensure that whichever prints you want they'll make it for you. Epson is a fashion brand which has a Digital Fabric Printing solution for virtually any fabric type. From polyesters and blends to natural fibres such as silks, cotton, linen, wool, and rayon. Regardless of the fabric type you're looking to produce, Epson has a Digital Fabric Printing solution to ensure your creative vision and expectations are met.

- **Betterment of the Environment**



Digital Fabric Printing provides significant reductions in both water as well as electricity consumption when compared to traditional methods of fabric printing. As a result, for many Fabric Printers, Digital Fabric Printing can reduce water use by up to 90% and electrical usage by up to 30%.

**• Cost Effective**

When we look at the costing of the Digital Printing it is much less than the traditional as well as the embroidery and work done on a fabric. You only get printed the amount of fabric you wish to and there is no bulk buying.



When it comes to the wedding season then there are many people who get the lehenga cholis digitally printed as that looks amazing especially for the bridesmaids as the fabric is very light in weight. The Bollywood celebrities prefer digitally printed lehengas because they have a different look altogether in the wedding season.

Examples are: Alia Bhatt's romantic pink Anushree Reddy lehenga choli that she picked for her best friend's wedding, and Katrina Kaif's ocean blue printed lehenga choli set by Anita Dongre that she wore for Shloka Mehta and Akash Ambani's recent wedding.



Floral prints are a go to for the upcoming wedding season because they look very attractive and very different in a wedding.

Apart from the floral prints, we can also try different types of prints on a lehenga if we are getting it



customised.

The traditional Kurti or even the Tunics that give an indo-western look can be worn as a daily office going or for an outdoor picnic.

Digital Printing looks very unique when we wear it because it is very comfortable and affordable which is a Plus Point of it. And something which is affordable can be worn for a daily basis work-life or even for outings.



Apart from this there are also shirts and t-shirts printed digitally and can be customised just the way a traditional one can be. Also, an A-Line Midi dress or a Gown can have beautiful prints like floral, checks, stripes and many other prints. Different prints make

you look very different compared to others out there. The colourful flowers on the fabrics will make you feel that you are very close to nature.



**• Digital Printing Market**

The digital printing market size is expected to grow from US\$24.8 billion in 2021 to US\$34.3 billion by 2026, at a CAGR of 6.7%. Growing demand for sustainable printing and developments in packaging and textile industries are the key factors driving the growth of the digital printing market.

**• Covid-19 Impact in the Digital printing market**

COVID-19 has brought businesses across all industries at a very low stage, including the digital printing domain. And as the world slowly goes into recovery, the way business is done will never be the same again. COVID-19 has changed the conditions for all businesses in general.



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## QUALITY POLICY

KEN endeavors to create value for its customers by setting benchmarks in cost competitiveness, quality parameters and turnaround time. This is to be achieved by a continuous process of product innovation, enhancement of personnel skills and optimum utilization of technology.



## WHY KEN...

- ✓ Diverse product knowledge
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- ✓ Organizational strength & back-up to execute large institutional orders
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- ✓ Diverse manufacturing capability
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- ✓ Understanding of Customer needs & ability to service institutional customers to apparels
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## SPECIAL FEATURES

# ENVIRONMENT FRIENDLY TEXTILES (PART 2)

## HOW TO REDUCE POLLUTION LEVEL

In the previous article on Environment Friendly Textiles, which appeared in our December Issue, the author Sanjay Harane talked about pollution, pollutants, source of pollutants and impact on environment & human life. In this Part 2, the author discusses about how to reduce pollution.



There are two ways to reduce pollution level

1. Treat pollutants correctly before release into atmosphere
2. Control usages during manufacturing process by selection of right chemical, process that too with optimum usage.

It is always better to avoid usages of toxic chemicals during production activity than end of the pipe treatment. Scientifically, this method is known as CMS (Chemical Management System)

### Chemical Management System (CMS)

To avoid the usage of these RSL / MRSL one must adopt chemical management system (CMS) The Textile Supply Chain is composed of several tiers as we go down the ladder from the consumer to the fibre manufacturer. Across this stream, chemicals are used at different stages. Maximum use of chemical and therefore risks – is in the processing section i.e. the garment laundries and the fabric dye-house (Figure)

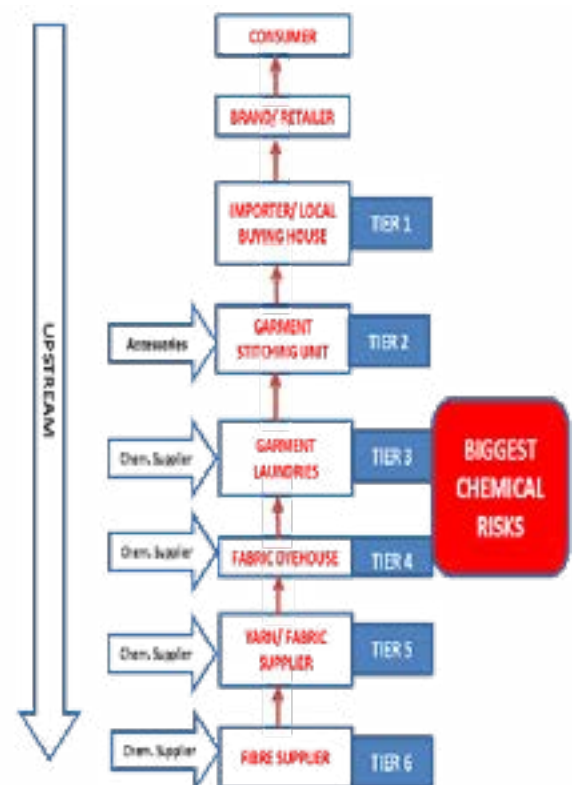
It is essential to manage the chemicals with proper understanding right from purchase, usages & up to disposal.

Looking towards seriousness of subject & need of an hour, CMS is developed. There are many consultants who work on CMS & guide industries for better outputs by reducing NPO's.

### Objectives of CMS

- Quality & Environmental performance of end product,
- Compliance to statutory prescribed norms
- Improvements in Productivity.

### Advantages of CMS



## Cost savings

Improve quality of end product

Compliance in outputs (Product & effluents)

Saving in consumption of water & Energy

Reduce accidents & improves Health & Safety

## How to Implement CMS

Basic steps for implementation of CMS are as under:

Commitment from TOP management - Generate CMS policy

Develop a team for implementation

Development of CMS Policy

Define responsibilities & authorities of each team member

Define chemical selection procedure

Identify hazard of each chemical & make safety procedures for storage, handling & disposal of same.

Strictly follow safety instructions mentioned in MSDS for transport, storage & handling in mill.

Strictly follow local & national rules & regulations while storage, use & disposal of any chemical.

Standardise procedure of testing of raw material, finished product & waste generated during process

Training to CMS team & work force

Development of MIS System - Daily / Monthly check points & reporting system to Top Management

Self-grading system for future self-assessment.

## Few Examples for action

- Reduce chemical consumption by automation (pH control, Temp control, etc...)
- Use of Enzyme based technology in pre-treatments.
- Techniques to reduce salt consumption
- Replace soda ash by liquid alkali
- Know chemicals & its parameters for application
- Reuse water (standing bath technique, Counter current washing)
- Water from pre-treatments to be reused in to other baths like desizing.
- Salt from dye bath drain by nano filter technology
- Heat from Heat Recovery Unit
- Water by using vacuum slit instead of regular squeezing for better squeezing
- Caustic recovery from mercerized wash liquor
- PVA recovery system.
- Reuse of cooling water at various stages of processing (Cooling water from sanforise), Cooling towers etc....
- Single bath dyeing of PC blends for selective shades
- Use of low salt dyes.
- Reduce (MLR) Material to Liquor Ratio by various techniques



- Replace overflow rinse by normal washes.
- Use of standing bath for finishing.
- Auto dosing system for chemicals/ Exact weighing of chemicals before actual use
- Use of laser techniques in place of Potassium Permanganate in denim washing (fading)

### Ecological foot print of various textile end products

As we know textile is a basic need of human & used in various forms like woven fabrics, knitted fabrics, non-woven fabrics etc... They are made from various fibres like- Cotton, viscose, Jute, Linen, Hemp, bamboo, Modal, Ramie..... Polyester, Acrylic, Nylon Spandex, Rubber, Wool, Silk, Gold, Silver, Steel, , Carbon

All these categories are ultimately used by us in day-to-day activities. Different fibres are developed & used as per suitability of end products.



The ecological footprint (EF) is an indicator to evaluate the sustainability and environmental performance of textile processes and products. Climate change is a key environmental challenge of our time. Eco footprint is a key environmental accounting tool for business managers, policy makers and non-governmental organisations attempting to identify mitigation measures that reduce the threat of climate change. The textile industry is increasingly engaged in ecological footprint in order to evaluate impact of textile product on environmental aspects; one must consider the facts as under:

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Stages – Lifecycle of Textile product	Consumption of Natural resources			Use & Release of Harmful pollutants (Hazards)			Bio Degradability after use
	Water	Fuel	Power	Water bodies	Soil	Human Health	
Fibre Production							
Processing							
Garmenting							
Packing							
Transportation							
Distribution							
During use							
Disposal							

### Carbon footprint: Today and Tomorrow

Today, textile production is the world’s third most polluting industry after the leather & paper industry. The total greenhouse gas emissions from textile production currently stands at 1.2 billion tonnes annually and this is more than those of all international flights and maritime shipping combined. It is estimated that the fashion industry is responsible for 10 per cent of the global carbon emissions. Manufacturing hubs China and India will increase the footprint further. More than 60 per cent of textiles are used in the clothing industry and a large proportion of clothing manufacturing occurs in China and India, countries which rely on coal-fuelled power plants, increasing the footprint of each garment.

### Increasing appetite for fast and disposable fashion

Polyester and cotton are the two most commonly used fabrics in the industry and their production has a consid-



erable ecological impact. Amongst these, a polyester production result in more emissions since it is produced from crude oil also consumes more energy & power during production. Moreover, bio-degradability of used polyester garment is quite high compared to that of natural fibre.

According to estimates, 262 per cent more CO<sub>2</sub> is emitted to produce a single polyester T-shirt than a cotton shirt. Moreover, it is further more harmful to environmental aspects due to its non-bio-degradable nature. Cotton is a natural fibre & its self-degradation property is less harmful nature. Now, looking towards polyester's sustainable property, it can be easily recycled & ultimately, it reduces the adverse impact on nature. But unfortunately, recycling of garments is not acceptable by users. Figures say that, that, the average number of times a garment is worn before it ceases to be used—has decreased by 36 per cent compared to 15 years ago. After use, less than 1 per cent of the material used to produce clothing is recycled into new clothing. It is time to adopt recycling of textile we use. While considering natural fibres, one can always compare environmental impact (Carbon dioxide and GHG emission) during the production and use of garment. To reduce such adverse impacts on human & atmosphere, one need to do modification in process (Chemical & procedure) by reducing consumption of hazardous chemicals & natural resources. Toxic dyes and chemicals used in wet processing of textiles, which are coming in contact with the skin and causing a direct damage to the health like skin cancer, allergy etc. The elimination of hazardous solvents is one of the prime concerns of eco-friendly chemistry.

One can adopt green technologies like

- Use of enzymes in wet processing,
- Reuse of water (popularly known as water recycling),
- Eco-friendly auxiliaries,
- Single step desizing, scouring and bleaching,
- Elimination of carcinogenic dyes and pigments,
- Use of low salt – high exhaustion reactive dyes,
- Use of low MLR equipment for processing,
- Supercritical fluid dyeing (using liquid Carbon dioxide),
- Recycling system for organic solvent used in textile pigment printing,
- Avoiding phthalate base pigments in printing,
- Digital printing, heat transfer printing,
- Formaldehyde free finishing and bio-polishing
- These are some of the advance processes consuming lesser energy & eco-friendly chemicals, thereby providing a safer and sustainable environment.

Wet treatment of textiles like de-sizing, prewashing, mercerizing, dyeing, printing etc. includes a lot of chemical applications on the fibres. Water is used at every stage in fabric manufacturing process application of chemicals, - wash and rinse out those same chemicals to make product ready for next process. Some fibres need to be bleached with chlorine before dyeing. This causes release of organo-chlorine compounds in the atmosphere, which are very dangerous to the environment. Generally, textile product consumes lot of chemicals (Normally, it takes between 20% and 60% of the weight of the fabric) to produce end product. During the process of wet treatment, huge quantity of fossil fuels is consumed which have carbon content and react with oxygen to form carbon dioxide. This results in acidification, fossil fuel depletion and ultimately global warming. Fabrics take a lot of energy to produce fabrics.



A systematic approach including a continuous improvement process can reduce the carbon footprint of textiles.

Companies will realize how they can benefit from increasing energy efficiency and thus cutting costs for fuel and electricity. In fact, it can be a triple win for the textile retailer, supplier and the environmental sustainability can be achieved by looking at the full life cycle of our clothing. Adoption of 3 R concepts is now old one & one must add 4th R & follow 4 R concepts. i.e., **Reduce, Reuse, Recycle & Research.**

- 1. Reduce:** Low carbon foot print processes cut costs by reducing waste of raw materials and energy. Water and energy usage reductions by the textile dyeing and finishing sector can help reduce global carbon dioxide emissions. By saving energy and water, the textile industry can not only save a lot of money, but also help to slow down climate change. The textile industry needs to adopt more energy efficient processes & chemicals. Eco-efficient processes for textile mills can save costs of production and also help to reduce the environmental burden.
- 2. Reuse:** Industry can reuse water, energy & chemicals from drains. This will help in reduction of production costs.
- 3. Recycle :** One can always think to recycle water after proper treatment back to process. Many new technologies have been developed to recycle Salt, PVA from size, Caustic from mercerise wash liquor. This will reduce consumption of fresh water & chemicals & ultimately can reduce environmental burden. Used textile material can be converted back into yarn & can generate melange yarn. Same yarns can be re-dyed & produce fresh garments at half the rates. Plastic bottles can be recycled to produce fibre & used in geo-textiles. Even waste garments (manmade fibre) can be recycled back to make roads.
- 4. Research:** Educational & research institutes must apply brain on research activity by environmental burden can be reduced. (Super critical Carbon dioxide process for polyester dyeing, salt less dyeing of reactive dyes are good examples).

Let us try to understand eco-friendly apparel which serves our purpose of clothing with less or no harm to environment. How do we calculate the impact of a particular garment on environment?

### Lifecycle assessment & Carbon footprint of clothing

It is calculated with considering below points. This table is generated with consideration of several segments like cotton needs huge water; also pesticides are sprinkled during growth of plant. Similarly, manmade fibre – Polyester or Nylon are produced chemically which is derived from fractional distillation of coal tar this consumes lots of energy, chemicals & water. Ultimately adverse impact to water, air & soil is observed.

	Energy use	Water use	Greenhouse gases	Waste water	Direct land use
Decreasing environment impact ↓	Acrylic	Cotton	Nylon	Wool	Wool
	Nylon	Silk	Synthetic	Regen. cellulosic	Ramie
	Polyester/PTT	Nylon	Polyester	Natural bast	Cotton
	Regen. cellulosic (viscose, Modal)	Regen. cellulosic	Lyocell	fibres	Flax
	PLA/Cotton/Lyocel	Acrylic	PLA	Nylon	Hemp
	Wool	Hemp	Viscose	Polyester	Viscose and Modal
	Natural bast fibres (nettle, hemp, flax)	Wool	Modal		Jute
		Natural bast fibres	Cotton		PLA
		Polyester	Natural bast fibres		Lyocell (Synthetic)
			Wool		

Source: Defra 2010

In addition to this, it consumes natural resources & chemicals during fabric making, processing, garment making, activities at laundry & lastly disposal to dumping area. Also, after dumping, it needs different period for degradation in soil this process consumes natural resources & also pollute atmosphere.

During this cycle, lots of transportation from one state to another takes place which consumes petroleum &

impacts on air pollution & also reduces natural resources upto large extent.

Total impact is calculated of various fibres & this is known as Lifecycle assessment or Carbon footprint.

The Sustainable Apparel Coalition (SAC) has updated its Higg Materials Sustainability Index (Higg MSI), This is a tool which attempts to help the apparel, footwear, and textile industry to assess the environmental impact of materials used in global manufacturing. The Higg MSI now features 80 base materials, including cotton, polyester, and silk. We will discuss on certain fibres which are widely used.

Nike MSI examines materials from the beginning, the origin of raw materials, to the finished textile or component part. Nike MSI looks at both naturally sourced (plant, animal or mineral based) and synthetic (fossil fuel / Petroleum based) materials. **The higher scores indicate more sustainable materials.**

MSI balances scoring based on three categories of points. The three categories include base material score, material environmental attributes, and supplier practices. The base material score takes into account all publicly disclosed LCA (Life Cycle Assessment) studies, industry reports and supplier derived information. The material environmental attributes look at different dimensions including green chemistry, recycled and organic content, water conservation, and blending or composting. Supplier practices examine the best practices within a specific supply chain. In more detail, it looks at testing performance in Nike’s Restricted Substance List Program, Water Program, and Energy and Carbon Program. Nike MSI gives negative points to supplier practices if a supplier fails to comply with basic environmental standards. This scoring framework evenly weights four different environmental impact areas.

These areas include –

- Chemistry,
- Energy and greenhouse gas intensity,
- Water and land use intensity,
- Physical waste – disposal

Segment	Focused on
Chemistry	Human health hazard evaluations for carcinogenicity, acute toxicity, chronic toxicity, and reproductive toxicity and endocrine disruption.
"Energy & Greenhouse gas intensity"	Global warming, acidification, and human and eco-toxicity. Energy intensity and GHG intensity. It includes primary process during production energy along with transportation.
Water & Land use intensity	Primary process water (e.g., irrigation for agricultural crops) and amount of bio-based raw material produced per hectare of land.
Physical waste & Disposal	Waste generated from raw material to finished product. The main categories of physical waste include hazardous, municipal solid waste, industrial, recyclable /compostable and mineral.

The Higg Index Product Tools are used during the design and materials selection stages of production to assess a product’s sustainability impacts; they also assess a product’s lifetime sustainability impact. Higg Product Tools offer brands and manufacturers information to make better choices at every stage of a product’s development. In terms of sustainability scoring, polyester is the highest ranked material in the scoring system – despite ongoing concerns about micro fibre pollution & also its bio-degradability –Whereas Leather & wool ranked lowest in the system. Conventionally grown cotton also scores poorly; Organic cotton has an improved status. Several



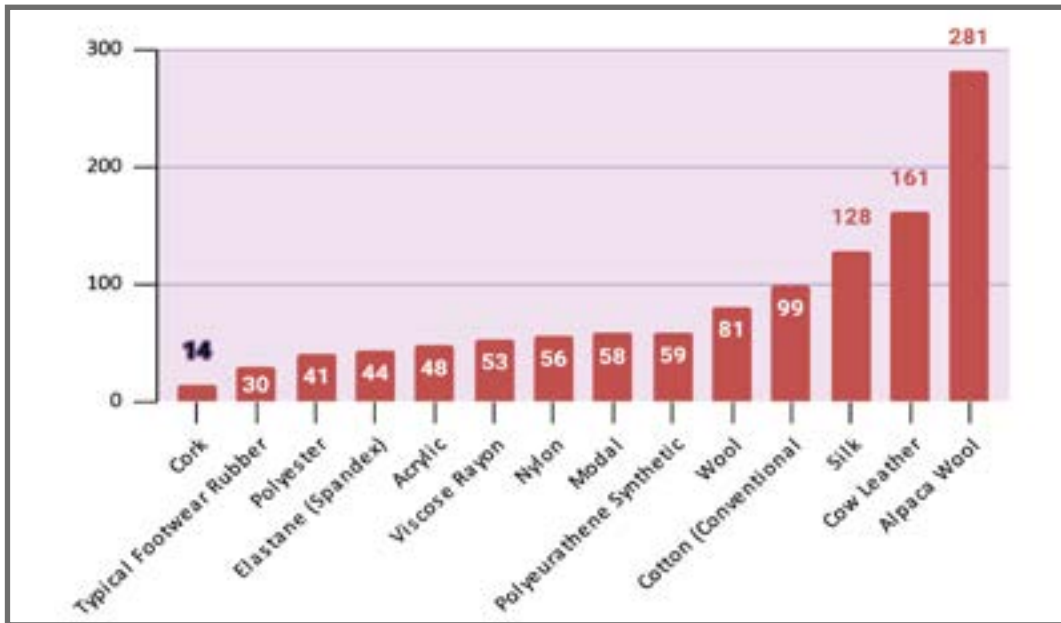
brands like Nike also have worked on sustainability index & their work is helping garment designers to develop new fashion trends with less impact on atmosphere.

Higg MSI assesses a material’s environmental performance and scores the results. Calculations account for energy, water, chemistry, and additional impacts used in material production, with the aim of giving designers greater insight in creating more sustainable apparel.

Looking at the above chart, one can decide his contribution to environmental aspects & consume garment.

More details on sustainability index are available on websites

1. <https://product.higg.org/product-tools>
2. <http://nikesupplychain.weebly.com/sustainability-of-materials.html>
3. <https://www.programmableweb.com/api/nike-materials-sustainability>



Let us take an OATH

“We will take care of mother earth with social responsibility and environmental protection.

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# ADVANTAGES OF DREF SPINNING

Shalini, MMP Filter

**D**REF spinning which is conventionally known as Friction Spinning operates on the basis of mechanical/aerodynamic spinning system with an internal suction and same direction of drums rotation. Drafted slivers are opened into individual fibres by a rotating carding drum covered with saw tooth type wire clothing. The individualised fibres are stripped off from the carding drum by centrifugal force supported by an air stream from the blower and transported into the nip of two perforated friction drums where they are held by suction. The fibres are sub-sequentially twisted by mechanical friction on the surface of the drums and produced yarns result in high resilience with bulkiness and high air permeability.

The Core-Sheath combination produced offers improved resistance, strength and combination of different yarns like copper, stainless steel in core which can be used for various applications.



### Applications & Reasons

- 0.6Ne -1.5Ne-filter cartridge
- 7Ne- for filter fabric where the weft of the filter fabric is with friction spun yarn
- Due to high air permeability of the Dref Friction Spun Yarn, the dirt holding capacity of the filter cartridge and the filter fabric increases

tremendously. It also helps the filtration process with higher efficiency

- Friction products such as brake lining, brake shoe, clutch lining etc. are in high demand. Yarn produced through this process is in very high demand. After processing the friction spun, the other yarns are used to combine on TFO to produce yarns which are used for applications using multifilament glass fibre yarn or UHMWPE as core yarn with Para Aramid fibre as sheath

» Cut Resistant gloves

» Apparel

Other areas where core spun through Friction Spinning are used in shoes, ropes and industrial cable manufacturing. Filler cartridge for liquid filtration is also effectively made with these yarns. Secondary Carpet Backing for tufted carpets can be produced with waste fibres in this spinning system. Upholstery, table cloths, wall coverings, curtains, handmade carpets, bed coverings, and other decorative fabrics can be produced economically by DREF Spinning System. Heavy flame-retardant fabrics, conveyor belts, clutches, brake linings, friction linings for automobile industry, gaskets are some other examples where the DREF yarns can be effectively used.

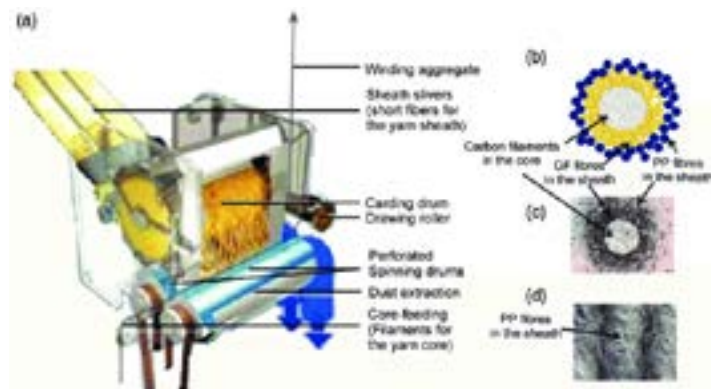
### Filter fabrics

Polypropylene filter cloth is extensively used in liquid-solid filtration mainly for its excellent filter cake release and good resistance to most acids and alkalis. Thanks to its super low moisture absorption, woven polypropylene in weft on filter fabric in twill, plain weaves is a preferred selection for filtration purposes



## Advantages of PP Filter Fabric

- Filter lifecycle will increase
- Lightest weight among synthetic fabrics
- Excellent gas permeability
- Free of mildew and oxidation
- Good resistance against acids, alkalis and reducing agents
- Available for large to fine particle filtration



## PP Filter Fabric is commonly used in:

- Chemical
- Pharmaceuticals
- Sugar
- Non-ferrous metal smelting
- Sewage treatment and many more

## PP Secondary Carpet Backing

Colour, texture, type...always things to consider for any carpet purchase. But, if you flip it over, you'll find something else that is important—"The Backing"....So, what exactly is carpet backing? The underside of a carpet is also called the backing. It secures the tufts and gives the carpet additional strength and dimensional stability. Most carpets have a double backing: The Primary Backing—where the yarn is tufted into, and The Secondary Backing—which is the outer material, from polypropylene and is lightweight, strong, dimensionally stable, mildew resistant, economical, has moisture wicking property and is more durable and long lasting than the traditional backing. Poly-

propylene is being used widely for secondary carpet backing these days.

**Says Executive Director of MMP:** "MMP is set out to carve its niche in making Futuristic Fabric for a sustainable and better world. We live by the ideology of 'Dream, Create, Produce' to bring about yarns that will create a world of difference and elevate India ahead of the completion on global map. At MMP, technology, innovation and experience are integral not only to spinning new yarns, but also to spinning a roadmap for the future."



## TEXTILE NEWS

The Ministry of Textiles today extended the timeline for submission of applications under the PLI (Production Linked Incentive) Scheme for textiles till 14.02.2022. Earlier, the date of submission of online application under PLI Scheme for Textiles was up to January 31, 2022.

The government in December had approved the PLI scheme for textiles, with an approved outlay of Rs. 10,683 crore for five years to promote production of MMF apparel, MMF fabrics and products of technical textiles.

The ministry had started to accept online applications for textiles from January 1, 2022, via [pli.texmin.gov.in/mainapp/Default](http://pli.texmin.gov.in/mainapp/Default) portal. Earlier, the application window was supposed to remain open from 01-01-2022 to 31-01-2022 but now the deadline has been extended by two more weeks.

The PLI scheme in textile was approved by the Cabinet in September had approved the proposal for production-linked incentive (PLI) scheme for specific segments in the textiles sector. The scheme for specific segments in the textiles sector had received the Cabinet nod in September.

Under the PLI scheme, factories based around aspirational districts or Tier-3 and Tier-4 cities will be given priority, which will especially benefit states like Gujarat, Uttar Pradesh, Maharashtra, Tamil Nadu, Punjab, Andhra Pradesh, Telangana.



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# SELF CLEANING OF TEXTILES

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Business Head(Dyes)

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Self-cleaning fabric has massive potential for improvement of products not only in clothing industry but also in health industry due to time, material, energy reduction and consequently cost-efficiency during production.

Self-cleaning concept has attained remarkable interest because of their distinctive features and wide range of possible applications in various fields. As well as increasing the demand for sanitary, self-disinfecting and contamination free surfaces, interest in self-cleaning protective materials and surfaces has developed rapidly throughout the years since it has high potential as commercial product, which is able to meet the market demands globally. There are numerous materials that utilised the self-cleaning technology including interior applications such as fabrics, furnishing materials, window glasses, and outdoor construction materials such as roof tiles, car mirrors, and solar panels.

The self-cleaning theory was instigated from nature phenomenon which can be noticed on leaves of lotus plant, rice plant, butterfly wings, fish scales, etc. For lotus leaf, it is a type of plant which grows in mud without let the mud affect the purity of the plant. The waxy surfaces of the lotus leaves combined with the presence of microscopic structures result in an extremely hydrophobic surface. In 1997, the investigation of the self-cleaning ability of the plant leaves surface was done by Barthlott. Although discovered already in the 1970s, Barthlott and his team in the 1990s identified the reason for the self-cleaning properties and named it the 'Lotus Effect'. It is based on the specific properties of micro- and nano structured super hydrophobic surfaces, which are always

completely cleaned by rainfall: the contact area of water and dirt particles is largely minimised by the double structured surface. This in combination with hydrophobic chemistry results in extremely high contact angles that let water drops roll off at the slightest inclination, in so doing, taking up all adherent particles and removing them, leaving behind a clean and dry surface

Generally, all kinds of particles are always removed entirely from water-repellent leaves when exposed to natural or artificial rain, as long as the surface waxes are not destroyed. The dirt particles that deposited on the waxy surface of the leaves are generally larger than the microstructure of the surface of the leaf. Hence, deposited on the tips, which results in the minimizing of the interfacial area between both surfaces. In the case of a water droplet rolling over a particle, the surface area of the droplet exposed to air is reduced and energy through adsorption is gained. The particle is removed from the droplet's surface only if a stronger force overcomes the adhesion between particle and water droplets. Due to the very small interfacial area between particle and rough surface, adhesion is minimized. Therefore, the particle is 'captured' by the water droplet and removed from the surface. This phenomenon is called "Lotus effect". Self-cleaning textile means the textile surface which can be cleaned itself without using any laundering action. Now a days peoples are very busy in their work that they do not have time



for clean their daily wear cloths also people who are working in kitchens having headache to wash their garments. Also, military peoples have to survive in such drastic condition that they cannot wash their cloths.

There are two principal ways of self-cleaning materials, namely hydrophobicity and hydrophilicity. Both types of coating clean themselves with the action of water by rolling droplets for hydrophobic and sheeting water for hydrophilic that carries dirt away. Nevertheless, hydrophilic have an additional property, which can chemically break down the adsorbed dirt in sunlight through the help of photocatalyst which also known as hydrophilic photocatalytic coating.

The “Lotus Effect” was applied in this super hydrophobic mechanism. The lotus plant cleans itself by having super hydrophobic leaf which consists of microscopic bumps all across the leaf’s surface that play the important part to its water-repelling properties. A rough coating of nanoscopic wax crystals on these bumps further increases the effect. It allows the water droplets rolls across and removes dirt away. The water and the dirt have more affinity each other than the surface. Scientists have created a superhydrophobic polymer structure by directly replicating the surface of a lotus leaf. Poly (dimethylsiloxane) (PDMS) was used to replicate the lotus leaf structure. The leaf was used as a template to cast a complementary PDMS layer. An anti-stick layer was added to the PDMS, which was then used as negative template for a second PDMS casting step. The second PDMS layer was then a positive image of the lotus leaf. The complex lotus surface patterns are transferred with high fidelity. The artificial PDMS lotus leaf has the same water contact angles and very low water roll-off angle as the natural lotus.

Photocatalytic Process is the acceleration of photoreaction in the presence of catalyst. This process will decompose the dirt molecules by utilize the sunlight. By utilizing the photoreaction induced by photocatalyst, the organic contaminants will be degraded into air and water. The mechanism of photocatalytic reaction begins when a photocatalyst is irradiated by light, usually ultraviolet light. Titanium Dioxide (TiO<sub>2</sub>) Titanium dioxide (TiO<sub>2</sub>) is a semiconductor material that acts as photocat-

alyst and has been proved to be an excellent catalyst in the photo degradation of colorants and other organic pollutants. It is widely used because of its various advantages, such as, non-toxicity, availability, cost effectiveness, chemical stability and favourable physical and chemical properties.

TiO<sub>2</sub> is used in paint and cosmetics as pigment and as a food-additive. It is also used in anti-pollution applications and for water purification.

Currently, TiO<sub>2</sub> is used for self-cleaning surfaces and has now emerged into commercial products ranging from kitchen and bathroom ceramic tiles and fabrics, to indoor air filter and window glass section. Textile Scientists investigated the self-cleaning properties of cotton fabrics finished with nano-TiO<sub>2</sub> and nano-TiO<sub>2</sub> mixed with fumed silica. The self-cleaning effect was stronger for samples coated with higher TiO<sub>2</sub> concentrations. Mostly, the finished samples appeared clean after one wash whereas the untreated fabrics required repeated washing. Nano technology provides a new concept self-cleaning textiles which gives self-cleaning as well as fresh cloths every day, this not only technically benefited but techno economically also benefited.



In many applications, the use of textiles is limited due to their soiling and wetting behaviour. To overcome this limitation, textiles are improved with a variety of finishes of different product classes. Recently, products have been invented that make use of the Lotus Effect and implement self-cleaning properties to a textile surface. The successful realisation of this effect leads to a sig-

nificant reduction in the cleaning requirement of such surfaces.

To achieve self-cleaning properties nature uses an efficient method, which has been perfectly realised on the leaves of the lotus plant. Besides this species, self-cleaning properties can be found on a variety of other biological surfaces, such as cabbage, reed and nasturtium. The main function of nano structured super hydrophobic surfaces in nature is probably the protection against pathogenic organic contamination like bacteria or spores. These are regularly removed from the leaves by rainfall.

On many of these surfaces even high-viscous liquids (e.g. honey) drip off. The Lotus Effect is based on a minimisation of the contact area of hydrophobic surfaces by an overlapping double structure approximately 100 nm to approximately 100 µm in size.



Because of this active principle, the Lotus Effect differs from the 'soil-repelling' and 'soil-release' function. As the Lotus Effect depends only on physicochemical characteristics it is independent of the living system and can be transferred into technical systems. The first commercial products with the Lotus Effect were wall painting and roof tiles. The term 'Lotus Effect' is a registered trademark for many applications.

The self-cleaning property of the lotus plant, named the 'Lotus Effect', is based on the specific properties of micro- and nanostructured ultrahydrophobic surfaces, which are always completely cleaned by rainfall: the contact area of water and dirt particles is largely minimised by the double structured surface. In the technological implementation, various methods have been used to avoid the adhesion of dirt and to improve the release of dirt.

Smooth surfaces without specific hydrophilicity or hydrophobicity: Extremely smooth surfaces show a reduced soiling behaviour because particles have only low mechanical hold and can be removed by air or liquids. However, the adhesion of residues from drying of liquids or filming cannot be prevented. To remove them, detergents (surfactants) and mechanical support are necessary.

Therefore, the self-cleaning effect of smooth hydrophilic surfaces is low. With extremely smooth surfaces low soiling is sufficient to impair the aesthetic impression crucially, long before the function is limited (e.g. paints and panes). Another positive effect for the dirt removal: particles lying in cavities of the rough solid surface are not reached by a drop that simply rolls over it. As a result of the impact when falling on the surface the drop deforms, so that it penetrates into the cavities and reaches the particles lying there.

Application of self-cleaning textile

- a. Medical textiles e.g. Hospital garments
- b. Sport tech e.g. Athletic wear
- c. Defense textile e.g. Military uniforms
- d. Smart textiles
- e. Upholstery
- f. Undergarments

Self-cleaning concept contributes a lot of benefits in various industries. Especially, self-cleaning fabric which has massive potential for improvement of products not only in clothing industry but also in health industry due to time, material, energy reduction and consequently cost-efficiency during production. Moreover, this technology embraces environmental friendly properties as it effectively decreases cleaning efforts and conserve a considerable amount of water and energy as well as saving time and laundering cost.





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# DYEING/FINISHING/PRINTING

## ANILINE-FREE DENIM

TVC Editorial Team

**A**rchroma and Jeanologia have joined forces to introduce an eco-advanced alternative to the denim fabric washing process – like in some cases mercerization, one of the most water-intensive and polluting processes in denim fabric finishing.

The production of denim needs proper steps to succeed at imparting the desired qualities in a pair of jeans.

It starts with spinning where the cotton is transformed into yarn, followed by a pretreatment that will ready the yarn for dyeing. The dyed yarn then goes through the sizing process, which is a treatment preparing it for weaving. After weaving, the fabric may undergo a washing treatment or, in some cases, mercerizing, which consists of treating it with caustic soda in order to obtain a more lustrous, flat and less reddish-blue and black denim.



Image source: Archroma/Jeanologia

There are 2 traditional ways to clean the fabric – washing or mercerizing – multiple highly water intensive washings are required in order to restore optimal fabric pH and remove unfixed dyestuff and any undesired deposits or impurities from the fabric. One of such impurities removed in the washing process is aniline – a substance that is classified as a category 2 carcinogen and considered toxic to aquatic life.

The breakthrough alternative to the fabric cleaning concept presented by Jeanologia and Archroma

combines the use of the aniline-free Pure Indigo Icon dyeing system of Archroma, and the water-free and chemical-free G2 Dynamic finishing technology of Jeanologia.

Archroma Pure Indigo Icon is made on an innovation launched by the company in May 2018 – its aniline-free Denisol Pure Indigo. Aniline is a key factor to make the indigo molecule. Unfortunately, during this process some aniline impurities are carried through into the indigo dyestuff. When the indigo is dyed on the fabric, a lot of the aniline impurity is locked into the pigment in the fabric. The remainder of the aniline impurity – approximately 300 metric tons annually – is discharged during dyeing. This can be a problem as aniline is highly toxic to aquatic life and in addition, exposure levels to factory workers can be high. The new Denisol Pure Indigo 30 liq was therefore developed as an aniline-free indigo solution for designers, manufacturers and brand owners.

Jeanologia's G2 Dynamic is an ozone treatment for continuous fabric which dramatically reduces the amount of water and chemicals used, while at the same time saving costs at the mill and eventually at the garment finishing facilities. This technology makes fabric more stable and consistent and better prepares it for the use of other technologies like laser. As presented a few months back in the partnership with Archroma, this machinery can be used along with Pad-Ox technology to help clean fabric, improvising the speed of results at room temperature with significant savings in energy and CO<sub>2</sub>.

The Archroma and Jeanologia solution allows aniline-free denim to be achieved through a fully chemical-free and almost water-free cleaning alternative treatment, while also improvising the final step of the fabric.

The solution can also be used with additional Archroma coloration systems like Indigo Reflection or Pure Undertones.

# SCIESSENT ANNOUNCES NOBO ANTI-ODOUR TECHNOLOGY

TVC Editorial Team

The NOBO anti-odour technology is the newest addition to the product portfolio of Sciescent, a global leader in antimicrobial, anti-odour, anti-pilling and water repellent technologies headquartered in Beverly, Massachusetts.

Specifically drawn up for the natural as well as the synthetic fabrics, NOBO adsorbs compounds responsible for body odour without the use of an antimicrobial.

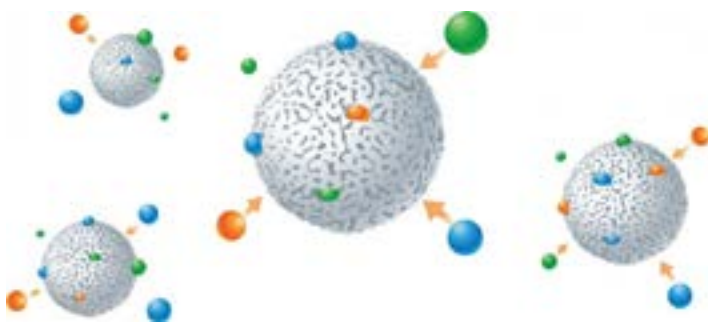


Image Source: Sciescent

The technology harnesses the power of benign, non-biocidal, highly porous minerals and its complex structure creates a very highly active surface area those bonds with odour compounds, readily adsorbing them into the porous surface. Once absorbed, the odours are washed out in the laundry and the receptor sites regenerate – ready to absorb new odours.

“NOBO is a top addition to our product portfolio,” said Sciescent CEO Paul C. Ford. “This technology perfectly encapsulates our continued commitment to innovation and sustainability by providing brands with an inexpensive way to enhance

and add value to their products, while reducing the laundering frequency for consumers. In addition, NOBO does not require any biocidal registrations, so it will be the perfect odour control solution for wherever brands sell their products.”

Applied via pad or spray application, the NOBO can be incorporated into virtually any fabric and is ideal for daily-use garments. It is working very well on recycled polyester, as well as on synthetic cellulosic fibres.

Sciescent’s Agion, Lava X2, Agion Active X2, Pilltec, and now NOBO products are all bluesign-approved and listed on the Zero Discharge of Hazardous Chemicals (ZDHC) Foundation ZDHC Gateway, complying with ZDHC Level 3 requirements.



Image Source: Sciescent

Agion antimicrobial solutions from Sciescent have been incorporated into a wide range of healthcare, industrial and consumer applications, including medical devices, drinking water applications, and textiles/apparel.

# WATER VAPOUR PLASMA FOR WEARABLE ELECTRONICS

TVC Editorial Team

A method of improvising the flexibility of ultra-thin electronics, like those used in bendable devices or clothing, has been developed at the Riken Centre for Emergent Matter Science (CEMS) and the Riken Cluster for Pioneering Research (CPR) in Japan.

It involved the use of water vapour plasma to directly bond gold electrodes fixed onto separate ultra-thin polymer films, without needing adhesives or high temperatures.

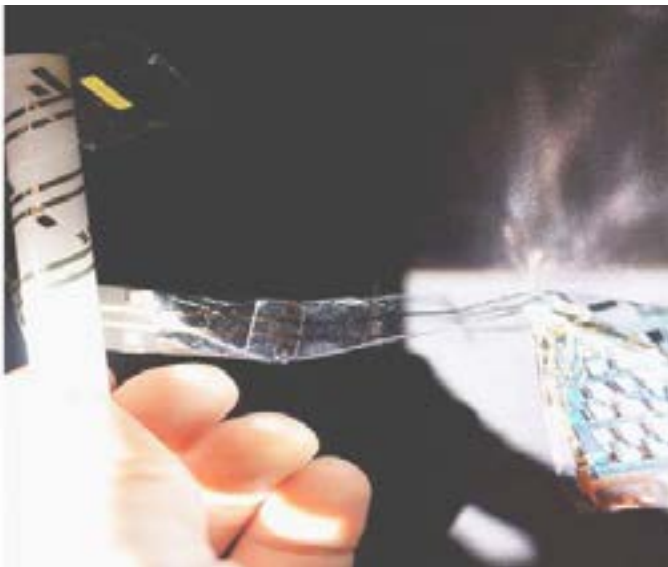


Image source: Riken

As electronic devices get smaller and smaller, and the desire to have bendable, wearable and on-skin electronics is increasing, conventional methods of constructing these devices have become impractical, the Japanese developers say in *Science Advances*.

One of the biggest issues is how to connect and integrate multiple devices or pieces of a device that each reside on separate ultra-thin polymer films. Conventional methods that use layers of adhesive to stick electrodes together reduce flexibility and require temperature and pressure that are damaging to super-thin electronics. Conventional methods of direct metal-to-metal bonding are available, but require per-

fectly smooth and clean surfaces that are not typical in these types of electronics.

The water-vapour plasma-assisted bonding technique created by the researchers, led by Takao Someya at Riken CEMS/CPR, avoids these difficulties. The process takes less than a minute at room temperature, followed by a 12-hour of waiting. The process generates stable bonds between gold electrodes that are printed into ultra-thin – two thousandths of a millimetre – polymer sheets using a thermal evaporator.

“This is the first demonstration of ultra-thin, flexible gold electronics fabricated without any adhesive,” says Kenjiro Fukuda, senior research scientist at Riken CEMS/CPR. “Using this new direct bond technology, we were able to fabricate an integrated system of flexible organic solar cells and organic LEDs.”

Experiments showed that water-vapour plasma-assisted bonding performed better than those conventional adhesive or direct bonding techniques. Specifically the strength and consistency of the bonds was better than standard surface-assisted direct bonding. At the same time, the material conformed better to curved surfaces and was more durable than what could be achieved using a standard adhesive technique.

This concept is proved; the team non-segregated ultra-thin organic photovoltaic and LED-light modules that were printed on separate films and connected by five additional polymer films. The devices withstood extensive testing, including being wrapped around a stick and being crumpled and twisted to extremes. Additionally, the efficient power of the LEDs worked out very well from the treatment. The technique was also able to join pre-packaged LED chips to a flexible surface.

“We expect this new method to become a flexible wiring and mounting technology for next-generation wearable electronics that can be attached to the clothes and skin,” says Fukuda. “The next step is to develop this technology for use with cheaper metals, such as copper or aluminum.”



# NEW DUAL ACTION TEXTILE COOLING TECHNOLOGY

TVC Editorial Team

**H**eiQ Cool is being introduced as the first textile technology to deliver both instant contact cooling and continuous evaporative cooling.

Addressing the importance of body temperature control, HeiQ Cool powered fabrics keep on regulating the skin temperature with a dual cooling capability. In a first step, melting energy absorption delivers instant contact cooling before the first sign of sweat and delays the build-up of heat, followed by a vaporising energy action that mimics the skin's thermal regulating system by providing continuous evaporative cooling as long as the body is hot as well as sweating.



Image source: HeiQ

Suitable for all fabrics, the initial launch of the product by HeiQ, headquartered in Zürich, Switzerland, will focus on home textiles; especially sleep products such as mattress ticking's, pillows and bed linen. The coating cools such fabrics before the first sign of sweat, delays the build-up of heat and continuously regulates the temperature. Instantly very cool in the touch, the components synergistically recharging the surface layer ensur-

ing a consistently cool, dry and comfortable body temperature.

The bio-based vegetable oil-derived thermo-functional polymer absorbs heat energy, giving an instant cooling sensation. If the body continuously heating up, perspiration is created and its patented hydro-functional polymer transports moisture away together with the heat, generating a continuous cooling effect that stops once cooling is complete. The combination of a hydro-functional polymer with bio based vegetable oil-derived thermo-functional polymer formulation of HeiQ Cool contains more than 50% USDA certified bio based content. It is also OEKO-TEX class 1 suited and meets most brand RSL (restricted substances list) requirements.

“Since the pandemic started, consumers are investing more in enhancing the comfort of their homes,” said HeiQ chief marketing officer Hoi Kwan Lam. “We spend one third of our time sleeping, which is why it is important that we invest in products that give us a good night’s sleep. Research conducted by Cotton Inc. in 2017, showed that 55% of consumers are looking for thermoregulation functions in their bedding products. In recent years, consumers have also shown a strong desire for more functional and sustainable products. Not only is the HeiQ Cool treatment based on more sustainable components than anything you will find on the market, the fact that it helps to efficiently balance temperature probably means you can cut down on the energy consumption of the air conditioner.”



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# TEXTILE MACHINERY EXPORT UP & UP

TVC Editorial Team

Unit: US \$ Million

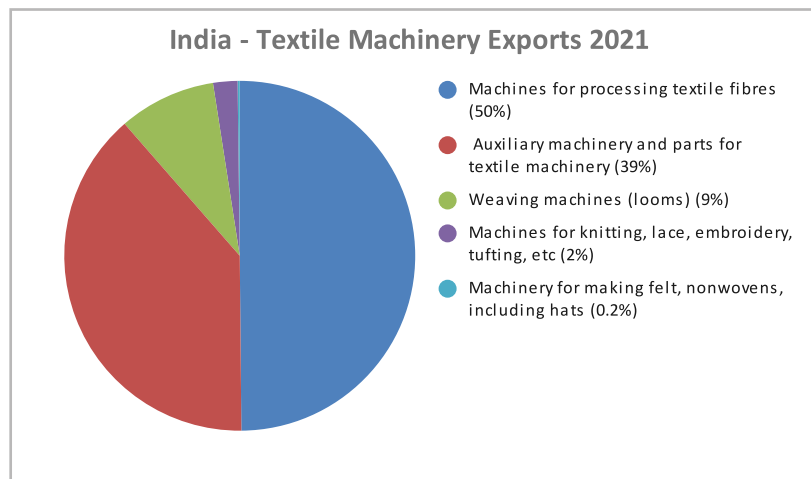
Unit: US \$ Million

India - Textile Machinery Exports				
S.No.	Commodity Name	Jan-Oct 2020	Jan-Oct 2021	% Change
1	Machines for processing textile fibres	114.15	199.83	75.06
2	Auxiliary machinery and parts for textile machinery	112.78	155.31	37.71
3	Weaving machines (looms)	24.10	35.89	48.92
4	Machines for knitting, lace, embroidery, tufting, etc	3.60	9.00	150.00
5	Machinery for making felt, nonwovens, including hats	1.38	0.80	-42.03
Total		256.01	400.83	56.57

Source: Ministry of Commerce and Industry

Machines for processing textile fibres				
S.No.	Country	Jan - Oct 2020	Jan - Oct 2021	% Change
1	Turkey	22.61	54.92	142.90
2	Bangladesh	17.84	22.56	26.46
3	Malaysia	4.46	15.04	237.22
4	Egypt	0.6	13.6	2166.67
5	Benin	3.59	9.65	168.80
6	Uzbekistan	7.05	9.27	31.49
7	Germany	3.69	8.19	
8	China	1.9	7.84	312.63
9	UAE	0.49	6.23	1171.43
10	Brazil	6.95	5.53	-20.43
11	Others	44.97	46.98	4.47
Total		114.15	199.81	75.04

Source: Ministry of Commerce and Industry





## Machines for processing textile Fibres

Textile Machinery Industry has been growing day by day in India even in the situations of pandemic. Machines for processing textile fibres were worth US\$114.15 million from January to October in 2020 whereas, in January – October in 2021 it rose to US\$199.83 million. As it was pandemic in 2020 and it majorly affected the Textile Machinery Industry, but after there were a few relaxations in the government norms, in 2021 Machines for processing textile fibres grew up to 75.06%. Now when we can segregate it country wise, then the US\$ million has been fluctuating, when it comes to Turkey, it was US\$22.61 million in 2020 and when we look at the year 2021, then the US\$ million has increased, i.e. US\$54.92 million, it raised up to 142.90%; Bangladesh has a rambled up to 26.46%, that seems to be the lowest of all in which US\$26.46 million was in 2020 and it increased in 2021, i.e. 22.56%; In the year 2020 in Malaysia it was US\$4.46 million, while in 2021 it hiked by 237.22%, i.e. US\$15.04 million; in Egypt the growth has been the highest compared to the other countries, it was just US\$0.6 million in 2020 but it grew so much in 2021 i.e. US\$13.6 million which is 2166.67% of growth. In Benin the growth is around US\$3.59 million in 2020 and it rose to US\$9.65 million in 2021, which means 168.80% growth. Uzbekistan seems the 2nd lowest of all, that is 31.49% of growth from 2020-2021 that was US\$7.05 million and US\$9.27 million respectively.

Here we come to China, which was US\$1.9 million in 2020 while in 2021 it increased to US\$7.84 million which means 312.63% hike in China's Machines for processing textile fibres. UAE was at a low stage as well but it rose eventually, US\$0.49 million in 2020 whereas in 2021 it went up to 1171.43% of growth i.e. US\$6.23 million. The growth percentage of Brazil decreased in 2021 that is US\$5.53 million while it was US\$6.95 million in 2020, that went up 20.43%. In other countries, the growth percentage was only 4.47% i.e. US\$44.97 million & US\$46.98 million in 2020 & 2021 respectively

## Auxiliary machinery and parts for textile machinery

Unit: US \$ Million

Auxiliary Machinery and Parts for Textile Machinery				
S.No.	Country	Jan - Oct 2020	Jan - Oct 2021	% Growth
1	China	9.09	23.38	157.21
2	Japan	5.09	16.49	223.97
3	Germany	8.72	14.26	63.53
4	Italy	5.28	11.57	119.13
5	Bangladesh	6.62	10.68	61.33
6	Turkey	4.37	8.71	99.31
7	Indonesia	5.33	5.72	7.32
8	Singapore	3.63	5.33	46.83
9	UAE	2.26	4.86	115.04
10	Vietnam	2.66	3.91	46.99
11	Others	36.25	32.53	-10.26
Total		89.30	137.44	53.91

Source: Ministry of Commerce and Industry

In Auxiliary machinery and parts for textile machinery, in 2020 it was US\$89.30 million, while it grew by 53.91% i.e. US\$137.44 million in 2021 and all data is between the month of January to October. In China, the percentage growth was 157.21%, wherein in 2020 it was US\$9.09 million

whereas in 2021 it was US\$23.38 million; in Japan it grew a bit more than China, in 2020 it was just US\$5.09 million and it grew up to 223.97% in 2021 i.e. US\$16.49 million; the growth in Germany was very less than the above countries, i.e. 63.53% wherein in 2020 it was US\$8.72 million and it grew only up till US\$14.26 million in 2021; in Italy the growth has been in 119.13% in 2021 that is US\$5.28 million in 2020 and US\$11.57 million in 2021; Growth in Bangladesh was a bit lesser that is just 61.33% that means in 2020 it was US\$6.62 million and in 2021 it was just US\$10.68 million; in Turkey the growth of the business was US\$8.71 million in 2021 whereas in 2020 it was US\$4.37 million and the percentage of growth in this country is 99.31%; Indonesia is at a very low growth rate that is 7.32% and in 2020 it was of US\$5.33 million and it raised to US\$5.72 million in 2021; Singapore seems to have a mediocre growth compared to other countries, i.e. US\$3.63 million in 2020 and in 2021 it went up to US\$5.33 million which means 46.83% of growth happened here; in UAE in the year 2020 was US\$2.26 million and it increased till US\$4.86 million in 2021 that is 115.04% of Growth; lastly in Vietnam the growth was just 46.99% wherein in 2020 it was US\$2.66 million and in 2021 it became US\$3.91 million that means 46.99% of growth. In rest other countries, in 2020 the growth was US\$36.25 million wherein it decreased in 2021 i.e. US\$32.53 million that is -10.26%.

### Machines for Knitting, Lace, Embroidery, Tufting, Etc

Machines For Knitting, Lace, Embroidery, Tufting, etc, have a lot of fluctuations in the % of the growth and this data is of January - October of 2020 as well as 2021. When we look at Germany, the was at US\$0.06 million in 2020 and it increased up to US\$2.37 million in 2021 so the growth in 2021 was 3850.00%; in Nepal the growth of this business in 2020 was US\$0.26 million and it raised by 142.31% i.e. US\$0.63 million in 2021; in Saudi Arabia the growth decreased up to 53.85% that is in 2020 it was at US\$0.13 million and in 2021 it came down to US\$0.2 million; in Kenya the growth was

at US\$0.1 million in 2021 whereas it was US\$0.08 million in 2020 that is means the growth was 25%; Japan was at US\$0.14 million in 2020, it came till US\$0.15 million in 2021 that is 7.14% of growth happened here; Ethiopia was at US\$0.27 million in 2020 and it went up to US\$0.07 million in 2021 that is very low compared to the previous year i.e. -74.07%. In other countries, the growth of this business went into minus that is -78.49%, in 2020 it was US\$2.65 million and in 2021 it went down to US\$0.57 million. Considering all the countries, in 2020 it was at US\$3.59 million and it rose in 2021 up to US\$8.95 million that is a hike of 149.30%.

Unit: US \$ Million

Machines For Knitting, Lace, Embroidery, Tufting, Etc				
S.No.	Country	Jan - Oct 2020	Jan - Oct 2021	% Growth
1	Hong Kong		4.12	
2	Germany	0.06	2.37	3850.00
3	Nepal	0.26	0.63	142.31
4	Indonesia		0.43	
5	USA	0	0.23	
6	Saudi Arab	0.13	0.2	53.85
7	Japan	0.14	0.15	7.14
8	Kenya	0.08	0.1	25.00
9	Djibouti		0.08	
10	Ethiopia	0.27	0.07	-74.07
11	Others	2.65	0.57	-78.49
Total		3.59	8.95	149.30

Source: Ministry of Commerce and Industry

## Weaving Machines (Looms)

Weaving Machines (Looms) in total in 2020 it was at US\$24.07 million and it increased in 2021 by 48.94% that is US\$35.85 million, this data is between the months of January to October. Starting with Bangladesh at US\$2.62 million and US\$6.47

Unit: US \$ Million

Weaving Machines (Looms)				
S.No.	Country	Jan - Oct 2020	Jan - Oct 2021	% Growth
1	Bangladesh	2.62	6.47	146.95
2	UAE	1.51	5.01	231.79
3	Brazil	0.73	3.89	432.88
4	Vietnam	3.37	2.22	-34.12
5	Turkmenistan	0.17	1.84	982.35
6	Turkey	1.91	1.48	-22.51
7	Egypt	1.36	1.15	-15.44
8	Indonesia	1.55	1.15	-25.81
9	Sudan	0.37	0.91	145.95
10	China	0.03	0.9	2900
11	Others	10.45	10.83	3.64
Total		24.07	35.85	48.94

Source: Ministry of Commerce and Industry

million in 2020 and 2021 respectively, that is 146.95% of growth in this business; in UAE it was US\$1.51 million in 2020 wherein in 2021 raised to US\$6.47 million that is a hike of 231.79%; Brazil

had a hike of 432.88% as it was at US\$0.73 million in 2020 and it went up to US\$3.89 million in 2021; Vietnam went into -34.12% that is in 2020 it was at US\$3.37 million and in 2021 it became US\$2.22 million; Turkmenistan experienced a good amount of growth that is 982.35%, in 2020 it was at US\$0.17 million and in 2021 it grew till US\$1.84 million; Turkey was at US\$1.91 million in 2020 whereas in 2021 it went down at US\$1.48 million that is -22.51%; Egypt decreased as well up to -15.44% i.e. US\$1.36 million & US\$1.15 million in 2020 & 2021 respectively; Indonesia went till -25.81% that is lesser than the year before, in 2020 it was at US\$1.55 million and in 2021 it became US\$1.15 million; Sudan had grown till 145.95%, as it was US\$0.37 million in 2020 and in 2021 it became US\$0.91 million; lastly considering China that was at US\$0.03 million in 2020 and it increased up till US\$0.9 million in 2021 that means 2900% that the highest growth ever. In other countries, US\$10.45 million was in the year 2020 and in 2021 it became US\$10.83 million i.e. 3.64% hike.



## TEXTILE FACTS

The size of India's textile and apparel market recorded USD 108.5 billion in 2015, and is expected to reach USD 226 billion market by 2023, growing at a CAGR of 8.7% between 2009 to 2023.

The Indian textile industry accounts for about 24% of the world's spindle capacity and 8% of global rotor capacity.

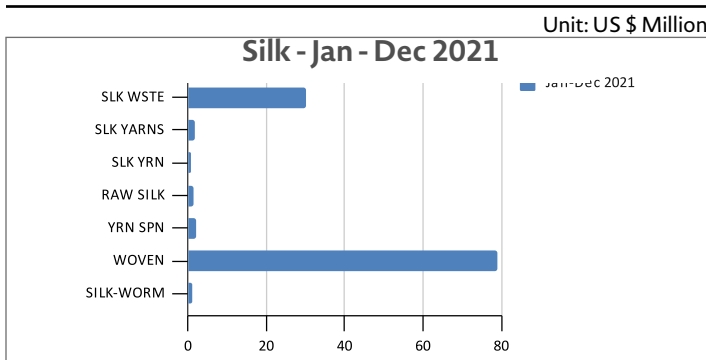


## MARKET UPDATE

# EXPORT IN NATURAL FIBRES

TVC Editorial Team

### Silk



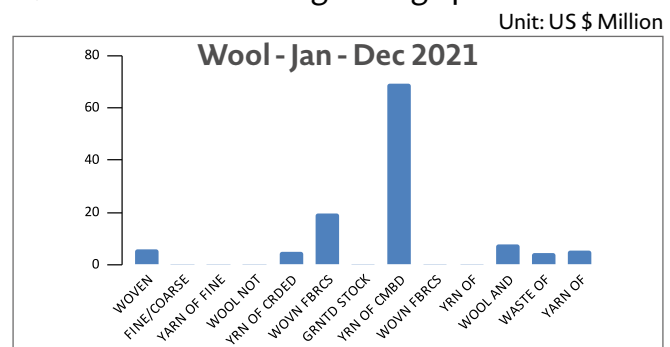
Source: Ministry of Commerce and Industry

Silk has various types of silk, silkworm cocoons suitable for reeling in 2021 grew up to US\$0.94 million and the growth is about 20873.33%; in woven fabrics of silk or of silk waste was US\$60.03 million in 2020 while it grew up to 31.73% in 2021 i.e. US\$79.08 million; Yarn spinning from silk waste not put up for retail sale is about US\$2.27 million in 2020 wherein in 2021 it decreased and became US\$2.17 million and the percentage went into -4.59%; raw silk (Not thrown) US\$0.14 million in 2020 and in 2021 it went up to US\$1.54 million and the growth is 985.38%; silk yarn and yarn spun from silk waste put up for retail sale, silkworm gut remained the same in 2020 & 2021 that is US\$0.7 million and it went in loss up to US\$-0.94 million; in silk yarns not put up for retail sale was about US\$0.27 million in 2020 whereas in 2021 it went up to US\$1.76 million and the growth was up to US\$547.25 million; silk waste is up to US\$18.4 million in 2020 whereas in 2021 it became US\$30.15 million and so the growth is 68.89%.

### Wool, animal hair, horsehair yarn and fabric

Wool, animal hair, horsehair yarn and fabric has different types in it that is woven fabrics of carded wool or of carded fine animal hair and this had a growth up till US\$5.71 Million in 2021 whereas in 2020 it was just at US\$3.31 Million and it has 72,6% growth; in fine/coarse animal hair not carded/combed in 2020 it was at US\$0.18 million wherein in 2021 it grew up till US\$0.28 million and the

growth was 55.7; yarn of fine animal hair (carded or combed), not put up for retail sale, growth went to -37.12% whereas in 2020 it went up to US\$0.04 million and in 2021 it decreased up till US\$0.03 million; the business in wool not carded or combed went to -14.12%, and in 2020 it was US\$0.11 million and in 2021 it became US\$0.09 million; yarn of carded wool not put up for retail sale was US\$3.54 million where in in 2021 it went up till 36.53% and in 2021 it became US\$4.83 million; woven fabrics of combed wool/fine animal hair is up to US\$13.33 million in 2020 and it changed to US\$19.75 million in 2021 means the growth is of 48.16%; granted stock of wool/fine/coarse animal hair was US\$0.2 million wherein in 2021 it came down to -48.75 i.e. US\$0.1 million; yarn of combed wool not put up for retail sale was US\$63.11 million in 2020 and in 2021 it became US\$69.19 million so the growth is 9.62%; woven fabrics of coarse animal hair/of horse hair was US\$0.03 million and in 2021 it came into -14.04%, in 2020 US\$0.04 million; yarn of coarse animal hair/of horse hair w/n put up for retail sale was US\$0.02 million and in 2020 and in 2021 it became US\$0 million that is a change of -78.95%; wool and fine or coarse animal hair, carded or combed was US\$9.41 million in 2020 and in 2021 it decreased up till US\$7.98 million i.e. -15.13%; waste of wool or of fine or coarse animal hair, including yarn waste but excluding garneted stock is flourished by 25.3% in 2021 i.e. US\$4.66 million and in 2020 it was at US\$3.72 million; yarn of wool or fine animal hair, put up for retail sale was US\$4.24 million in 2020 and in 2021 it rose up to US\$5.55 million that is growing up to 30.94%.

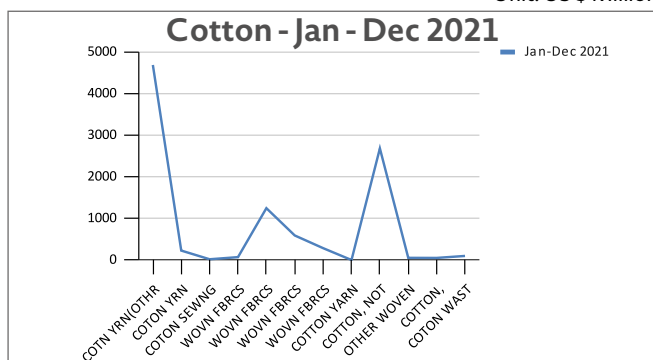


Source: Ministry of Commerce and Industry

## Cotton

Cotton is has a mainly growing business and the prices of cotton have also increased. Cotton yarn containing 85% or more by weight of cotton not put up for retail sale is US\$2610.36 million in 2020 and in 2021 it became US\$4689.26 million and the growth is 79.64%; cotton yarn containing cotton <85% by weight not put for retail sale had a business of US\$70.29 million in 2020 and in 2021 it had a business hike of 225.44% i.e. US\$228.75 million; cotton sewing thread w/n put up for retail sale in 2020 was US\$14.82 million wherein in 2021 it went up till US\$19.99 million i.e. 34.82%; woven fabrics containing<85% cotton, mixed mainly or solely with manmade fibers weighing<=200g/m2 is US\$71.09 million in 2021 whereas in the previous year that is 2020 was US\$35.39 million i.e the growth is 100.89%; woven fabrics of cotton containing>=85% by wt of cotton weighing not more than 200 g/m2 was US\$942.84 million in 2020 and in 2021 it raised up to US\$1247.48 million i.e. 32.31%; in woven fabrics of cotton, containing >=85% cotton by weight weighing>200 gm per sqm has US\$379.3 million in 2020 and in 2021 it grew up till 56.03% i.e. US\$591.81 million woven fabrics of cotton containing<85% cotton, mixed mainly with manmade fibres weighing>200 g/m2 had a business worth US\$166.77 million in 2020 and in 2021 it went till US\$286.89 million and the growth of the business was 72.03%; cotton yarn put up for retail sale was at US\$1.27 million in 2020 whereas in 2021 it became US\$1.95 million i.e. growth of 53.55%; cotton, not carded or combed has business of US\$1460.74 million in 2020 wherein in 2021 it became US\$2683.91 million i.e. 83.74%; other woven fabrics of cotton in 2020 was at US\$55.43 million, whereas in 2021 it decreased up till US\$54.04 million, this sector went into -2.51%; cotton, carded or combed had a business of US\$14.8 million in 2020 whereas in 2021 it rose up to 251.96% i.e. US\$52.08 million; the cotton waste was US\$84.06 million in 2020 whereas in 2021 it became US\$99.75 million i.e. 18.67% of change.

Unit: US \$ Million

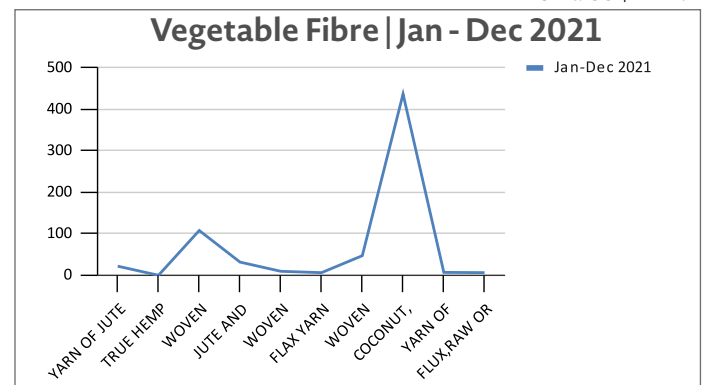


Source: Ministry of Commerce and Industry

## Vegetable textile fibres, paper yarn, woven fabric

Vegetable textile fibres nes, paper yarn, woven fabric has different kinds such as, yarn of jute or of other textile bast fibres of heading was US\$14.86 million in 2020 whereas in 2021 it became US\$21.96 million i.e. 47.82%; true hemp(canabis satival)raw/processed but not spun tow and waste of true hemp in 2020 & in 2021 it remained the same that is US\$0.01 million i.e. -28.06%; woven fabrics of jute or of other textile base fibres of heading in 2020 was 65.39us\$million and i 2021 it went to US\$108 million i.e. 65.16% of change; jute and other textile bast fibres( excl flax, true hemp and ramie) raw/processed but not spun; tow and waste(incl yarn waste and garment was US\$19.89 million in 2020, in 2021 it increased by 59.91% i.e. US\$31.8 million; woven fabrics of other vegetable textile fibres; woven fabrics of paper yarn was at US\$9.87million in 2020, in 2021 it decreased by -2.49% i.e. US\$9.62 million; flax yarn was up to US\$3.9 million in 2020 wherein US\$6.34 million was in 2021 i.e. 62.55% growth; woven fabrics of flax is at US\$34.36 million in 2020 whereas in 2021 it became US\$47.25 million, the change of 37.49%; coconut,abaca ,ramie and other vegetable textile fibres nes or included, raw or processed, tow, noils and waste of these fibres was at US\$321.22 million in 2020 while in 2021 it raised to US\$437.09 million i.e. A change of 36.07%; yarn of other vegetable textile fibres; paper yarn in 2020 was at US\$5.39 million, in 2021 it had a growth of 29.97% i.e. US\$7.01 million and flax, raw or processed but not spun, flax tow and waste was at a US\$3.16 million in 2020, in 2021 US\$6.35 million and the growth was up to 100.72%.

Unit: US \$ Million



Source: Ministry of Commerce and Industry

# MMF REPORT

Unit: US \$ Million

India - Man Made Fiber					
EXPORTS					
Product	Dec-20	Dec 2021	"Jan - Dec 2020"	"Jan - Dec 2021"	% Change
POLYESTER					
Staple Fibre	17.19	42.56	229.16	410.73	79.23
Filament Yarn	42.94	78.15	485.37	804.41	65.73
ACRYLIC					
Staple Fibre	1.12	1.34	23.06	6.04	-73.81
NYLON					
Filament Yarn	1.98	2.72	19.14	27.45	43.42
VISCOSE					
Staple Fibre	6.09	17.53	109.31	181.83	66.34
Filament Yarn	2.87	2.49	24.73	33.72	36.35
IMPORTS					
Commodity	Dec-20	Dec 2021	"Jan - Dec 2020"	"Jan - Dec 2021"	% Change
POLYESTER					
Staple Fibre	11.18	11.37	85.44	105.46	23.43
Filament Yarn	9.66	13.40	71.84	136.53	90.05
ACRYLIC					
Staple Fibre	9.02	9.67	59.25	89.93	51.78
NYLON					
Filament Yarn	2.71	1.91	15.94	22.31	39.96
VISCOSE					
Staple Fibre	15.79	25.44	116.17	181.42	56.17
Filament Yarn	26.24	32.11	128.27	239.00	86.33

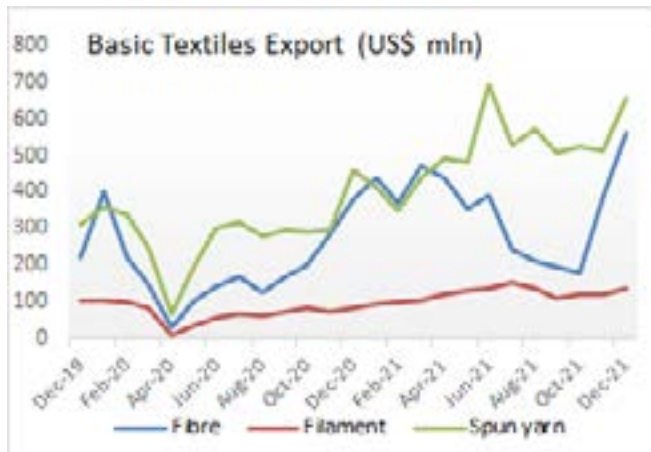
Source: Ministry of Commerce and Industry

# TEXTILE EXPORT GROWS BY HIGHER PRICING IN DECEMBER

TVC Editorial Team

In December 2021, basic textiles comprising fibres, spun and filament yarns shipment were worth US\$1,352 million or INR10,106 crore, accounting for about 3.6% of total merchandise exported from India during the month. This was largely driven by the spurt in cotton fibre export.

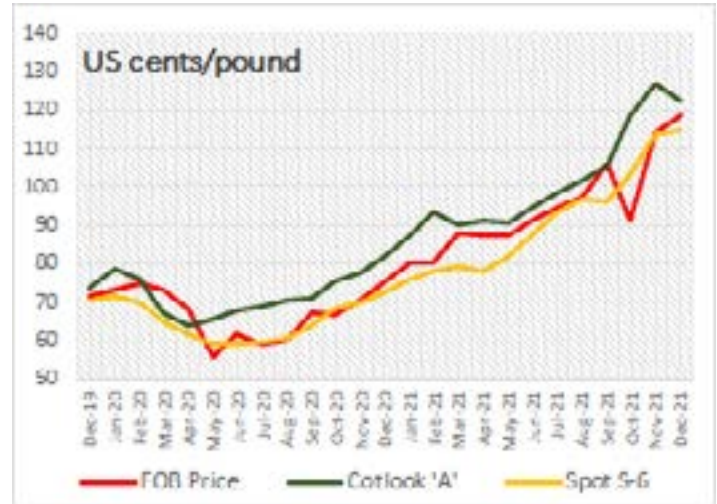
Spun yarns shipment totaled 159 million kg worth US\$658 million or INR4,920 crore. The unit value realisation of all types of spun yarn averaged US\$4.14 per kg, about US\$1.32 up year on year. Bangladesh was the largest market for spun yarns during the month, followed by China and Turkey.



Cotton yarn export was at 124 million kg worth US\$541 million (INR4,047 crore). While volume shipment was down 1% year on year, revenue earning jumped 48% in US\$ term. These were shipped to 74 countries at an average price of US\$4.35 a kg, up US cents 26 from previous month and up US\$1.44 from December 2020. Bangladesh was the top importer of cotton yarn, followed by Turkey, Portugal, China and Egypt.

100% man-made fibre yarns exports were at 11.90 million kg, comprising over 6.32 million kg of polyester yarn, 2.79 million kg of viscose yarn and 2.78 million kg of acrylic yarn. Viscose yarn worth US\$11 million or INR81 crore were exported at an average price of US\$3.86 per kg in December. The major market was Turkey, followed Bangladesh, Belgium, Portugal and Italy. Polyester spun yarns export was worth US\$17 million exported at average unit price of US\$2.71 a kg. Turkey was the largest im-

porter of polyester yarn, followed by Morocco and USA. Blended spun yarns worth US\$80 million were exported in December, including 13.35 million kg of PC yarns and



5.93 million kg of PV yarns. Bangladesh was the largest importers of PC yarn from India followed by Argentina while Turkey was the single largest importer of PV yarns from India followed distantly by South Africa.

All kinds of filament yarns shipment totaled 69 million kg, valued at US\$135 million or INR1,011 crore.

Cotton shipment in December, the third month of the 2021-22 marketing season, was at 11.11 lakh bales worth INR3,684 crore or US\$493 million. During the month, Bangladesh was the largest importer of Indian cotton, followed by Vietnam, China, Indonesia and UAE. Total export in first three months of 2021-22 marketing season was at 23.78 lakh bales worth US\$7,419 crore or US\$1,005 million. Compared with the corresponding months of 2020-21, exports were down 18% in volume and 30% up in values, due to higher prices.

Export price realisation for cotton averaged INR195 a kg or US cents 119 per pound in December. This was slightly below the Cotlook A index, the global spot price benchmark and higher compared with the domestic spot price for benchmark Gujarat Shankar-6. During the month, Cotlook averaged US\$122 per pound while Shankar-6 was at US cents 115 per pound.

Courtesy: Textile Beacon Fibre to Yarn Export Statistics: India

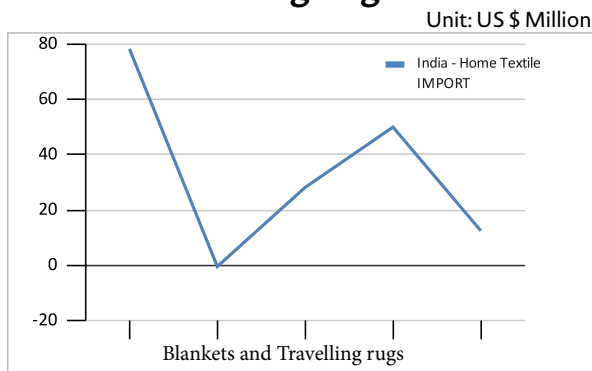


# MARKET UPDATE

## HOME TEXTILE IMPORTS ANALYSIS

TVC Editorial Team

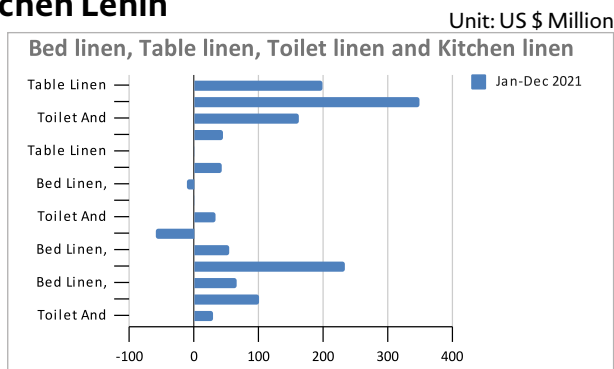
### Blankets and Traveling Rugs



Source: Ministry of Commerce and Industry

Blankets and Traveling Rugs Import data is measured from January to December in US\$ Million. In China in 2020 it was US\$30.31 million where it increased by 23.3% and became US\$37.37 million so that total share of imports is 96.66%; in Hongkong it is just US\$0.08 million in 2020 wherein in 2021 it went up to US\$0.28 million, its total share was 0.72% and the growth is 250.0%; USA had a business of US\$0.17 million in 2020 and surprisingly it came down to US\$0.09 million and the percentage went into -47.1%. In the rest of the countries, the year 2020 was quite good compared to 2021, as in 2020 it was US\$0.23 million but in 2021 it went to US\$0.14 million that is -39.1% of change and the total share of imports was 0.36%. The total change was 24.2% whereas in 2020 it was US\$31.13 million and in 2021 it increased till US\$38.66 million.

### Bed Linen, Table Linen, Toilet Linen & Kitchen Linen

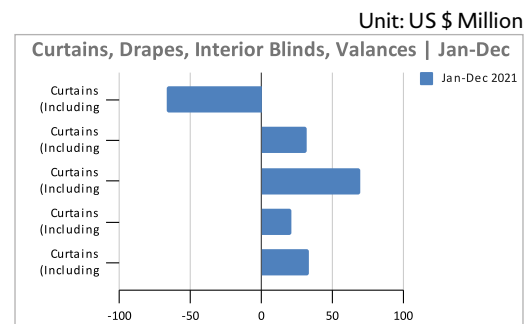


Source: Ministry of Commerce and Industry

Bed Linen, Table Linen, Toilet Linen & Kitchen linen had a great business with China in 2020 was at US\$2.35 million whereas in 2021 it went up to US\$4.28 million that is 82.13% of growth and the total growth is 61.85%; in UK in 2020 it was at US\$0.17 million while in 2021 it became US\$0.36 million and the total share in imports is 5.20% and the growth was 111.76% and in Japan it

became US\$0.8 million in 2021 from US\$0.01 million in 2020 and the total share was 1.16%, the change was of 700%. Including all the countries in 2020 it was US\$4.11 million whereas in 2020 US\$6.92 million and the total growth of 68.4%.

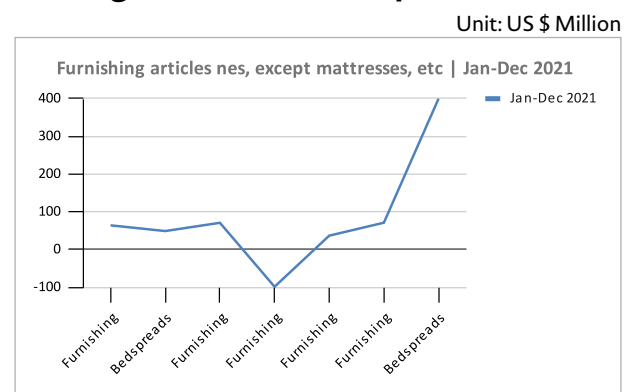
### Curtains, Drapes, Interior Blinds, Valances



Source: Ministry of Commerce and Industry

In Curtains, Drapes, Interior Blinds, Valances, the total in 2020 was US\$9.45 million and it increased to US\$14.45 million in 2021, the total change was 52.9%. When we look at country-wise, in Singapore it was US\$0.09 million in 2020 wherein in 2021 increased till US\$0.19 million and the growth is 111.11% and the import share was 1.31%; in Germany it was US\$0.23 million in 2020 whereas in 2021 it grew up to US\$0.43 million that is 86.96% change, total share was 2.98%.

### Furnishing articles nes, Except mattresses, etc



Source: Ministry of Commerce and Industry

Furnishing articles, except mattresses, etc has a change of 31.1% wherein in 2020 it was US\$51.52 million whereas in 2021 it was US\$67.56 million. In Turkey in 2020 is US\$0.12 million, in 2021 it became US\$0.16 million and the growth was 33.33% and the total share was 0.24%; in Thailand in 2020 was just at US\$0.17 million and in 2021 it increased by 11.76% so it was US\$0.19 million and the total share in imports is 0.28%.

# SHOW CALENDAR

## FEBRUARY 2022

- 2nd-3rd The European Bio-Polymer summit 2022  
London, UK  
<https://textilevaluechain.in/event/80521/>
- 2nd-3rd Milano Unica 2022  
Rho, Italy  
<https://textilevaluechain.in/event/milano-unica-2022/>
- 2nd-4th Revolver Fashion Trade Show 2022  
Denmark, Europe  
<https://textilevaluechain.in/event/revolver-fashion-trade-show-2022/>
- 3rd Breakthrough digital dyeing and finishing technology  
Webinar  
<https://textilevaluechain.in/event/breakthrough-digital-dyeing-and-finishing-technology/>
- 03rd-05th YFA Show  
Panipat, India  
<https://textilevaluechain.in/event/yfa-show/>
- 08th-11th Intermediate Nonwovens Training 3.5-Day Course  
USA  
<https://textilevaluechain.in/event/80377/>
- 09th-11th Istanbul Fashion Connection  
Istanbul, Turkey  
<https://textilevaluechain.in/event/istanbul-fashion-connection/>
- 11th - 13th IndExpo Nagpur 2022  
Reshimbagh Ground, Nagpur, India.  
<https://www.ind-expo.com/>

- 17th Tracing and Certification of Recycled Material for waste free  
Thane, Maharashtra, India  
<https://textilevaluechain.in/event/tracing-and-certification-of-recycled-material-for-waste-free/>
- 24th -26th International Istanbul Yarn Fair  
Istanbul, Turkey  
<https://textilevaluechain.in/event/international-istanbul-yarn-fair/>

## MARCH 2022

- 1st - 3st INDIA FASHION TEX (RBSM)  
Hotel J.W. Marriott, aero city new Delhi 110037 India  
<http://www.indiafashiontex.com/>
- 4th - 6th The 24th Edition of Fabrics & Accessories Trade Show / Apparel Sourcing Fair/ Homtex  
Trade Centre, KTPO, White field, Bangalore, India.  
<https://textilefairsindia.com/>
- 28th - 29th FILTER MEDIA: 1.5-DAY COURSE  
Online conference  
<https://www.india.org/training/filter-media-training.php>
- 29th - 31st THE WORLD VIEW OF NON WOVEN  
Usa  
<https://textilevaluechain.in/event/the-world-view-of-non-woven/>
- 30th-31st THE WORLD VIEW OF NON WOVEN  
Miami Beach, FL USA  
<https://www.ideashow.org/register.html>
- 30th - 1st APLF Dubai 2022  
Dubai.  
<https://textilevaluechain.in/event/aplf-dubai-2022/>



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