



*ITTA Defence Handbook Released during DefExpo 2020*

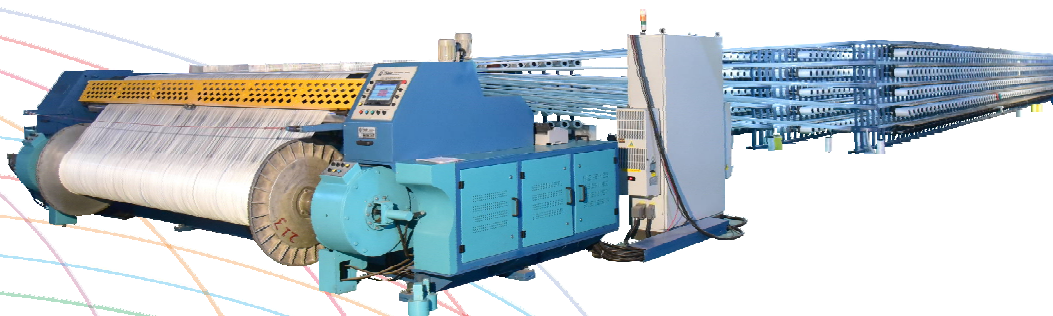
## **INDIAN TECHNICAL TEXTILE PRODUCTS FOR DEFENCE**

**- A GLOBAL REACH -**

***CCEA APPROVES NATIONAL TECHNICAL TEXTILES MISSION***

**With Outlay of Rs. 1480 Crore for 4 years**

## Polybeamer with unwinding Creel



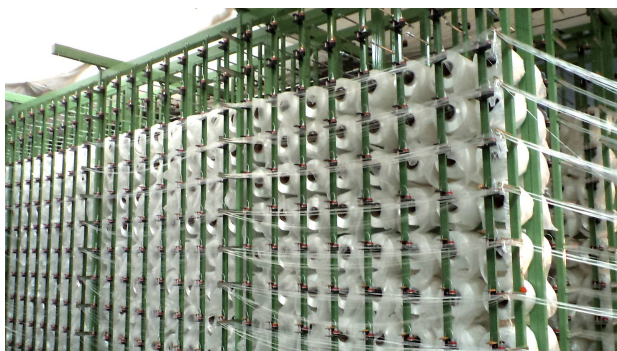
### Unwinding Creel



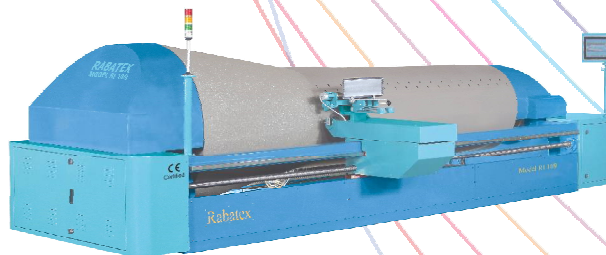
### Creel for Glass Fiber



### Creel for Geo Textiles



### Automatic Sectional Warping Machine (for industrial Fabrics)



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Ultra-light landing gear made of carbon fiber composites for air taxis



First Integrated Clothing and Body Armor system V2 Pro-Performance System



Lightweight Composite Seat Back for electric car



## INDIAN TECHNICAL TEXTILE ASSOCIATION

'A' Block, Gr-Floor, BTRA, L. B. S. Marg, Ghatkopar(W), Mumbai 400086  
Tel. :022-25003098 Mob:9769464616 Email : officeed@ittaindia.org Website : www.ittaindia.org

## SPECIAL REPORT

### Defence Handbook Published By ITTA

ITTA published a "DEFENCE HANDBOOK, entitled "INDIAN TECHNICAL TEXTILE PRODUCTS FOR DEFENCE- A GLOBAL REACH" which was released by Mr. Sanjay Mitra, IAS, Former Defence Secretary, MoD during the Seminar on - "Indigenisation of Defence Production: R&D Establishments, Academia and MSMEs" at DefExpo 2020 on 6<sup>th</sup> February 2020 in Lucknow, Uttar Pradesh.



The Indian Defence Sector is one of the largest consumers

of technical textile products in the country, who in addition to a range of conventional technical textile products are consuming specialized functional textiles, many of which are imported. To grow the domestic and international market of technical textile products used by Defence sector, this Handbook will be of immense help to the industry for export as well.

This Defence Handbook contains Indian Manufacturers' Names, Contact Details and Product Specifications classified into following segments -

- a) Protective Clothing & Accessories (8 Manufacturers)**
- b) Collective Protection (6 Manufacturers)**
- c) Load Carrying fabric (4 Manufacturers)**
- d) Geosynthetics (6 Manufacturers)**



The Defence Hand Book is distributed to Senior Officials of various departments of the Ministry of Defence in India. It will also be used by Defence Offsets when any equipment is purchased for our Defence Forces, Defence Export Organisation in Delhi, Defence Attaches (DAs) of India posted in various Embassy/ High Commissions in other countries to boost exports as well.

**For Copies, please contact -**

**INDIAN TECHNICAL TEXTILE ASSOCIATION,**  
 'A' Block, BTRA, L.B.S. Marg, Ghatkopar (W), Mumbai 400086.  
 Tel: 022-25003098, Mob: 09769464616; Email Id: info@ittaindia.org

# CCEA approves Creation of National Technical Textiles

## Mission

The Cabinet Committee on Economic Affairs, chaired by the Prime Minister Shri Narendra Modi, has given its approval to set up a National Technical Textiles Mission with a total outlay of Rs 1480 Crore, with a view to position the country as a global leader in Technical Textiles. The Mission would have a four year implementation period from FY 2020-21 to 2023-24.

Technical Textiles are futuristic and nice segment of textiles, which are used for various applications ranging from agriculture, roads, railway tracks, sportswear, health on one end to bullet proof jacket, fire proof jackets, high altitude combat gear and space applications on other end of spectrum.

### The Mission will have four components:

- 1. Component -I (Research, Innovation and Development)** with outlay of Rs. 1000 Crore. This component will promote both (i) fundamental research at fibre level aiming at path breaking technological products in Carbon Fibre, Aramid Fibre, Nylon Fibre, and Composites and (ii) application based research in geo-textiles, agro-textiles, medical textiles, mobile textiles and sports textiles and development of bio degradable technical textiles.

The fundamental research activities will be based on 'pooled resource' method and will be conducted in various Centre for Scientific & Industrial Research (CSIR) laboratories, Indian Institute of Technology (IIT) and other scientific/industrial/academic laboratories of repute. Application based research will be conducted in CSIR, IIT, Research Design & Standards Organisation (RDSO) of Indian Railways, Indian Council of Agricultural Research (ICAR), Defence Research & Development Organisation (DRDO), National Aeronautical Laboratory

(NAL), Indian Road Research Institute (IRRI) and other such reputed laboratories.

- 2. Component -II (Promotion and Market Development)**

Indian Technical Textiles segment is estimated at USD 16 Billion which is approximately 6% of the 250 Billion USD global technical textiles market. The penetration level of technical textiles is low in India varying between 5-10% against the level of 30-70% in developed countries. The Mission will aim at average growth rate of 15-20% per annum taking the level of domestic market size to 40-50 Billion USD by the year 2024; through market development, market promotion, international technical collaborations, investment promotions and 'Make in India' initiatives.

- 3. Component - III (Export Promotion)**

The component aims at export promotion of technical textiles enhancing from the current annual value of approximately Rs. 14000 Crore to Rs. 20000 Crore by 2021-22 and ensuring 10% average growth in exports per year upto 2023-24. An Export Promotion Council for Technical Textiles will be set up for effective coordination and promotion activities in the segment.

- 4. Component-IV (Education, Training, Skill Development)**

Education, skill development and adequacy of human resources in the country is not adequate to meet the technologically challenging and fast growing technical textiles segment. The Mission will promote technical education at higher engineering and technology levels related to technical textiles and its application areas covering

engineering, medical, agriculture, aquaculture and dairy segments. Skill development will be promoted and adequate pool of highly skilled manpower resources will be created for meeting the need of relatively sophisticated technical textiles manufacturing units.

- The Mission will focus on usage of technical textiles in various flagship missions, programmes of the country including strategic sectors. The use of technical textiles in agriculture, aquaculture, dairy, poultry, etc. JalJivan Mission; Swachh Bharat Mission; Ayushman Bharat will bring an overall improvement in cost economy, water and soil conservation, better agricultural productivity and higher income to farmers per acre of land holding in addition to promotion of manufacturing and exports activities in India. The use of geo-textiles in highways, railways and ports will result in robust infrastructure, reduced maintenance cost and higher life cycle of the infrastructure assets.
- Promotion of innovation amongst young engineering /technology/ science standards and graduates will be taken up by the Mission; alongwith creation of innovation and incubation centres and promotion of 'start-up' and Ventures'. The research output will be repositied with a 'Trust' with the Government for easy and assessable proliferation of the knowledge thus gained through research innovation and development activities.
- A sub-component of the research will focus on development of bio degradable technical textiles materials, particularly for agro-textiles, geo-textiles and medical textiles. It will also develop suitable equipment for environmentally sustainable disposal of used technical textiles, with emphasis on safe disposal of medical and hygiene wastes.
- There is another important sub-component in the research activity aiming at development of indigenous machineries and process equipment for technical textiles, in order to promote 'Make In India' and enable competitiveness of the industry by way of reduced capital costs.
- A Mission Directorate in the Ministry of Textiles headed by an eminent expert in the related field will be made operational. The Mission Directorate will not have any permanent employment and there will be no creation of building infrastructure for the Mission purpose. The Mission will move into sunset phase after four years period.

#### **Background of Technical Textiles:**

- Technical textiles are textiles materials and products manufactured primarily for technical performance and functional properties rather than aesthetic characteristics. Technical Textiles products are divided into 12 broad categories (Agrotech, Buildtech, Clothtech, Geotech, Hometech, Indutech, Mobiltech, Meditech, Protech, Sporttech, Oekotech, Packtech) depending upon their application areas.
- India shares nearly 6% of world market size of 250 Billion USD. However, the annual average growth of the segment is 12%, as compared to 4% world average growth.
- Penetration level of technical textiles is low in India at 5-10%, against 30-70% in advanced countries. The Mission aims at improving penetration level of technical textiles in the country.

# ITTA ACTIVITIES

## ITTA's Representation to various Ministries, GOI

### I. Initiation of anti-dumping investigations on the imports of "Nylon Multi Filament Yarn"

The Directorate General of Trade Remedies (DGTR) has initiated a process of imposing antidumping duty on Nylon originating from China, Korea, Taiwan & Thailand based on application made by a few Nylon filament manufacturers on 6<sup>th</sup> June 2019. In this regard, ITTA members who are end product manufacturers and are using Nylon Filaments/fibres, approached ITTA to represent the issues and concerns on this subject. Accordingly, ITTA made a representation to DGTR explaining the background, technical details and commercial issues on Nylon filaments/fibres, which are of two types- Nylon 6 and Nylon 66. There are only very few manufacturers who make only Nylon 6 yarn, on the other hand, at present Nylon 66 yarns in any form are not commercially manufactured in India. In case the anti-dumping is imposed on both types of Nylon yarns it will have huge negative impact on Indian technical textile Manufacturers

We have requested DGTR and MOT not to include the products such as Regular & High Tenacity (HT) Nylon 6 and Nylon 66 yarns, Recycled Nylon 6 Yarn & Dope Dyed Nylon 6 Yarns in the scope of the anti-dumping investigations.

### II. Voice of Industry to Influence Export Policy of PPE/Face Masks

With the outbreak of the Corona Virus (Covit-19), there was sudden surge of demand of Personal Protection Equipment and Face Masks in domestic and export market. With fear of having shortage of PPE & Masks in Indian, DGFT- MOC&I had issued the Notification No. 44/ 2015-2020 dated 31<sup>st</sup> January 2020 wherein a ban on export of all varieties of PPE like, Clothing and Masks used to protect the wearer

from air borne particles and/or any other respiratory masks or any other personal protective clothing [Including Coveralls (Class 2/3/4) and N95 masks] under the 901850, 901890, 9020, 392690, 621790 and 630790 ITC HS Codes.

Couple of meetings were then held in MOT wherein ITTA submitted the list of members who manufactures PPE & Masks with current stock available, production capacity, specification, capability of increasing production in future, cost, etc. Subsequently, meeting was held with Ministry of Health and Family Welfare (MoHFW) & Ministry of Textiles (MOT) along with the manufacturers to ensure availability of these products even after fulfilling committed export volume.

Given the confidence by the industry, DGFT- MoC&I amended the export policy and allowed of export of items such as "Surgical Masks/Disposable Masks and all Gloves except NBR gloves" and Notification No. 47/ 2015-2020 dated 8<sup>th</sup> February 2020. However, it said that export of all personal protection equipment, including Clothing and Masks [Coveralls (Class 2/3/4) and N-95 Masks] shall remain prohibited.

In this regard, ITTA members who are manufacturers of N-95 mask under HS Code 9020 approached ITTA to represent the issues and concerns on the ban of the above product. Accordingly, ITTA made a representation to DGFT, MOT & MoHFW to remove the ban on the N-95 mask because it is mainly used for industrial applications and have limited requirements in medical application. The manufacturers are facing problems because they have made export commitments prior to the prohibition.

# Meeting of the Technical Advisory-cum-Monitoring Committee (TAMC) under A-TUFS

The 15<sup>th</sup> meeting of the TAMC under ATUFS was held under the Chairpersonship of Shri. Moloy Chandan Chakraborty, Textile Commissioner on 02.01.2020 in the Conference Hall of the Office of the Textile Commissioner. The meeting was attended by Ms. Ruchita Gupta, Assistant Manager (Technical), ITTA as a representative from ITTA. MOM was circulated to all ITTA members.

## 1. Major Decisions Taken in TAMC

- i. 55 Machinery manufacturers/ Authorised agents were enlisted under ATUFS.
- ii. For considering the Logo and Name of the Brand found on machine plate, the manufacturer should submit a note detailing their branding exercise, marketing practices and share their authentic logo. The Internal Technical Committee may take a view on case to case basis considering the explanation submitted by the manufacturer.
- iii. Single account was an essential condition for release of subsidy. Hence, only one account per bank per project would be considered for disbursement of subsidy for approved claims.
- iv. Eligibility of machinery invoices between the date of first and last term loan sanction dates of banks of consortium finance.
- v. Inclusion of machines (indigenous loom with imported jacquard/dobby) should be allowed under RRTUFS/ ATUFS, if it is covered under a single invoice as no

shuttleless machine manufacturer makes its own electronic dobby/jacquard.

- vi. If the name of machinery manufacturer is available on the machine, it can be considered eligible under ATUFS.
- vii. To consider the Air compressors without inbuilt driers under ATUFS.
- viii. To treat RO Plant & Multi stage Pre fabricated steel evaporator as separate machines and consider if the machines are procured from different vendors.
- ix. Inclusion of High Speed Needle Loom for Narrow Woven Fabrics under MC-01.
- x. To update the name of the machine MC-3 B (3) in the Circular No.8(2018-2019 series) from "Cable Corder for Tyre Cords" to "Cable Corder for Various Industrial Uses"

## 2. Recommendations of TAMC for taking final decision in IMSC meeting-

- i. Eligibility of claim when major payment for machinery is done after term loan sanction but before disbursement of loan (Cases where lending agency reimburses the unit for amount paid to the machinery supplier.)
- ii. Consideration of Label weaving machine supplied by MEI International S.R.L, Italy.

# Meeting of the High Level Committee (HLC)

The 1<sup>st</sup> meeting of High Level Committee was held under the Chairpersonship of Special Secretary/ Additional Secretary (TUFS) for examination of various issues relating to technology gap in textile

machinery and way forward on 04.02.2020 at Udyog Bhawan, New Delhi. As the member of the committee, the meeting was attended by Dr. Anup Rakshit, ED, ITTA.



Following points were discussed in the meeting-

- a) To identify critical gaps in the textile machinery manufactured in India and the state-of-the-art technologies being produces/ used Internationally.
- b) Study AMTZ model for its replication in Textile Engineering Industry (TEI) as to whether AMTZ model could be used for developing Mega Textile Machine Manufacturing Parks to accelerate the pace of development and manufacture of textile machinery in India in line with the objective of "Make in India" initiative of the Government. TMMA will take lead in this.
- c) Special Secretary suggested to set up a Sub-Committee to suggest framework /

strategies for bringing together industry, scientific community and technocrats to develop critical technologies in a mission mode and address technological gaps of TEI and textile industry. It will also examine issue relating to taxation, roles and responsibilities of state governments, possibilities of convergence of efforts from other interventions/ schemes of central/state governments, identify countries which could be approached for G2G dialogue for technology transfer/ FDI/ joint venture and other collaborations for bridging technological gaps in TEI and textile industry and promote Make in India.

### 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 <sup>rd</sup> Defence-ITTA Joint Exhibition cum Seminar on Technical Textile held on 22 <sup>nd</sup> & 23 <sup>rd</sup> May 2017	₹2000	Seminar Proceedings (CD-ROM)
2 <sup>nd</sup> Defence-ITTA Joint Exhibition cum Seminar on Technical Textile held on 15 <sup>th</sup> & 16 <sup>th</sup> June 2016	₹1000	Seminar Proceedings (CD-ROM)
First Indian Navy-ITTA Seminar on Clothing and Footwear held on 7 <sup>th</sup> & 8 <sup>th</sup> January 2016	₹1000	Seminar Proceedings (CD-ROM)
Symposium on Medical Textile - Applications & Opportunities held on 14 <sup>th</sup> July 2015	₹1000	Seminar Proceedings (CD-ROM)
Symposium on Hi Tech Application Areas of Nonwoven held on 30 <sup>th</sup> Jan 2015	₹1000	Seminar Proceedings (CD-ROM)
Handbook on Geosynthetics case studies of ITTA Members (2013)	₹750	Handbook

\* Courier charges extra

For Copies Contact

**INDIAN TECHNICAL TEXTILE ASSOCIATION,**

'A' Block, BTRA, L.B.S. Marg, Ghatkopar (W), Mumbai 400086

Tel: 022-25003098, Mob- +91 9769464616; Email: [info@ittaindia.org](mailto:info@ittaindia.org)

# INNOVATIONS AND TECHNOLOGY

## STANDARDIZATION

### OEKO-TEX® new regulations 2020

At the start of the year, OEKO-TEX® updated their existing guidelines as well as the valid test criteria and limit values for their certifications and services - in line with consistent consumer protection and the sustainability of textiles and leather products. Following a transition period, all new regulations will come into effect on 01 April 2020. An overview of the most important changes is given below.

#### **MADE IN GREEN by OEKO-TEX® now includes leather products**

After the introduction of the MADE IN GREEN label for textiles in 2015, beginning January 2020 it will also be possible to award the sustainability label to leather products. In 2019, STeP certification was expanded to include leather production facilities. OEKO-TEX® now goes one step further with the integration of leather products with the MADE IN GREEN label. Leather articles labelled with MADE IN GREEN have been tested for harmful substances in accordance with the LEATHER STANDARD and have been produced in environmentally friendly facilities in socially acceptable workplaces in accordance with STeP. This ensures that consumers can also track leather goods such as clothing, shoes or furniture using a unique product ID or the specific QR code on the label to learn which countries and production facilities the article was produced in. To monitor compliance of the required criteria on site in the production facilities, OEKO-TEX® also conducts checks of production facilities with trained auditors. MADE IN GREEN has already been classified by Greenpeace as one of the most stringent labels on the market.

#### **New additions to the limit value catalogues**

After one year of observation, the carcinogenic N-nitrosamines and N-nitrosables substances have been included in the STANDARD 100 and the LEATHER STANDARD. Following one year of observation, the herbicide glyphosate and its salts have also been included in the limit value catalogue

for the STANDARD 100. Specific limit values for the total content of the toxic heavy metals arsenic and mercury have also been defined in the STANDARD 100 and LEATHER STANDARD. The stringent requirements for residues in textile materials will lead to an overall lower impact on the environment, workers and consumers.

#### **New substances under observation**

In 2020, OEKO-TEX® will observe various new substances based on the latest scientific findings and conformity with precise specifications. This primarily concerns some substances newly classified as SVHC, which, according to the REACH regulation for the protection of human health and the environment, have been identified as having particularly hazardous characteristics, as well as substances from the group of arylamines. However, various dyes, pesticides and perfluorinated compounds will also be examined carefully in the future.

#### **Integration of DETOX TO ZERO in STeP by OEKO-TEX®**

Safe handling of chemicals and wastewater testing in production facilities has long been important parts of STeP certification. To manage the increasingly complex demands in textile and leather production, beginning 01 April 2020, DETOX TO ZERO will be an obligatory element for STeP-certified facilities using large quantities of water and chemicals (wet plants). A positive aspect of the new regulation is the future conformity of STeP with the Manufacturing Restricted Substance List (MRSL), the Zero Discharge of Hazardous Chemicals (ZDHC) (Initiative and the criteria for the Greenpeace Detox campaign.

*[ Source - <http://www.oeko-tex.com/en/news/detail/oeko-tex-new-regulations-2020> ]*

## COMPOSITES - Recycled carbon fibre & Landing gear for air taxis

### Recycled Carbon fibre nonwovens produced using energy-efficient method

Sigmatex, the UK-headquartered manufacturer of carbon fibre textiles to the composites industry, had launched the new recycled carbon fibre nonwoven fabric for use in CFRP parts. As a company committed to reducing the environmental impact of composites, Sigmatex has developed a process that enables the capture and reprocessing of its internal waste streams, as well as those of its customers, in the most energy efficient way. The output of this is a high-quality product that is both versatile in its applications and easy to process. It is anticipated that this approach could lead to the avoidance of up to 500 metric tonnes of carbon fibre waste going to landfill each year by 2025.

The nonwoven fabric is produced from high quality carbon fibre waste, with sizing intact, offering improved fibre to resin bond strength with area weights from 100gsm to 600gsm. The highly conformable product is an isotropic material with excellent mechanical properties that can be debulked, improving processing via pre-preg methods.

“One of the most important considerations when selecting a recycled carbon fibre product is the energy demand

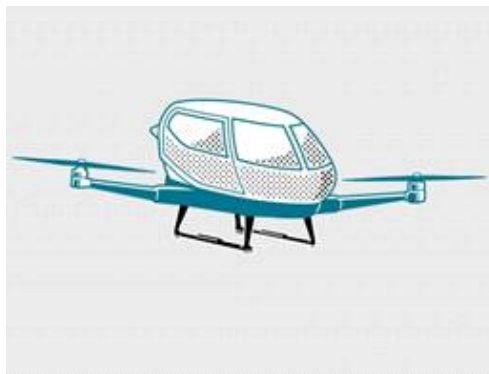


required to recover the carbon fibre before converting it into a fabric form for reuse,” said Paul McMullan, commercial director at Sigmatex. “While all recycled carbon methods are positive to the environment if they displace the use of virgin carbon fibre, some recovery methods are superior to others. Our process, unlike other recovery methods such as chemical or pyrolysis solutions, is an ultra-energy efficient recovery method that only uses around 10-20% of the energy demand of those alternative methods, making it product the best solution for environmentally conscious customers.”

**[Source-<https://www.insidecomposites.com/sigmatex-launches-recycled-carbon-fibre-nonwoven/>]**

### Ultra-light landing gear made of carbon fiber composites for air taxis

Germany based SGL Carbon had manufactured the landing gear made from braided carbon fiber material. The landing skids will be installed in around 500 air taxis worldwide over the next two years. The air taxis will be powered by several electric motors. To optimize the range of the taxis, every single gram counts. Measuring about two meters in length and 1.5 meters in width, the ultra-light landing skid will weigh less than three kilograms, making it about 15 percent lighter than a similar component made from aluminum. This increases the potential flight time capacity of the air taxi which is a key differentiator for the air taxi operator.



“With with our landing gear we help to shape this very new, promising application of manned, autonomous civil aviation. This involvement also demonstrates our wide range of services. From engineering, to prototype manufacture, to serial production with our own materials – all of our competences along the entire value chain made a contribution to the project,” emphasizes Dr. Andreas Erber, Head of the Aerospace segment of the Composites – Fibers & Materials business unit at SGL Carbon.

The landing gear was developed in close collaboration between customer experts and

specialists from SGL Carbon. The carbon fibers for the component are produced at the SGL Carbon plant in Muir of Ord, Scotland. The final part is being manufactured at the SGL Carbon site in Innkreis, Austria.

## RAW MATERIAL

### Bio-based resins for composites industry

Bitrez Ltd, Europe's leading manufacturer of specialist polymers and chemicals has launched a new family of regulatory compliant bio-based resins for the composites industry at JEC World 2020. The new family of bio-based resins, including bio-epoxy systems and PFA (Polyfurfuryl Alcohol), are designed especially for composite applications and are REACH (registration, evaluation, authorisation and restriction of chemicals) compliant.

PFA is a thermosetting bio-resin derived from biomass crop waste with similar qualities to a Phenolic resin but with lower VOC emissions. In addition to its environmental credentials, PFA has fire retardant properties equivalent to Phenolic, plus excellent temperature and chemical resistance. Epoxy resins require epichlorohydrin and bisphenol A. By employing creative chemistry, Bitrez offers epoxy products based on renewable substitute

*[Source-<https://www.sglcarbon.com/en/company/press/press-information/press-report/ultra-light-landing-gear-made-of-carbon-fiber-composites-for-air-taxis/>]*

feedstock which when combined with our green epoxy curing agents provide formulated systems with high bio-content.

Mr. Dominic Hopwood, Bitrez's Resin Sales Manager, said: "Sustainability and climate change are climbing higher up people's agendas leading to an increase in calls for materials that deliver reduced weight, greater efficiency and a smaller carbon footprint. That's why we are leading the way in developing composite resins that are derived from renewable, sustainable plant products. We intend our bio-epoxy and PFA to be the first of many and we are excited to see how it will be received at JEC."

*[Source - <https://www.bioplasticsmagazine.com/en/news/meldungen/20200122-Bitrez-Ltd-launches-bio-based-resins-at-JEC-World-2020.php>]*

## PROTECH

### First Integrated Clothing and Body Armor system V2 Pro-Performance System

US based Point Blank Enterprises and First Tactical had announced the launch of the public safety industry's first-ever fully integrated apparel and armor line, the V2 Pro Performance System. This innovative solution allows law enforcement



agencies to purchase a fully-integrated system featuring the V2 Pro-Performance armor carrier with NIJ compliant ballistics, shirt and pants. The innovative V2 Pro-Performance material is lightweight, breathable and engineered for on-the-job comfort with fabrics that are stain resistant and maintain a professional look no matter the conditions. When it comes to safety, performance and professional functionality - nothing else compares.

Together, Point Blank and First Tactical will introduce a line of holistically integrated products desperately needed by public safety professionals. These products shall be designed with Officer Safety

as the priority along with the quality and image of the personnel being in the forefront in today's demanding environment. Ballistic options will include over thirty NIJ certified solutions, including Alpha Elite armor which is worn by more Officers today than any other package in America.

Mr. Michael Foreman, Executive Vice President at Point Blank Enterprises said, "As the leader in personal protection equipment we continue to lead the way in providing public safety personnel the

## **MOBILTECH**

### **Lightweight Composite Seat Back for electric**

Covestro has partnered with the Research and Development Center of Guangzhou Automobile Group Co Ltd. (GAC R&D Center) to develop a lightweight composite seat back for the Chinese car manufacturer's latest electric concept car, the ENO.146. The backrests of the two front seats of the concept car are made of Maezio CFRTP, the reinforced thermoplastic composite material from Covestro. The backrests of the two front seats of the concept car are made of Maezio CFRTP, the reinforced thermoplastic composite material from Covestro. It is estimated that the composite seat backrest can save up to 50 per cent in weight compared to typical metal constructions.

GAC describes the ENO.146 as one of the most aerodynamically efficient vehicles in the world, thanks to a drag coefficient of only 0.146 and a NEDC (New European Driving Cycle) range of 1,000 kilometres. While a fully aerodynamic design is key to achieving such performance goals, the GAC R&D Centre also uses lightweight and sustainable materials to reduce the weight of the car while raising the bar for sustainability. Covestro's Maezio thermoplastic composite material is one of them.

"Mobility trends such as electrification and autonomous driving are redefining the role and function of car interiors," says Mr. Zhang Fan, vice president of the GAC R&D Centre. "There is a growing need for material solutions that are lightweight and sustainable while opening up ways to create new user experiences ranging from visual to tactile feedback."

latest design and highest level of protection at the lowest possible weight. The creation of the V2 Pro-Performance System will provide for the next generation integrated system that will maximize protection, optimize wearing comfort, and promote the image of public safety personnel today and into the future."

**[Source - <http://www.pointblankenterprises.com/news/point-blank-introduces-first-integrated-clothing-and-body-armor-system.html>]**



"Seats in the passenger compartment are an ideal target for weight savings, as they are among the heaviest parts there," says Ms. Lisa Ketelsen, head of Covestro's thermoplastic composites business. "Fibre reinforced composites are the ideal material for lightweight automotive construction, but Maezio can further simplify molding and streamline the manufacturing process." Since Maezio is a thermoplastic material, parts and functions can be consolidated by injection molding processing. Functional structures are incorporated into the mould for shaping the backrest, reducing the number of parts and materials.

Maezio thermoplastic composite material can be cut and shaped at will to be reused at the end of its service life, giving it a unique marble-like appearance and a high quality look and feel, making it a sustainable material choice that fits perfectly into the design concept of the vehicle.\

**[Source - <https://www.technicaltextile.net/news/covestro-produces-lightweight-seat-back-for-eno-146-254641.html>]**

## ***SPORTECH - Smart Shoes & 100% Biodegradable Padding***

### **Smart shoes that make you a faster and stronger runner**

Japan based ASICS in partnership with Japanese start-up and sensor technology developers no new folk studio (nnf) has developed a range of new smart shoes that allows fitness enthusiasts to receive real-time feedback and actionable insights that will help make them a better runner. The collaboration will fuse nnf's precise, multi-dimensional sensors with ISS's expertise in human movement.

At the energy research lab, ASICS is showcasing how researchers at the ASICS Institute of Sport Science (ISS) are making technology help run further, faster and easier. To demonstrate how these smart shoes, data tracking and real-time analysis will help runners; ISS and nnf are displaying a working prototype at the ASICS Energy Research Lab. This prototype sees nnf's latest Orphe Track sensor embedded in ASICS' Evoride running shoes, and through tracking a range of inputs – including kick

strength and stability among others – gives runners real time feedback and actionable insights to help make them a better runner.

The energy-saving shoes are built around ASICS' revolutionary Guidesole technology, which is engineered to minimise movement in the lower leg to help runners save energy and run more efficiently. The Evoride will be available in stores globally from February 7, 2020. The smart shoes are essential for both everyday runners and elite athletes, shoes and digital solutions that help them to run efficiently not only increase their performance and leave them energised for the next challenge, but also protect them from burnout and injury.

***[Source - <https://www.technicaltextile.net/news/asics-to-launch-smart-shoes-in-partnership-with-nnf-254372.html>]***

### **First Ever 100% Biodegradable Padding**

With Comfortemp Lyocell padding, Freudenberg Performance Materials, Germany has developed the world's first fully biodegradable padding made from sustainably produced cellulose fiber that completely degrades in soil within 60 days. At the same time, it meets all requirements for high-performance thermal insulation for sports and outdoor clothing. Comfortemp Lyocell padding is the result of a cooperative venture with the fiber manufacturer Lenzing, Austria. The innovative thermal insulation will be launched onto the market in January 2020.

The padding is based on Lyocell, which is manufactured by fiber producer Lenzing. Lyocell is a cellulose produced from natural raw materials in an environmentally friendly production process using eucalyptus wood from sustainable forests. The solvent used to obtain the fibers is almost completely reused in the production cycle, which is a clear advantage over other cellulose fibers such as viscose. The EU has presented the process with the European Award for the Environment.

The fine fibers created from the natural raw material and their innovative processing enable comfortemp Lyocell padding to be as light as a feather and as efficient as synthetic paddings. The thermal insulation provides warmth and is both soft and highly breathable. Thanks to its excellent moisture management, the padding absorbs body moisture up to 45% and thus minimizes perspiration.

The thermal insulation is also water-repellent, dries quickly, is antistatic and conforms to the OEKO-TEX 100 standard. Consequently, comfortemp Lyocell padding meets the high demands placed on clothing for sports and outdoor use. The cohesive padding prevents fiber migration through the outer fabric and is offered by the meter. This means less time and cost for the industry and no cold bridges at the seams for the end consumer.

***[Source - [https://www.nonwovens-industry.com/contents/view\\_breaking-news/2020-01-29/freudenberg-develops-first-ever-100-biodegradable-padding/15303](https://www.nonwovens-industry.com/contents/view_breaking-news/2020-01-29/freudenberg-develops-first-ever-100-biodegradable-padding/15303)]***

## National News

### Govt. removes surgical masks, gloves from banned export list

The government has removed surgical masks and gloves from the list of banned export items, according to a notification. Last month, the government put a ban on exports of all kinds of personal protection equipment, including clothing and masks used to protect people from air borne particles amidst outbreak of deadly novel corona virus in China. The move assumed significance as there could be a spurt in demand for such products due to outbreak of deadly corona virus in China.

"Items such as Surgical Masks/Disposable Masks

and all Gloves except NBR gloves are allowed freely for export," the directorate general of foreign trade (DGFT) has said in a Notification No. 47/ 2015-2020. However, it said that export of all other personal protection equipment, including N-95 face mask and other equipment accompanying masks and gloves shall remain prohibited for exports.

[Source - <https://www.livemint.com/news/india/govt-removes-surgical-masks-gloves-from-export-ban-list-11581242121148.html>]

### Rs 6,700 cr released under Amended Technology Upgradation Fund Scheme

Union Textiles Minister Smt. Smriti Irani said in a written reply in the Rajya Sabha on a question on competitiveness of the textile industry that the government has released a total of Rs 6,717.18 crore under the Amended Technology Upgradation Fund Scheme (ATUFS) during 2015-2016 to 2019-2020; Parliament was informed on Thursday 6<sup>th</sup> February 2020. "A total of 9,641 applications, covering employment of 2.86 lakh persons and investment of Rs. 40,026.5 crore submitted by textile units, have been issued with UIDs (unique identification numbers) till January 2020.

Amended Technology Upgradation Fund Scheme (ATUFS), implemented with effect from 13.01.2016, has a provision to meet the committed liabilities of

its previous scheme versions in addition to the new sanctions.

Smt. Irani added that the Indian textile sector faces competition from Bangladesh and Vietnam which enjoy duty free access to key markets like EU while India's exports face a duty disadvantage. Besides, Bangladesh and Vietnam have the benefit of economies of scale in textile manufacturing and a large and productive labour force.

[Source - <https://economictimes.indiatimes.com/industry/cons-products/garments/-/textiles/rs-6700-cr-released-under-amended-technology-upgradation-fund-scheme-between-fy16-and-fy20/articleshow/73986847.cms>]

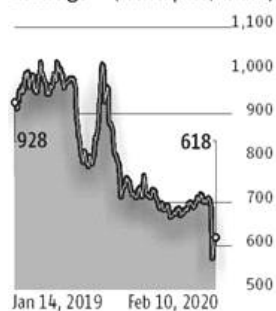
### PTA prices decline by 10% on duty cut

Synthetic yarn manufacturers attribute the PTA (Purified Terephthalic Acid) price decline to the abolition of 2.5 percent of anti-dumping duty by the government, proposed in the Union Budget announced on 1<sup>st</sup> February 2020. Apart from that, PTA import has also come to standstill due to the corona virus outbreak in China, the world's largest exporter. Indian producers have sufficient stock to

meet the import component of supply to synthetic yarn makers, and offset the impact of temporary import suspension. The experts believe the abolition of duty on PTA will boost the profitability of synthetic yarn manufacturers. Demand will rise due to low raw material cost and benefits will be passed on to consumers.

**PURIFIED TEREPHTHALIC ACID (PTA)**

Zhengzhou Commodity Exchange (Futures price\$/tonnes)



Dr. K.S. Sundararaman, Chairman, Indian Technical Textiles Association said that the abolition of anti-dumping duty on PTA had given a major thrust to the polyester fibre sector. This is the raw material for production of polyester fibre. This was one of the long-pending demands of the industry. Abolition of

anti-dumping duty will bring polyester fibre price in India on a par with international price. Polyester will be the future growth driver for the Indian textile industry.

T Rajkumar, Chairman, Confederation of Indian Textile Industry (CITI) believes that if Indian textile industry has to achieve the market size of US\$ 350 billion by 2025, it couldn't have been done by without making our raw material available at an internationally competitive price. With an installed capacity of around 5 million tonnes, Indian producers including large crude oil refiners utilizes around 80 per cent PTA capacity. China has a production capacity of 45 million tonnes of which 35

million tonnes is consumed locally. The remaining quantity 10 million tonnes is used for exports.

"The abolition of anti-dumping duty on PTA will make its availability to the industry at competitive prices and give a boost to downstream value added product. Additionally, the scheme for remission of duties and taxes on exported products will be launched this year which will refund levies such as electricity duties and value added tax (VAT) on fuel used for transportation. The textile players do not get such refund as of now. Such benefits will certainly go a long way in improving the competitiveness of the textiles products in the export markets," said K.V. Srinivasan, Chairman, Cotton Textiles Export Promotion Council (Texprocil). When prices go down, some extra demand gets created. Hence, synthetic textile manufacturers would get benefit of the additional demand which will help boost their profits in coming quarters.

[Source - [https://www.business-standard.com/article/economy-policy/coronavirus-impact-pta-prices-decline-by-10-in-a-week-on-duty-cut-120021000750\\_1.html](https://www.business-standard.com/article/economy-policy/coronavirus-impact-pta-prices-decline-by-10-in-a-week-on-duty-cut-120021000750_1.html)]

## Researcher at IIT-Delhi Develops Low-Cost 'Fabric Feel Tester'

A researcher at the Indian Institute of Technology, Delhi (IIT-D) has developed a "fabric feel tester" at a cost nearly 100 times cheaper than the ones presently available in market. According to officials, a patent has also been filed for the instrument which has been developed by professor Apurba Das and his team with support from the government's Department of Science and Technology.

The instrument measures the subjective fabric feel perception and expresses it by an objective numerical value. Fabric feel is a generic term for textile sensations associated with fabrics. "The existing Kawabata Evaluation System of Fabrics (KESF) system used in the clothing industry is very complex and requires four different modules. The new instrument will not only measure fabric softness and feel directly but also help in selecting the optimum fabric finish treatment by comparing the feel," a senior IIT-D official said.

"The instrument will help check change in fabric feel after chemical or mechanical treatment and thus help in developing newer fabrics and finishing with better feel. The cost of the new fabric feel tester is around Rs 1.75 lakhs as compared to the cost of complete KESF equipment which is more than Rs 1.5 crore," the official added. According to the official, the device finds its usage broadly in dyeing and finishing in textile and apparel industries, weaving industries, garment manufacturing units and testing laboratories. "It will be helpful for industries who are dealing with the production, evaluation and application of textile fabrics for process, quality and quick decision making," the official said.

[Source - <https://www.newsnation.in/science/news/researcher-at-iit-delhi-develops-low-cost-fabric-feel-tester-249892.html>]



## Setting up of textile unit in Jammu & Kashmir'

Union Textile Minister Smt. Smriti Irani said that a textile unit would be set up in Jammu and Kashmir's Reasi district while asserting that a "new wave of development has just begun" in the Union territory. As part of the Centre's public outreach programme, the Minister for textiles and women and child development held public meetings at Moori village and at Spiritual Growth Centre in the district.

Responding to public demand for a textile unit in the district, she said, "A suitable unit would be set up immediately after a formal request by the district administration." Appreciating the enthusiasm of people towards Panchayati Raj and other democratic institutions, Smt. Irani said all things are

possible with dialogue and public participation.

"A new wave of development has just begun," Smt. Irani said. Counting the achievements of the Central government, she said more than eight lakh farmers are being benefited under the Pradhan Mantri Kisan Samman Nidhi while around 24,000 saffron growers in Jammu and Kashmir have benefitted till date under the National Saffron Mission.

*[Source - <https://www.outlookindia.com/newscroll/irani-assures-setting-up-of-textile-unit-in-jks-reasi-says-new-wave-of-devp-begun/1712479>]*

## Aiming to double Defence export in 5 years

India is eyeing defence export of USD 5 billion in the next five years, Prime Minister Shri. Narendra Modi said on 5<sup>th</sup> February 2020, highlighting the measures taken by his government to boost manufacturing and woo investors to set up a base in the country. Inaugurating the 11th edition of DefExpo in Lucknow, Shri Modi said a country of the size of India cannot entirely depend on imports and added the number of defence licenses issued in the last five years has risen to 460 from 210 in 2014, the year he first came to power.

India is building several defence equipment like artillery guns, aircraft carriers, submarines, light-

combat aircraft, and combat helicopters, he said. "Our mantra is 'Make in India', for India, for world. In 2014 the export of defence equipment from India was about Rs 2,000 crore. In the last 2 years it has gone up to Rs 17,000 crore. In the next five years our target is export of USD 5 billion, which is about Rs 35,000 crore," the Prime Minister said.

*[Source - <https://www.tribuneindia.com/news/our-target-is-usd-5-billion-of-defence-export-in-next-5-years-pm-modi-at-defexpo-36329>]*

## New Members

### **WELCOME TO NEW MEMBERS**

#### **METRO TEXTILES, AHMEDABAD**

*(Mob: 9824264386; Email Id:metrotextiles2017@gmail.com)*

Metro Textiles manufactures the Glass fibre products used in Geotech, Indutech and Composite sectors. They have Dornier rapier machines and produce woven fabrics for these applications with a production capacity of 180-200 MT/ month.

## Members' Forum

### KUSUMGAR CORPORATES PVT. LTD.

#### Kusumgar partners with DRDO for manufacturing parachutes

Kusumgar Corporates, a leading manufacturer of Technical Textiles in India, has proudly partnered with DRDO and acquired the TOT (Transfer of Technology) for manufacturing of Combat Free Fall (CFF) Parachute system in India.

The TOT was handed over to the Managing Director, Mr. Siddharth Kusumgar during the DefExpo 2020 by the Chairman of DRDO,



Dr. G. Satheesh Reddy in the presence of Hon'ble Defence Minister, Shri. Rajnath Singh and Hon'ble Chief Minister of Uttar Pradesh, Shri. Yogi Adityanath. "We have always been focused on building strong capabilities within India to support our defence establishment and reduce dependence on imports. This is an important step in that direction," said Mr. Siddharth.

CFF parachute system provides total solutions to Paratrooper for jumping from a height as high as 10,000 m, can glide up to 30 km range and can land at

the desired target. It can be used in High Altitude High Opening (HAHO) as well as in High Altitude Low Opening (HALO) modes.

Kusumgar has been working with DRDO for several years and has partnered with them in development of various solutions to meet the

needs of our armed forces. In future as well, Kusumgar will continue to enhance their strengths in the manufacturing of specialised products by bringing latest technology to serve the country better.

### RABATEX INDUSTRIES

#### Rabatex Inks JV with Alexander & Giovanelli Group, an Italian Company

Rabatex is on a growth streak and recently, strengthened its capacities with full technical support and know-how from Alexander & Giovanelli Group (A&G), an Italian textile machinery systems provider. The group has made its mark in developing and producing equipment with quality materials from Europe. The group also specializes in design and installation of advanced material handling and storage equipment. With its technical support and cutting-edge technology, Rabatex aims to produce state-of-the-art weaving transportation trolleys in India.

This joint venture agreement of Rabatex with the A&G Group will bring unique expertise in manufacturing and sales of advanced, electric operated, handling equipment to the Indian market. The A&G Group currently has an extensive range of electric trolleys for weaving room, which it will now manufacture on Indian grounds instead of exporting them from Italy. Mr. Luca Giovanelli, Director at A&G Group, said "The main reason for tying up with Rabatex is to use their world-class manufacturing facilities and proficiency. It will reduce our production costs and we will be able to offer

products with the most competitive prices in the world market. The supply from India will surely shorten the delivery time to supply to India and other Asian countries as well. We hope to have progressive association and partnership with the Rabatex Group”.



This joint venture will also complement Rabatex in offering a complete range of material handling equipment for the textile industry, including the mechanical trolleys and electric operated trolleys. The company is well established in the Indian and global market with more than 5000 trolleys working successfully in leading textile mills. With the industry moving

towards automated technologies, Rabatex foresees a good demand for the electric operated trolleys. And, due to increased capacities with this tie-up, their market share for trolleys is all set to increase in India and 28 other countries as well.

Mr. Luca Giovanelli of A&G also wants to explore a new concept of renting trolleys to mills. The company would be the first to start such a service. It plans to rent

the trolleys to the mills and provide the service of regular upkeep of these trolleys. This will ensure that the trolleys are always maintained as per the strict European safety standards and will also be cost-effective for the mills.



### 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.

# ADVERTISEMENT TARIFF FOR ITTA E-BULLETIN

For an ITTA Members, please tick (✓) against one of the following:

	One Issue	Three Issues	Six Issues
<b>Full page</b>	Rs. 10000* <input type="checkbox"/>	Rs. 25000* <input type="checkbox"/>	Rs. 45000* <input type="checkbox"/>
<b>Half page</b>	Rs. 6000* <input type="checkbox"/>	Rs. 16000* <input type="checkbox"/>	Rs. 30000* <input type="checkbox"/>

For a Non-Member of ITTA, please tick (✓) against one of the following:

	One Issue	Three Issues	Six Issues
<b>Full page</b>	Rs. 12500* <input type="checkbox"/>	Rs. 31250* <input type="checkbox"/>	Rs. 56250* <input type="checkbox"/>
<b>Half page</b>	Rs. 7500* <input type="checkbox"/>	Rs. 20000* <input type="checkbox"/>	Rs. 37500* <input type="checkbox"/>

\*GST as applicable

**MECHANICAL DATA:** Full page size: 210 mm x 297 mm, Preferable artwork size: 190mm x 277 mm, Bleed margin = 3 mm on each side (Final Design with bleed area: 216 mm x 303)

**MATERIAL FORMAT:** CorelDraw/ High Resolution PDF/ 300 dpi JPEG

## Mode of Payment:

- I) Payment by DD/Cheque in favour of "INDIAN TECHNICAL TEXTILE ASSOCIATION", payable at Mumbai.
- II) Payment can also be made directly into bank Account -  
A/C. Name: INDIAN TECHNICAL TEXTILE ASSOCIATION  
Bank Name: Bank of Baroda, Ghatkopar (W) Branch, Mumbai -400086.  
Current Account No: 04220200000491  
IFSC Code – BARB0GHATKO

## Mode of sending advt. material:

Name of the Company:.....

Mailing Address:.....

Name of Contact Person:.....Designation.....

Mobile Number:.....Email:.....

## INDIAN TECHNICAL TEXTILE ASSOCIATION

**For more information contact:** 'A' Block, BTRA, L.B.S. Marg, Ghatkopar (W), Mumbai 400086  
Tel: 022-25003098; Mob: 9769464616 Email: officeed@ittaindia.org

# EXPORT-IMPORT PERFORMANCE OF TECHNICAL TEXTILE PRODUCTS OF DECEMBER-2019

The data on export and import of 207 technical textile products/items is published as an indicator of foreign trade performance of technical textile industry in India.

## A. EXPORT PERFORMANCE

(Value in INR Cr.)

Sr. No	Segments	Dec 2018	Dec 2019	% Growth	Apr-Dec 2018	Apr-Dec 2019	% Growth
1	Agrotech	47	56	19%	436	455	4%
2	Buildtech	56	64	13%	488	523	7%
3	Clothtech	17	16	-7%	156	150	-4%
4	Geotech	82	117	42%	637	773	21%
5	Homotech	4	11	169%	55	108	96%
6	Indutech	146	161	10%	1169	1420	21%
7	Meditech	88	114	29%	710	823	16%
8	Mobiltech	144	131	-9%	1149	1065	-7%
9	Packtech	524	482	-8%	4265	4047	-5%
10	Protech	80	35	-56%	365	386	6%
11	Sportech	17	23	35%	141	173	23%
12	Nonwoven	93	86	-8%	805	746	-7%
	<b>GRAND TOTAL</b>	<b>1298</b>	<b>1296</b>	<b>0%</b>	<b>10376</b>	<b>10669</b>	<b>3%</b>

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

### ITTA Analysis on data (Apr-Dec'18 vs. Apr-Dec'19) of Top Four Growth Sectors -

- Homotech (+96%)** - Key Products: Nylon & Polyamide fabrics, Fabrics covered with textile flocks, Tubular knitted gas mantle fabrics and Imitation Leather cloth laminated with Polyurethane.
- Sportech (+23%)** - Key Products: Tent fabrics, Parachute fabrics, Mattress Supports - cushions & pillows & Sport nets.
- Indutech (+21%)** - Key Products: Woven felts, Conveyor belts reinforced with textile materials, Woven Narrow tape and Fibre Belt Conveyor.
- Geotech (+21%)** - Key Products: Woven Geotextile, Geogrid & Geo-composites.

**B. IMPORT PERFORMANCE***(Value in INR Cr.)*

Sr. No	Segments	Dec 2018	Dec 2019	% Growth	Apr-Dec 2018	Apr-Dec 2019	% Growth
1	Agrotech	30	29	-4%	224	275	23%
2	Buildtech	146	163	12%	1512	1435	-5%
3	Clothtech	27	25	-10%	182	216	19%
4	Geotech	130	121	-7%	1289	1192	-8%
5	Homotech	40	52	29%	381	448	17%
6	Indutech	209	198	-5%	2086	1915	-8%
7	Meditech	79	53	-33%	652	472	-28%
8	Mobiltech	432	338	-22%	3975	3578	-10%
9	Packtech	42	51	20%	261	408	56%
10	Protech	43	25	-41%	323	351	8%
11	Sportech	4	11	151%	83	93	12%
12	Nonwoven	166	170	2%	1461	1440	-1%
	<b>GRAND TOTAL</b>	<b>1348</b>	<b>1236</b>	<b>-8%</b>	<b>12429</b>	<b>11823</b>	<b>-5%</b>

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

**ITTA Analysis on data (Apr-Dec'18 vs. Apr-Dec'19) of Top Four Growth Sectors -**

- a) **Packtech (+56%)** - Key Products: Unbleached Jute Sacking fabrics and Hessian fabrics.
- b) **Agrotech (+23%)** - Key Products: Fishing nets and Twine, Cordage & Ropes of Man-made textile.
- c) **Clothtech (+19%)** - Key Products: Dyed Umbrella Cloth, Nylon Taffeta and Knitted/Crocheted fabrics - width < 30 cm.
- d) **Homotech (+17%)** - Key Products: Carpet Backing fabrics, Cotton fabrics coated with oil and Fabrics covered with textile flocks.

# UPCOMING EVENTS

## JANUARY 2020

### Heimtextil

7-10 January 2020, Frankfurt, Germany  
Web: <http://www.heimtextil.messefrankfurt.com>

## MARCH 2020

### 4<sup>TH</sup> EDITION OF TEMTECH 2020 (TEXTILE MACHINERY & YARN EXHIBITION)

5-7 March 2020 at Sumatex Limited Compound, Bhilwara, [India](#)  
Web: <https://10times.com/tem-tech>

### Geosynthetics Conference 2020: Case Studies

8-10 March 2020 at Charleston, SC USA  
Web: [www.ifai.com](http://www.ifai.com)

### Gartex Texprocess India

19-21 March 2020 at Bombay Exhibition Centre, Goregaon, Mumbai  
Web: <https://www.gartexindia.com>

### INDEX™20 - world's leading nonwovens exhibition

31 March - 3 April 2020, Palexpo, Geneva  
Web: <https://www.indexnonwovens.com>

## APRIL 2020

### WORLD CONFERENCE ON 3D FABRICS AND THEIR APPLICATIONS

2-3 April 2020 in Zhengzhou, China  
Web: <https://texeng.net/3dfabrics-9th/en/>

### Techtextil Russia

21-23 April 2020, Expocentre, Moscow, Russia  
Web: <https://techtextil-russia.ru.messefrankfurt.com>

## MAY 2020

### Techtextil North America

12-14 May 2020, Atlanta, Georgia  
Web: <https://techtextil-north-america.us.messefrankfurt.com>

### Texprocess North America, Atlanta

12-14 May 2020 at Georgia World Congress Center, Atlanta, USA  
Web: <https://texprocess-america.us.messefrankfurt.com>

### 9th European Conference On Protective Clothing

18-20 May 2020 in Stuttgart, Germany  
Web: <https://www.hohenstein.com/en/events/>

### JIAM 2020 Osaka (Japan International Apparel Machinery & Textile Industry Trade Show)

20-23 May 2020, INTEX OSAKA, JAPAN.  
Web: <https://texprocess-america.us.messefrankfurt.com>

## JUNE 2020

### WORLD OF WIPES (WOW) - INTERNATIONAL CONFERENCE

22-25 June 2020 at Minneapolis, Minnesota, USA  
Web: <http://www.worldofwipes.org>

## SEPTEMBER 2020

### CINTE TECHTEXTIL CHINA

2-4 September 2020 in Shanghai, China  
Web: <https://cinte-techtextil-china.hk.messefrankfurt.com>

## NOVEMBER 2020

### HYGIENIX

16-19 November 2020 in New Orleans, Louisiana, USA  
Web: <https://www.hygienix.org>

## DECEMBER 2020

### INTERNATIONAL TEXTILE MACHINERY EXHIBITION (ITME)

10-15 December 2020 in Greater Noida, India  
Web: <http://india-itme.com>