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**"OPPORTUNITIES IN HIGH
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12th July 2019

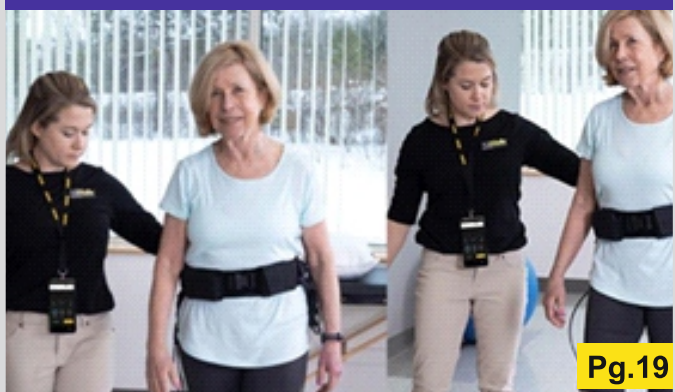
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CONFERENCE AND EXHIBITION ON

"OPPORTUNITIES IN HIGH GROWTH SEGMENTS OF TECHNICAL TEXTILES"

12th July 2019

Silver Oak Room, India Habitat Center (IHC), New Delhi

Organised By



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ASSOCIATION**



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SPECIAL REPORT

"NATIONAL INVESTORS' CONCLAVE ON TECHNICAL TEXTILES (NICTT 2019)"

24th April 2019 | The Residency Towers, Coimbatore, India

The Indian Technical Textile Association (ITTA) jointly with Indian Texpreneurs Federation (ITF) & The Southern India Mills' Association (SIMA) organized the First Edition of **"National Investors' Conclave on Technical Textiles (NICTT 2019)"** on 24th April, 2019 at The Residency Towers, Coimbatore, India. The event has been organized for the first time in Coimbatore to promote, expand & diversify new Investments in Technical Textile Industry by Entrepreneurs across the country. This was the right forum for First-time Entrepreneurs to know the evaluation of business scope, identify right products, market potential, investment quantum, etc.

Speaking on the event, Shri. Raghavendra Singh, IAS, Secretary Textiles said that while the growth of technical textiles sector is spoken of enthusiastically and has been projected at 2 lakh crore by 2021. The industry and research institutes should come together to realize the sector's full potential and asked industrialists to identify prototypes developed by COEs to adapt them to the industry. He also emphasized that the Govt. has classified 207 products as technical textiles for import and export, which will be expanded based on representations from stakeholders. He pointed out that two of the ten COEs are established in Coimbatore - PSG College and SITRA. Baseline surveys of the textile sector will



The conclave was inaugurated by the Chief Guest, Shri. Raghavendra Singh, IAS, Secretary Textiles, MOT with the Guest of Honor, Shri. Ajay Kumar Singh, DG Life Sciences- DRDO. Shri. P. Nataraj, SIMA Chairman, Dr. Sundararaman K. S., Chairman, ITTA and Shri. Prabhu Damodaran, Convenor, ITF also graced the inaugural session.

reflect the real needs of the industry and the industry should help in the conduct of such surveys, he said. Over the past seven to eight months, he said that they had consulted various ministries in the Union govt. and State govt. and have come up with 106 textile products, for which standards already existed. "These belong to various sectors such as railways,

home affairs, defence, shipping, agriculture and transport. We need to work on these with BIS, as we have the standards and have a procedure which could be made mandatory with these ministries for their tenderization process," he said.

He launched the ITTA video in the presence of all the delegates which contains the new concepts and technologies used in Technical Textiles for different products used in different sectors i.e. railways, defence, construction, medical, filtration, etc.

According to Shri. Ajay Kumar Singh, Director-General of Life Sciences, DRDO, in the Tejas light combat aircraft, the pilot's clothing and gear were developed indigenously and only 10% of it was imported. A study shows that per capita non-woven consumption in India is 0.4 kg and it is 3.0 kgs in the U.S. By 2049, it is expected to be 25 kg in the U.S. and 20 kg in India. So, there is opportunity and "We can have phenomenal growth." The need is for research and development. There is scope for development of fire-retardant clothing. The raw material for it has to be imported for the clothing to be developed locally now. Another area of potential is insecticide textiles and mats. This will benefit several applications," he said. He urged the stakeholders to form a "mahagathbandhan" for the progress of the sector.

ITTA signed Memorandum of Understanding (MOU) with NISSENKEN, JAPAN to promote Technical Textiles in India.

During the event, Indian Technical Textile Association (ITTA) has forged Memorandum of Understanding (MOU) with Nissenken, Japan to promote Technical Textiles in India and Japan. The Chairman ITTA - Dr. Sundararaman K. S. signed this MoU with Mr. Nobuhiro Komada - Chairman of Nissenken Quality Evaluation Centre (NQEC). This relationship will benefit ITTA Member companies to develop & promote technical textiles in Japan.



Mr. P. Nataraj, SIMA Chairman, in his welcome address mentioned about the growing market opportunities of technical textile, the sunrise sector and urged textile entrepreneurs to focus on making more value added products like technical textiles.

Dr. Sundararaman K. S., Chairman, ITTA briefed about the theme of the conclave to the gathering. He said, "In the previously done programs we have connected with the people who are already in the area. We wish to connect with those who are volunteering to invest in Technical Textiles. We want to see more new entrepreneurs coming into the field of Technical Textiles. The Indian Supply base has to grow tenfold to make some meaningful impact in the international arena".

Mr. Prabhu Damodaran, Convenor ITF said, "Our region is dynamic and the entrepreneurs here have been at the forefront of many new approaches and business opportunities. I am confident that this program will go a long way in motivating South Indian firms to venture into Technical Textiles. Being an event with a practical approach, entrepreneurs get first-hand information about the industry and its potential."

Technical Sessions -

Eminent Speakers were from various Govt. R&D organizations, COEs, DRDO & Technical textile Industry and also includes international speakers from Nissenken, Japan & Messe Frankfurt who

shared their rich experience and provide practical views on desirable projects, their market potential and how to actually launch such ventures. This direct attempt is one of a kind in the country.



The Second Technical Session was chaired by Dr. Sundararaman K. S., Chairman ITTA. The following presentations were made during this session.

This session witnessed the excellent presentations by the speakers from India and abroad. They include Mrs. T. Rajeswari, Additional Secretary, Ministry of Water Resources, Delhi, Mr. Devakanta Pahad Singh, Director PM & SQR (LS), DRDO and Mr. Ken Ando & Ms. Alexia Whitfield, Nissenken, Tokyo Lab, Japan.

Mrs. T. Rajeswari spoke about the *“Usage of Technical Textiles in different depts. in Ministry of Water Resources”*. She highlighted that technical textiles have provided innovative engineering solutions for several applications in civil and geotechnical engineering, for water infrastructure water resources projects. The technical textile products which are used in water resources works are geobags, geotubes, geomembranes and geocontainers. She also announced that Ministry of Water Resources (MoWR), Govt. of India is organizing the One day Seminar on *“Use of Technical Textiles in Water Resources Works”* on 29th April 2019 at R. K. Puram, New Delhi. ITTA is supporting the event.

Mr. Devakanta Pahad Singh presented the topic on *“Technical Textiles for the Armed Forces”*. He spoke about the DRDO Technology Spectrum such as Armament & Combat Engineering, Missiles & Strategic Systems, Aeronautical Systems, Electronics & Communication Systems, Microelectronics & Computational Systems, Naval & Material Systems and Life Sciences. Life Sciences department research on CBRN Defence, Life Support, Operation support and Civil Military Interface. The requirements of technical textiles in defence are Physical requirements- light weight, low bulk, anti-static, etc., Environmental requirement- water repellent/proof, UV resistant, etc., Camouflage, Concealment and Deception- Visual spectrum, Ultraviolet, etc., Flame, Heat and Flash Protection- Flame retardance, Heat resistant, etc., Battlefield Hazards- Chemical and Bio agents, Nuclear radiation, etc. and Economic Considerations- Minimal maintenance, Long Storage life, etc. He emphasized that DRDO & ACADEMIA can collaborate on CARS (Contract for Acquisition of Research Services), ER (Extramural Research), Research Boards and DRDO Centers located in

Universities and DRDO & INDUSTRY can collaborate on Contracted Development, Joint development, Trial supply order and Technology Transfer (ToT).

"Japanese Innovations in Functional Textiles & Corresponding Opportunities in India and Japan" was presented by Mr. Ken Ando & Ms. Alexia Whitfield. He talked about the Nissenken Quality Evaluation Center, Japan and its works in the field of Technical Textiles. The various Functionality Finishes are UV

cut finishes, Water-repellent finishes, Water-absorbing quick drying finishes, Thermal barrier finishes, Soil resistance finishes, Anti-Virus finishes, Retro reflective Material, Anti-Mosquito finishes, Anti-allergen finishes and Cool feeling finishes. He explained about the different opportunities where India and Japan can work together mainly to promote technical textiles.

The Third Technical Session was chaired by Mr. Durai Palanisami, Director, Pallavva Group, Board Member-ITF and three papers were presented.

This session includes the presentations from Dr. Padma Vankar, Research Advisor, BTRA, Mr. Naman Barot, Scientific Officer, ATIRA and Mr. Rajeev

Kumar Saxena, Sr. Technology Manager (Weaving), Lohia Corp Ltd.



"Polymeric pressure sensor for smart textiles & Nanofiber application to improve anti-clogging property of Geotextiles" was presented by Dr. Padma Vankar.

a) She explained about the development of Polymeric Piezo-electric Sensor for Smart Wearable Textile. A piezoelectric sensor uses piezoelectric effect to measure pressure, acceleration, temperature & strain wherein there are 2 types of piezoelectric effect i.e. direct piezoelectric effect- converts mechanical energy to electrical energy (generator & sensor effect) & indirect piezoelectric effect- converts electrical energy to mechanical energy (Actuator effect). Piezoelectric Materials are Ceramic base (ZnO, PZT, BZT) and Polymer base

(PA6, PVC, PVDF, PVDF-trFE). She suggested following points - 16% increase in crystallinity by addition of ZnO nanowires, 30% increase in β crystallinity compared to control PVDF, 22% increase in voltage compared to control PVDF, Change in signal possible by minimum pressure, Product can be woven or knitted directly with the other filaments, Little cost addition to the existing product and Scalability is very easy, no need of any additional process.

b) She talked about the Nanofiber coated prefabricated vertical drainage (PVD) membrane with improved anti-clogging property. She explained about advantages of Nanofiber Media over Microfiber, features of Nanofiber, Nanofiber Spinning Process, Electro-

spinning of PA6, Cross Section of The Product, Soil Particle Size before & after Filtration Using Microfiber Membrane, etc. She concluded with the following points- Fibre diameter could be reduced to get pore size less than soil particle size, Water permeability was found more for long duration in nanofiber media compared to existing media in presence of soil, Cross section of the exposed nanofiber loaded sample found clean and Nanofiber deposited media will help to reduce the consolidation time significantly.

Mr. Naman Barot presented the topic on *"Antibacterial & pollution face mask & Portable water filter bottle"*.

- a) He said that India pollution mask market is projected to grow at more than 18% by 2023 across the urban areas. He pointed out that ATIRA procured a Nanospider Electrospinning Pilot Plant from Elmarco, Czech Republic and Nanofiber Production Pilot Plant Set up consists of Ultrasonic Cleaning Machine, Acid Fumes Scrubber, Electrospinning Pilot Plant, Polymer Station, Dehumidifier and Facemask Converting Automatic Machine. Flow Chart Of Production Plan -Nano fiber Pilot Plant (Nano Fiber Coated Media), Ultrasonic Stitching (Facemask production) and Packaging (Ready for Use). He explained in detail about the Testing of facemask media, property, Material consumption, Cost of Facemask Media, Cost of project-Capex and Major Key player in India for Facemask Market.
- b) He pointed out that the Development of nanofibers based filter media which gives water completely free from muddy particles and micro-organisms and to make and deliver a

simple portable filtration device are the objective of the paper. The nanofibers based filtration membrane device is prepared by perforated tube, coated fabric wrapping on tube, filtration candle and filtration device with filter candle. Its characterizations are UV-Visible (UV-Vis), X-ray Powder diffractometer (XRD), Field emission scanning electron microscope (FE-SEM), Energy Dispersive X-Ray Spectroscopy (EDS), Microbial assay of filtered water performed by pour plate method, PALAS2010 and Turbidity meter. He mentioned the Cost of Water Filtration Bottle, Water Filter Bottle In Market (Using Conventional Microfiber Filtration Method), Material consumption and Cost of project Capex.

Mr. Rajeev Kumar Saxena presented the topic on *"Opportunities for weaving Geo-textile fabrics on Circular loom"*. He said that Synthetic geotextile is the fastest-growing material type segment of the geotextile market. Polypropylene is the major material in demand, he claimed. Polypropylene woven Geotextile is in increasing demand in the Construction Industry and for safe & long lasting road construction. Asia-Pacific region represented the largest market for global geotextile market. The market for geotextiles in this region is mainly driven by the ongoing developments in construction industry. He also talked about the different products such as Geotextile Filter Fabric, PP Ground cover woven fabric, Weed control mats, On roof garden & terrace as drain & filter ^{and} HDPE Pond Liners. He explained about the development of bigger Circular looms (to produce max. flat fabric up to approx. 6.0m width) of high performance & quality and its advantages.

The Fourth Technical Session was chaired by Mr. Prabhu Damodaran, Convenor, ITF. The following presentations were made during this session.

This session has presentations by the speakers from India and abroad. They include Mr. Hemant Dantkale, Partner, DN associates, Mr. P. K. Choudhury, Principal Technologist, National Jute Board, Kolkata and Ms. Jesica John, Manager - Techtextil India, Messe Frankfurt India Ltd.

Mr. Hemant Dantkale presented on "Airway nonwoven products for automotive and building insulation". He spoke about the Recycling and Nonwovens Eco-friendly solutions for the Automotive Industry. He explained in detail about the industrial textile waste, hard waste recycling,



post consumer waste recycling and its nonwoven quality. Different nonwovens solutions for Automotive are blending lines for fibers and polymers, Airlay Flexiloft, Airlay Flexiloft +, Airfelt with Resin Felt Option and Airfelt. Above solutions are used for different applications in automotive sector.

“Various types of Jute Geotextile (JGT) like woven, nonwoven, open weave” was presented by Mr. P. K. Choudhury. He highlighted global demand of technical textiles by application wherein TT represents about 31% of the total Textile Production. It is forecasted that in 2022 the market demand will be 35.5 million ton with CAGR of 3.7 %. He talked about the Jute Geotextiles (JGT) viz. woven, nonwoven, open weave etc. used in various civil engineering applications with success, machineries used to manufactures, its advantages. There are many Union States who have used JGT with success in Andhra Pradesh, Gujarat, Tamil

Nadu, Manipur, Himachal Pradesh, etc. Some of the case studies where JGT are used: - Kakinada Port- Andhra Pradesh, Andulia-Boyratala Road- West Bengal, Agartala-Mohanpur-Chebri Road at Tripura, etc. He discussed about different application of JGT i.e. Slope Management, Protection of River Banks, Strengthening of Road Sub- Grade, Stability of Embankment, Prevention of Railway Track Subsidence and Consolidation of Soft Soil.

Ms. Jesica John talked about the “Overview of the Techtextil-2019 on Technical Textiles”. She spoke about the overview of the Messe Frankfurt - Techtextil event worldwide. She also said Messe Frankfurt is organizing the Techtextil India 2019 on 20th - 22nd November 2019 in Mumbai focusing on the composites with different technical textile segments. Exclusive programs of the event is direct buyer seller meeting, Product gallery zone, knowledge forum and direct market update. She also mentioned that ITTA

The Fifth Technical Session was chaired by Dr. Anup Rakshit, Executive Director, ITTA and three papers were presented.

This session includes presentations from Dr. Prakash Vasudevan, Director, SITRA, Dr. Kuldeep Kumar Sharma, Mentor, VFPL MEDEVICE and Mr. Andy Thayumanavan, GM, Reliance Inds. Ltd., Chennai.

“Medical Textiles- Hernia Mesh, Vascular graft, Nano-finish surgical gown fabric, Barbed suture” was presented by Dr. Prakash Vasudevan. He delivered lot of information on the products of Medical

Textiles, new opportunities available for entrepreneurs. Challenges involved in the production of Medical textiles, Market Statistics to identify the scope for new ventures. He revealed in detail about the facilities and assistance provided by SITRA for entrepreneurs' development in Medical Textiles. He presented high potential medical textile areas of - Hernia Mesh, Vascular graft, Nano-finish surgical gown fabric and Barbed suture.

Dr. Kuldeep Kumar Sharma spoke on “Innovation



Meditech Products- Transfer Device & MAMMA POD. He highlighted that Innovations/patented devices developed Indigenously through the efforts of Government, Healthcare sector and research institutions under make-in India and start-up India initiatives of Govt. of India. Hospital acquired infections (HAIs) are a major cause of mortality and morbidity. Hospital acquired infections (HAIs) is a major safety concern for both health care providers and the patients. VPFL has developed Medical Devices/ Innovations such as Patient Transfer Device (PTD) (Transfer life) and Kangaroo Mother Care (Mamma Pod). The features of PTD are infection free, spill proof, no maintenance, no insertion and Nontoxic & Kangaroo Mother Care (Mamma Pod) are maintain warmth, safety & support early breast feeding for LBW, hands free mode to perform daily activities, early hospital discharge, pouch is flexible to accommodate the growth & weight of baby as it grows, etc. Other Innovations such as mattress protectors, soft and cozy baby care sheets, etc.

Mr. Andy Thayumanavan presented the topic on *"Polypropylene Nonwovens for Hygiene & Meditech"*. He pointed out the applications of nonwoven fabric and different fibres used in Nonwoven where PP is the major Nonwoven fibre used globally. In India, major synthetic raw materials are Polypropylene (PP) - 58% & Polyester - 42%. He discussed in brief about the emerging application areas of PP Nonwoven i.e. Hygiene, Medical, Agrotexiles & Geotextiles, different nonwoven manufacturing processes and also said that Spunlaid technology to Gain Maximum Traction in the Near Future. The following conclusions and recommendations are suggested to use Nonwovens in Hygiene & Medical areas- Low Consumption, technology trends, Growing Economy, Rising Disposable Income, Govt. Initiatives/Awareness, Light Weight, Soft and Comfortable, Offers Safety Patient, Better Hygiene, Easy to Use and Dispose and no washing.

The Panel discussion was on *"Perspectives of entering Technical Textile Industry- from Inside and Outside"*



Mr. Amit Agarwal, Vice Chairman, ITTA was a Moderator and the experts Mr. Manoj Kumar Jhaharia, JMD, Salona Cotspin Ltd, Board Member-ITF, Mr. Mahesh Kudav, MD, Venus Safety, Director-ITTA, Mr. Pankaj Kapoor, MD, Park Nonwoven Pvt. Ltd., Director-ITTA and Mr. Gopinath Bala, CEO-SVS-SAF, Board Member-ITF were the panelists.

You may see that in this panel discussions were a combination of experts who are already in the technical textile industry and others are from outside the technical textile industry. Mr. Kapoor and Mr. Kudav shared their valuable experience of more than 10-15 years' journey of entering the industry. Mr. Gopinath Bala who has recently entered into the technical textile manufacturing also shares his success story. On the other hand Mr.

Jhaharia who is in cotton textiles now, is also of the opinion that conventional textile business houses can enter this field.

The conclave received over whelming response and attended by more than 200 delegates from the technical textile Industry, potential new Investors, Manufacturers who want to diversify, Start-Ups and Agents/ Dealers/ Distributors of Technical Textiles

Feedback from the Participants

The feedback from the participants was very encouraging and most of them mentioned that their experience was overwhelming and the participation in the Conclave was very useful. The topics covered, speakers present and quality of discussion were very



ITTA and Ministry of Water Resources (MoWR) organized- SEMINAR AND EXHIBITION ON THE “USE OF TECHNICAL TEXTILE IN WATER RESOURCES WORKS”

One day **Seminar and Exhibition on the “Use of Technical Textile in Water Resources Works”** was organized by Ministry of Water Resources (MoWR), River Development & Ganga Rejuvenation on 29th April, 2019 at CWC Library Building, R.K. Puram, New Delhi. Indian Technical Textile Association (ITTA) was a Partner of this event with respect to providing Speakers from the Technical Textile Industry and organizes the entire Exhibition.

ITTA invited five industry leaders on Geosynthetics to speak in the Seminar and also these companies along with other ITTA members exhibited their products in the Exhibition. This event provided great B2B opportunities for participants from TT industry and the Senior level Officials from Central

and State Governments' Engineering, Water Resources & Power Irrigation Departments.

The Seminar & exhibition were inaugurated by Shri. S. M. Husain, Chairman, Central Water Commission (CWC). He launched the “Practice Manual on use of Technical Textile in Water Resources Works”. During the inaugural session, Shri. S. L. Gupta- Director CSMRS, Shri. N. K. Mathur- Member (D&R), CWC, Ms. T. Rajeswari- Additional Secretary, MoWR, RD&GR and Shri. Anuj Kanwal, Director, R&D, MoWR, RD&GR shared their experience on the application of technical textiles in their respective departments/area. They emphasized that Standardization of products by BIS to be done at a faster pace.



SEMINAR

The Seminar highlighted various application areas, best practices and mechanisms for encouraging larger usage of Technical Textile in Water Resources Sector and created a platform for all the concerned stakeholders for brain-storming, creating a roadmap to take the Technical Textiles uses to the next level and interactive sessions to build awareness for application of technical textiles in water resources sector on large scale by user State

and Central Departments/agencies in various civil engineering works.

Following topics were covered during the three Sessions:-

Session-I: Technical Textiles for Water Resources- Technical Part chaired by Dr. Bishwajit Bhattacharjee, Prof. IIT Delhi,

Session-II: Technical Textiles for Water Resources- Case Studies chaired by Mr. S. K. Halder, Member (WP&P), CWC

Session-III: Pricing; Contract & Other Conditions of work chaired by Mr. A. K. Sinha, Chairman, GFCC.

In these 3 sessions, Speakers from various fields discussed issues of Standards, Benchmarking & Testing, Technical textiles for Water Resources Conservation, Advanced methods in use of Technical Textiles, Contractual Matters related to Technical Textiles etc. in details.

Presentations from ITTA Members-

1. Mr. Tiru Kulkarni, Garware Technical Fibres Ltd. spoke about the *"Application of TT for coastal protection"*. He highlighted the appraisal of technical and commercial aspects of using geosynthetic products over conventional structures for application of coastal protection works. The following options are considered for the present study i.e. Innovative coastal applications using soft solutions and Conventional methods. Soft solutions using Geosynthetics products like Geotubes, Geobags, Polymer rope gabions for armoring and apron & Woven or Nonwoven Geotextile layer for filtration, drainage and protection against stone protrusion. Conventional methods like Riprap using stones/ tetra pods, Artificial materials such as concrete (Block mats) and asphalt & Sand/gravel layers. He mentioned the advantages of soft solutions using Geosynthetics products over conventional methods and also discussed the case studies of the geosynthetic products.
2. Ms. Maithili Appalwar, Emmbi Industries Ltd.

EXHIBITION

An Exhibition on Technical Textiles was also organized by ITTA to display all the Geosynthetic products such as geobags, geotubes, geomembranes, geocontainers, etc. that can be used by the various divisions of Ministry of Water Resources (MoWR) all over India. It was a unique opportunity for the ITTA Members who were

presented the topic on *"Use of TT in Irrigation System"*. She talked about the current problem of the water crisis i.e. Change in Rainfall Pattern, Reduction in sub-surface Absorption, Less disburseable Water for Use and Increased Water Scarcity. She explained the importance and advantages of the solutions provided for capturing surplus rainwater i.e. Jalasanchay Pond Liner, Aquasave Canal Liner and Percoplus Geomembrane. She also spoke about the case study wherein the Canal Liners are used at Bembla Project, Maharashtra.

3. *"Use of TT in Slopes, Embankments"* was presented by Dr. Saurabh Vyas, Techfab (India) Industries Ltd. He pointed out that the Geosynthetics products such as reinforced slopes, geotextile, geogrid, geocells, prefabricated vertical drain, reinforced soil wall and drainage composite are used in Slopes and Embankments. He talked about the two case studies where geosynthetic products are used. Case Study 1- Construction of Reinforced Retaining wall at Navi Mumbai International Airport (NMIA) situated along the Gadhi River wherein Techfab Metal Gabion, Techgeo Nonwoven PR-20 Geotextile, Techfab Metal Gabion Mattress and Techgrid Geogrid were used. Case Study 2- Statue of Unity, Gujarat where following products were used - Techfab Metal Gabion Mattress, TechGrid Biaxial Geogrid, TechGrid Uniaxial Geogrid and Techgeo Nonwoven polypropylene geotextile.
4. Mr. Parth Nihadkar, Texel Industries Ltd. talked about the *"Use of TT in Water Conservation"*. He spoke about the Geosynthetics products which are used in water conservation and also highlighted some of the case studies.

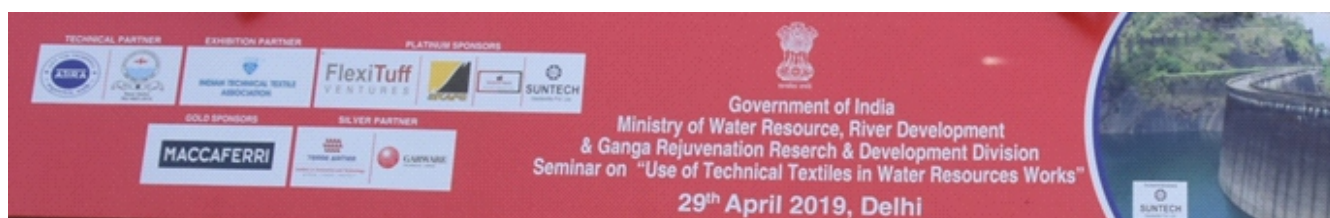
already the existing manufacturers/suppliers of these products or the new entrants to this business to display their products and the directly interact with the Buyers. Following 12 ITTA members participated in the exhibition and showcased their Geosynthetic products.

List of Exhibitors:

COMPANY NAME	
<i>FLEXITUFF INTERNATIONAL LTD.</i>	<i>MACCAFERRI ENVIRONMENTAL SOLUTIONS PVT. LTD.</i>
<i>EMMBI INDUSTRIES LTD.</i>	<i>MANAS GEO TECH INDIA PVT. LTD.</i>
<i>TECHFAB (INDIA) INDUSTRIES LTD.</i>	<i>GEO SOURCE</i>
<i>GARWARE TECHNICAL FIBRES LTD.</i>	<i>VIRENDERA TEXTILES</i>
<i>CHARANKATTU COIR MFG. CO. (P) LTD.</i>	<i>KHATOR TECHNICAL TEXTILES LTD</i>
<i>SKAPS INDUSTRIES INDIA PVT. LTD.</i>	<i>SUNTECH GEOTEXTILE PVT. LTD.</i>

The event received the over whelming response and was attended by more than 170 delegates with a participation from senior level Officials from Central Departments, State Governments, Engineering

Departments of States working in Water Resources, Institutions and delegates from the technical textile industry.



Shri. S. M. Husain, Chairman, Central Water Commission (CWC) visited the exhibition stalls.





**INDIAN TECHNICAL TEXTILE
ASSOCIATION**



ITTA SIGNED MOU WITH TAIWAN TECHNICAL TEXTILE ASSOCIATION (TTTA)

Taiwan Technical Textiles association (TTTA) is the leading technical textile association in Taiwan, having membership consists of cross field manufacturers, distributors, industry groups, R&D units and academic experts. At present TTTA have over 200 members. The objective of MOU is:-

1. To jointly organise International workshop, seminar or symposium for technical textile companies of both the countries.
2. To jointly promote development of product testing standards
3. To support major events of Technical Textiles/ Nonwovens and related Industries organized by ITTA members and NQEC customers.

ITTA ACTIVITIES

Young Researcher's Symposium in Textiles held in Delhi

"Young Researcher's Symposium on Emerging Trends in Textile, Fiber and Polymer Research", a 3rd in series of ambitious gathering of young minds, was organized by Department of Textile Technology, IIT Delhi on 15-17th May 2019 in Delhi. The objective of symposium was to bring all young researchers and students, affiliated to Textiles, Fibers and Polymers, together for mutual exchanges of ideas, and opportunities to pursue a scientific career and future collaborations.

Symposium papers encompass original results, focused on research and development of various Textiles, Fibers, Polymers and allied materials. Abstracts were invited for the oral and poster presentation from young researchers based in academia and industry. Several awards were also given to best papers and posters on this occasion to encourage young researchers.

As a keynote speaker Dr. Anup Rakshit, Executive Director, ITTA made presentation on the topic "Innovation is key to success of

Technical Textiles Business" at the symposium. He explained the importance of all 12 segments of technical textile and the role of ITTA towards the growth of Technical Textile Industry. He highlighted that currently, market size of technical textile sector is Rs. 1.16 lakh crores and it is projected to reach at Rs. 2 lakh crores by 2020-21. He briefed about the different manufacturing technologies for weaving, nonwoven & knitting and consumption pattern of fibres such as polyester, polyolefin's (PP, PE), natural fibre, glass, aramid, etc. He also talked about the huge Product Innovation Potential in Technical Textiles and discussed on the new innovative product possibilities in the field of Nano Technology, Smart Textiles, Medical Textiles and Protective Textiles. Majority of the technical textile innovations are successful when Inter-disciplinary approach on innovations are encouraged. There are huge scope of such collaborations in the Institutions like IITs and NITs where different faculties are available in the same campus.

OSH India 2019 Awards Pre-Jury Meet Held in UBM Office in Mumbai

UBM India organized the OSH India Awards 2019 to recognize the innovation, excellence and bravery of the safety champions who work behind the scenes to ensure Safe & Health work environment across industry verticals. This platform gives an opportunity to companies and individuals to be known internationally for their efforts in occupational safety and health.

held in the UBM office in Mumbai on 28th May, 2019. The meet held intense discussions to finalise this year's plan and select various awards categories based on previous year's experience. Dr. Anup Rakshit, ED, ITTA was one of the Esteemed Jury members, along with others key members from Mallcom, Joseph Leslie, Godrej, Jayco Safety Products, etc.

The Pre-jury meet for this year's awards was

Vendor Interaction with MGO Branch held on 14 June 2019

MGO Branch, Ministry of Defence organized the Vendor Interaction every year to create a new entry of vendor, to show the trial reports and used samples to the representatives of the firms, provide guidance to the firm representatives for further development of the product used and to facilitate interaction with different dept. of defence. Last couple of years ITTA has arranged number of interested ITTA members attending such meetings to Interact with MGO, which resulted into entry of new suppliers, product quality

improvement and new product development leading to reduction in imports for Defence.

With this background, this year the vendor interaction was held on 14th June 2019 at their Sadar Bazar Office, Delhi Cantt. Eleven ITTA members had participated in this vendor interaction. They are Shiva Texyarn, Entremonde Polycoaters, Sai Synergy, SRF, Agriyah Safety Gear, Venus Safety, Aureole Inspects, Shubh Swasan, Radnik Auto, Integrated Defence products and Aeronav Industrial.

ITTA PUBLICATIONS

Name of the Publication	Price*	Type of Publication
International Conference on "Technology & Machinery Innovations for Technical Textiles" held on 19th January, 2019	₹2000	Seminar Proceedings (CD-ROM)
3 rd Defence-ITTA Joint Exhibition cum Seminar on Technical Textile held on 22 nd & 23 rd May 2017	₹2000	Seminar Proceedings (CD-ROM)
2 nd Defence-ITTA Joint Exhibition cum Seminar on Technical Textile held on 15 th & 16 th June 2016	₹1000	Seminar Proceedings (CD-ROM)
First Indian Navy-ITTA Seminar on Clothing and Footwear held on 7 th & 8 th January 2016	₹1000	Seminar Proceedings (CD-ROM)
Symposium on Medical Textile - Applications & Opportunities held on 14 th July 2015	₹1000	Seminar Proceedings (CD-ROM)
Symposium on Hi Tech Application Areas of Nonwoven held on 30 th Jan 2015	₹1000	Seminar Proceedings (CD-ROM)
Handbook on Geosynthetics case studies of ITTA Members (2013)	₹750	Handbook

* Courier charges extra

For Copies Contact

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INNOVATIONS AND TECHNOLOGY

Feminine Hygiene products made from biodegradable 100% certified organic cotton

Organic Initiative (Oi) is a New Zealand-originated company focused on removing plastic, synthetics and chemicals from personal hygiene products. Oi has launched its new Oi Girl™ line of products. Oi Girl™ is a first-of-its-kind line of smaller products made from 100% certified organic cotton for girls starting their periods. It taps into the growing interest from women of all ages in being healthy and reducing waste.

Oi Girl™ was created specifically for girls to help them feel confident and more in control of their periods with sizes suited to their younger bodies, and the comfort of naturally absorbent, non-irritant and chemical-free organic cotton. "Our initiative is to remove synthetics and chemicals from hygiene products and make healthy, premium certified and affordable products accessible for all women," said

Helen Robinson, CEO of Oi. "Using products like Oi is a small change that we can all make while we join the journey to a lifetime of safe and healthy products for ourselves and the environment."

Made from biodegradable 100% certified organic cotton, Oi tampons, pads and panty liners are free from synthetics, chemical sprays, perfumes and dyes. Every component of Oi products – including the packaging – is designed to help reduce the lifetime impact of synthetics, plastics and chemicals on the environment as well as on women's and girls' bodies.

[Source-<http://classifieds.usatoday.com/press/industry-game-changer-organic-initiative-announces-expansion-to-172-h-e-b-stores-and-launch-of-oi-girl/>]

New Super UV Protector to make Automotive and Transportation Textiles even more resistant to light

Switzerland based Archroma, a global leader in color and specialty chemicals towards sustainable solutions, has launched Fadex® AS New, a new "super UV protector" to make automotive and transportation textiles even more resistant to light.

During the long life span of cars and other transport vehicles, some of their components, such as the polyester trims of doors and pillars, seat covers, carpet flooring or head lining, are exposed to high levels of sunlight and UV rays. This intense light and heat often cause fabric color to fade more quickly and polyester fiber to weaken, making the car interior look older. The light fastness requirements specified by motor vehicle manufacturers are therefore extremely high, and only carefully selected products can meet them.

Archroma developed Fadex® AS New to address this challenge, providing textile manufacturers serving the automotive industry with a new, advanced light fastness improver, especially when used in Archroma's LIGHT FAST CAR system with its Dorospers® A & K high-light-fast dyes.

Fadex® AS New was developed in compliance with "The Archroma Way: safe, efficient, enhanced, it's our nature". With the LIGHT FAST CAR system based on Fadex® AS New, Dorospers® A & K dyes and alkaline buffer Lyocol® ELD liq. New, manufacturers can achieve more "efficient" processing, including: a substantial reduction in water and energy consumption, reduced CO2 emissions, shorter process time, less rewinding and fiber breakage, and optimized and efficient process in all stages.

Taking light fastness to new heights, the unique combination of Fadex® AS New and Dorospers A & K dyes allows to meet the high light fastness requirements of automotive car producers. Fadex® AS New also allows maintaining the tear strength of the polyester fiber. Fadex® AS New displays low fogging. It is suitable for exhaust, continuous and printing processes, and especially recommended for the Thermosol dyeing process of seat belt fabrics.

Fadex® AS New and Dorospers A & K dyes can be used together with Archroma's water repellent, soil release, anti-microbial, flame retardant and high

abrasion resistance functional finishing solutions, offering a complete system package to help textile manufacturers differentiate themselves in the highly competitive automotive market. Fadex® AS New meets the requirement of the automotive industry VDA 278 test and is registered under REACH.

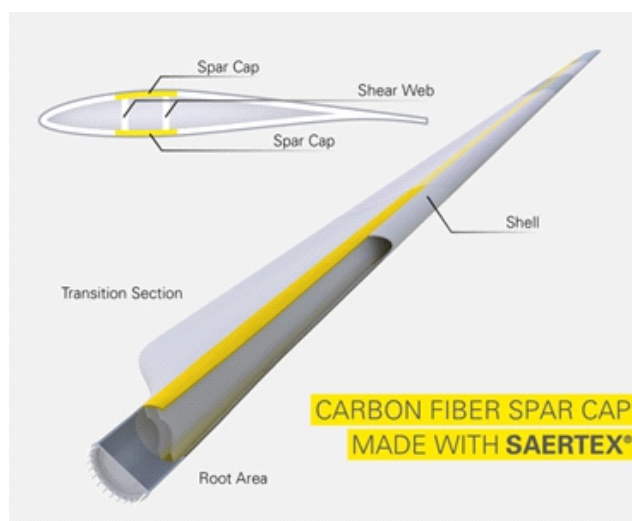
[Source-[http://chemicalmarket.net/Articles/Detail/Archroma launches Fadex® AE AS New, a super UV protector to make automotive and transportation textiles even more resistant to light](http://chemicalmarket.net/Articles/Detail/Archroma%20launches%20Fadex%20AE%20AS%20New,%20a%20super%20UV%20protector%20to%20make%20automotive%20and%20transportation%20textiles%20even%20more%20resistant%20to%20light)]

Wind Turbine Blade Prototype with Longest Carbon Spar Cap

Saertex based in Germany, the manufacturer of multiaxial fabrics and core materials for the production of fibre-reinforced composites, has produced a prototype of a wind turbine blade with probably the longest carbon fibre spar cap made in vacuum infusion technology so far. Other than Saertex, the prototype production was supported by Windnovation, Composyst and CTP AM.

In April 2019, a wind turbine blade manufacturer in China successfully finished the production of an 87.5m spar cap. The spar cap is one of the key structures inside a rotor blade and takes up most of the mechanical load. The new record spar cap is made of carbon fibre to reduce the part's weight and achieve higher stiffness which is essential for rotor blades of such extreme length, said Saertex in a press release.

The spar cap was designed by Windnovation. It represented a technical challenge because of its length of 87.5m and its width of 800mm. Materials used for production of the part were the Saertex infusion-optimised carbon fibre UD 618gsm (unidirectional non-crimp fabric) with increased z-permeability material, which had been specially developed for the infusion of thick lay-ups as well as the latent resin system 3325 A/B from CTP AM with optimised viscosity and extended pot-life.



The spar cap was infused in Vacuum Assisted Process (VAP) technology with Composyst's VAP membrane CS/E which enabled degassing of the resin during the entire infusion and eased resin distribution throughout the entire part as well as control of the resin content in the part. This made the entire process safer. The infusion process took less than 2 hours and was completed without any problems.

[Source-<https://www.saertex.com/en/about-saertex/news/world-s-largest-carbon-spar-cap-made-in-infusion-with-saertex-materialsinside>]

ReStore Exo-Suit for Stroke Rehabilitation gets CE Marking

ReWalk Robotics, Ltd., Israel, a manufacturer of robotic medical devices for individuals with lower limb disabilities, announced that the ReStore Exo-Suit for stroke rehabilitation has received CE marking. This CE Mark is the first clearance of a soft exo-suit, a next generation medical device which can serve a larger and more diverse patient population facing mobility challenges.

ReStore's soft, garment-like design allows variability of movement which combines with first-of-its-kind plantar flexion propulsion assistance that adaptively synchronizes with the patient's natural gait to facilitate functional gait training activities. The device also provides therapists the ability to adjust and optimize a patient's treatment using real-time analytics.

"The ReStore revolutionizes post stroke gait training, providing key advantage to clinics, therapists and patients," said ReWalk CEO Mr. Larry Jasinski. "We developed this design through collaboration with the Wyss Institute at Harvard because of the unique opportunity to combine extensive depth of the supporting science and clinician involvement in designing the ideal system for stroke therapy in the clinic". The company announced that ReStore will be priced significantly lower than the first generation of rigid exoskeleton technologies, and can be used to treat a broad range of stroke rehabilitation patients.



"The device's affordability and versatility make an attractive solution for a broader range of the rehabilitation market than previous technologies," Mr. Jasinski added. "Considering the high prevalence of stroke and the need for more effective and efficient

clinical solutions, the marketplace for the ReStore is significant and holds immense promise for the continued innovation of care." Stroke is a leading cause of disability which affects 17 million people worldwide each year. As many as 80% of stroke survivors suffer from locomotor dysfunction, which is

characterized as asymmetrical step length, slow velocity, and altered biomechanical alignment.

ReStore is ReWalk's second marquee device, joining the ReWalk Personal 6.0—a robotic exoskeleton for home use by individuals with paralysis from a spinal cord injury. The expansion to soft exo-suits gives ReWalk a diverse offering of innovative technologies, and expands the company's impact to millions of patients worldwide. "The soft suit technology is the first of a series of designs from the clinic for stroke therapy. It will also serve as a basis for a home therapy design that can be managed from the clinic, in addition to entering testing for treatment of Multiple Sclerosis and Parkinson's disease," said Mr. Jasinski.

[Source-<https://rewalk.com/rewalk-robotics-receives-ce-mark-restoretm-exo-suit-stroke/>]

First 3D Printed Carbon Fibre Part for US Air Force

U.S. based Utah Advanced Materials & Manufacturing Initiative (UAMMI) announced that it has successfully created and fit-checked it's first carbon fiber 3D-printed part for the United States Air Force. The part, a first aid kit restraint strap for

the B-1 aircraft at Tinker Air Force Base in Oklahoma, was made using a printer from project partner Impossible Objects, U.S.

A year ago, UAMMI was awarded federal funds to

create additively manufactured, carbon fiber composite parts for the U.S. Air Force. The goal was to replace broken parts on older legacy aircraft. Over the last year, UAMMI has been working with the Air



Force to identify non-critical parts that can be replaced using additive manufacturing technology, including a restraint strap for a first aid kit in the B-1 aircraft. In many of these aircraft, the Air Force has experienced failures with original restraint straps, which risks the dislodging of first aid kits during flight. As original replacement straps are no longer manufactured, there is significant costs and wait time produce new parts through traditional means.

Using Impossible Objects' Composite-Based Additive Manufacturing (CBAM) technology, UAMMI has produced a replacement part using carbon fiber and thermoplastic materials. The part was fit-checked on an operational B-1 aircraft at the Tinker Air Force Base last month. The installation of the part included adding new rivet holes, inserting a

buckle in the strap cavity and fastening the strap to the cockpit wall panel.

Next steps for this part include a Fire, Smoke and Toxicity test at the National Institute for Aviation Research at Wichita State University, followed by a USAF approval process before installation into the operational B-1 fleet.

The additive manufacturing project is being funded through the Air Force Research Laboratory under an America Makes program called the Maturation of Advanced Manufacturing for Low Cost Sustainment (MAMLS). Through MAMLS, the Air Force intends to demonstrate that additive manufacturing can be used to replace non-critical parts on-demand. Of particular interest are instrumentation knobs, wiring harnesses, small brackets, electrical connectors and similar items.

"Additive manufacturing represents a huge opportunity for Utah's advanced manufacturing industry," says Jeff Edwards, UAMMI executive director. "The composite additive parts that we are creating for the Air Force will significantly reduce both the time and cost of aircraft repairs. There is a long list of parts we plan to test and this project will help position Utah as the technology leader and innovator in this new field."

[Source-<https://www.compositesworld.com/news/uammi-impossible-objects-build-composite-parts-for-us-air-force>]



ITTA SIGNED MOU WITH THE TEXTILE INSTITUTE (TI)

Textile Institute (TI) is a unique organisation in textiles; clothing and footwear incorporated in England by a Royal Charter granted in 1925 and is a registered charity. The Institute has Individual and Corporate Members in up to 70 countries. The membership covers all sectors and all disciplines in textiles, clothing and footwear with current focus on Technical Textiles. Benefits of the MOU are:-

1. ITTA Members can become member of TI at a discounted rate of 30%
2. To jointly organise International workshop, seminar or symposium for technical textile companies.
3. To support major events of Technical Textiles Industries organized by ITTA and TI members.

New Members

ARCHROMA INDIA PVT. LTD., THANE

(Mob: 9920715639; Email Id: raj.varghese@archroma.com)

Archroma is a global color and specialty chemicals company committed to innovation, world-class quality standards, high service levels, cost-efficiency and sustainability. Archroma is headquartered in Reinach near Basel, Switzerland. It has three businesses: Textile Specialties, Paper Solutions and Emulsion Products, Archroma delivers specialized performance and color solutions to meet customer needs in their local markets. Archroma India Pvt. Ltd. is active in the area of automotive textiles, home textiles, protective and industrial textiles. The range of polymers are (Appretans, Luraprets), fluorocarbons (Nuva), flame retardants (Pekoflam) and antimicrobial products (Sanitized).

TEXPORT SYNDICATE INDIA LIMITED, MUMBAI

(Mob: 9967699112; Email Id: narendra.kajale@tsamd.in)

Texport Syndicate India Ltd is a 42year old company into textiles and Garments business. Their advanced material division has state of the Art capabilities to manufacture innovative coated & laminated fabric and offer diverse solutions in personal protection. This division is specialised in supply of performance fabrics for applications in signage, print media, canvas, wall decor, window decor, protective barrier, tarpaulins, tents, functional fabrics, functional fashion and inflatable segments. Now, their advanced Material division has evolved with an aim of providing Human and Environmental Protection through its Protective wear solutions to threats like fire, electric ARC, Molten Metal Splash, cut, static charge, Ballistic, Faul weather, Microbial, Chemical, Biological and radiation.

RELIABLE COMPOSITES INDIA LLP, PUNE

(Mob: 7722099471; Email Id: shalini.pawar@jayashreepolymers.com)

Reliable India LLP is a new division of Jayshree Group. This division is formed mainly for glass fiber/ composites related business. Reliable have tied up for ECR glass material with Middle East, they are importing CSM (Chopped strand Mat), WR (woven Roving), AR (Assembled Roving) and DR (Direct Roving) for Indian Glass fiber market. Since 2018, they have developed a good customer base pan India for ECR glass material.

MECORDS INDIA LTD., MUMBAI

(Mob: 9821634000; Email Id: aditya.mehta@mecordsindia.com)

Mecords India Ltd is a manufacture of superior quality technical textiles for a diverse range of Industrial applications. Their core areas of competency are in tire-reinforcing textiles, liner fabrics for rubber industry, reinforcement fabrics for MRG sector and industrial fabrics of various applications. With more than two decades of experience, Mecords has expertise to design, develop and manufacture technical textile products matching customer requirements. They are global player with satisfied customers both at home as well as overseas markets in Asia Pacific Regions, Africa, Europe and South America.

HIGH PERFORMANCE TEXTILES PVT. LTD., HARYANA

(Mob: 9996625050; Email Id: nandan@hpt-india.com)

High Performance Textile is a Culimeta Saveguard Group Company which is specializes in the manufacturing of Technical Spun yarns (mainly from Para-Aramid fibres). These yarns are used for production of Personal Protection Equipment (PPE), specifically for hand Protection. Their yarns are designed as per end users' requirement to provide protection against heat and mechanical risk.

VASA NONWOVEN INDUSTRIES, TIRUPUR

(Mob: 9600733112; Email Id: jaivasanonwoven@gmail.com)

Vasa Nonwovens is a manufacture of Polypropylene Spunbond nonwoven fabrics for packing and medical textiles applications.

UPDATE ON EXPORT-IMPORT PERFORMANCE OF TECHNICAL TEXTILE PRODUCTS

The DGFT, Ministry of Commerce & Industry, Government of India has **notified 207 HSN Codes as Technical Textiles**, vide Notification No-54/2015-2020, dated 15th Jan 2019. Ministry of Textiles has also launched a Booklet on 29th Jan 2019 notifying 207 HSN Codes as Technical Textiles. The data on export and import of these 207 technical textile products/items is published as an indicator of foreign trade performance of technical textile industry in India.

EXPORT PERFORMANCE OF TECHNICAL TEXTILE ITEMS HAVING 207 HSN CODES

(Value in INR Cr.)

Sr. No	Segments	Feb 2018	Feb 2019	%Change	Apr'17-Feb'18	Apr'18-Feb'19	%Change
1	Agrotech	44.14	57.49	30%	429	553	29%
2	Buildtech	53	54	2%	637	589	-8%
3	Clothtech	9	13	44%	135	184	36%
4	Geotech	45	78	73%	466	783	68%
5	Homotech	4	7	75%	81	69	-15%
6	Indutech	116	154	33%	1230	1485	21%
7	Meditech	72	76	6%	778	873	12%
8	Mobiltech	99	117	18%	1053	1309	24%
9	Packtech	404	457	13%	4049	5203	29%
10	Protech	46	85	85%	300	478	59%
11	Sportech	13	17	31%	144	179	24%
12	Nonwoven	71	87	23%	772	990	28%
	GRAND TOTAL	976	1202	23%	10074	12695	26%

Data Source: ITTA Analysis on Ministry of Commerce and Industry (at 8 digit level of HSN Codes)

ITTA Analysis on data (Apr'17-Feb'18 vs. Apr'18-Feb'19) of Top Three Growth Sectors-

- Geotech (+68%)** - Key Products: Woven geotextile, Non-metallic gabions, geo-grids and geo-composites
- Protech (+59%)** - Key Products: Industrial Gloves, Wind Cheater and Rain Coats, Fire Retardant fabrics, NBC Suits & Chemical Protective Clothing and Bullet Proof Jacket
- Clothtech (+36%)** - Key Products: Umbrella cloth, Taffeta and Elastic Narrow Fabrics

IMPORT PERFORMANCE OF TECHNICAL TEXTILE ITEMS HAVING 207 HSN CODES*(Value in INR Cr.)*

Sr. No	Segments	Feb 2018	Feb 2019	% Change	Apr'17-Feb'18	Apr'18-Feb'19	% Change
1	Agrotech	16.86	31.21	85%	191	292	53%
2	Buildtech	174	171	-2%	1793	1868	4%
3	Clothtech	17	20	18%	178	228	28%
4	Geotech	131	144	10%	1594	1577	-1%
5	Hometech	33	35	6%	417	460	10%
6	Indutech	162	199	23%	2068	2502	21%
7	Meditech	82	61	-26%	539	791	47%
8	Mobiltech	352	414	18%	4124	4883	18%
9	Packtech	46	45	-2%	378	362	-4%
10	Protech	27	37	37%	292	404	38%
11	Sportech	8	12	50%	85	102	20%
12	Nonwoven	131	141	8%	1539	1765	15%
	GRAND TOTAL	1180	1310	11%	13198	15234	15%

*Data Source: ITTA Analysis on Ministry of Commerce and Industry (at 8 digit level of HSN Codes)***ITTA Analysis on data (Apr'17-Feb'18 vs. Apr'18-Feb'19) of Top Three Growth Sectors-**

- a) **Agrotech (+53%)** - Key Products: Fishing Nets, Anti Insect nets and Shade nets
- b) **Meditech (+47%)** - Key Products: Surgical dressing, Compression Garments, Sanitary Napkins, Tampons, Baby Diapers, Incontinence diapers and Adult diapers
- c) **Protech (+38%)** - Key Products: Industrial Gloves, Wind Cheater and Rain Coats, Fire Retardant fabrics, NBC Suits & Chemical Protective Clothing and Bullet Proof Jacket

UPCOMING EVENTS

MAY 2019

Techtextil Frankfurt 2019

14-17 May, 2019 in Frankfurt, Germany

Web: <https://techtextil.messefrankfurt.com/frankfurt/en.html>

Smart Fabrics Virtual Summit

14-15 May, 2019 in USA

Web: <https://smartfabricssummit.com>

JUNE 2019

China International Nonwovens Expo & Forum (CiNE)

3-5 June, 2019 Shanghai Convention & Exhibition Center of International Sourcing, China

Web: www.cine-shanghai.com

IMPERVIUS 2019 – The Bitumen Waterproofing Conference 5 & 6 June 2019 at Grand Hotel Dino, Baveno, Italy

Web: www.edana.org

Non Woven Tech Asia 2019

6-8 June 2019 at Pragati Maidan, Delhi, India

Web: www.nonwoventechasia.com

International Nonwovens Symposium

12-13 June 2019 in Vienna

Web: www.edana.org

ITMA 2019- International Textile and Garment Technology Exhibition

20-26 June, 2019 at Barcelona, Spain

Web: www.itma.com

6th OSH South India (Hyderabad) 2019

27-28 June 2019 at HITEX, Hyderabad

Web: www.oshindia.com

JULY 2019

TEXWORLD USA

22-24 July 2019 at Javits Center, New York, USA

Web: <https://texworld-usa.us.messefrankfurt.com>

ITTA & NISTI jointly organizing Conference and Exhibition on "OPPORTUNITIES IN HIGH GROWTH SEGMENTS OF TECHNICAL TEXTILES"

12th July 2019 at Silver Oak Room, India Habitat Center,
New Delhi.

Web: <http://www.ittaindia.org>

AUGUST 2019

Gartex India 2019 - Garment & Textile Industry Exhibition

10-12 August 2019 at Pragati Maidan, Delhi, India

Web: www.gartexindia.com

Source India/Reverse Buyers Sellers Meet

21-23 August 2019 at Mumbai

Web: www.srtepc.org

Technotex 2019

29-31 August 2019 at Bombay Exhibition Centre, Goregaon,
Mumbai

Web: www.technotexindia.in

Sport India 2019- 7th India International Sporting Goods Show

29-31 August 2019 at Pragati Maidan, Delhi, India

Web: www.iisgs.com

OCTOBER 2019

IFAI Expo 2019

1-4 October, 2019 in Orlando, Florida

Web: www.ifai.com

OUTLOOK™ 2019

9-11 October, 2019 at InterContinental Athenaeum Hotel,
Athens, Greece

Web: www.edana.org

NOVEMBER 2019

Techtextil India 2019

20-22 November, 2019 at Bombay Exhibition Centre,
Goregaon, Mumbai

Web: <https://techtextil-india.in.messefrankfurt.com>

8th OSH India (Mumbai) 2019

28-29 November 2019 at Bombay Exhibition Centre,
Goregaon, Mumbai

Web: www.oshindia.com

MARCH 2020

Geosynthetics Conference 2020: Case Studies

8-10 March 2020 at Charleston, SC USA

Web: www.ifai.com