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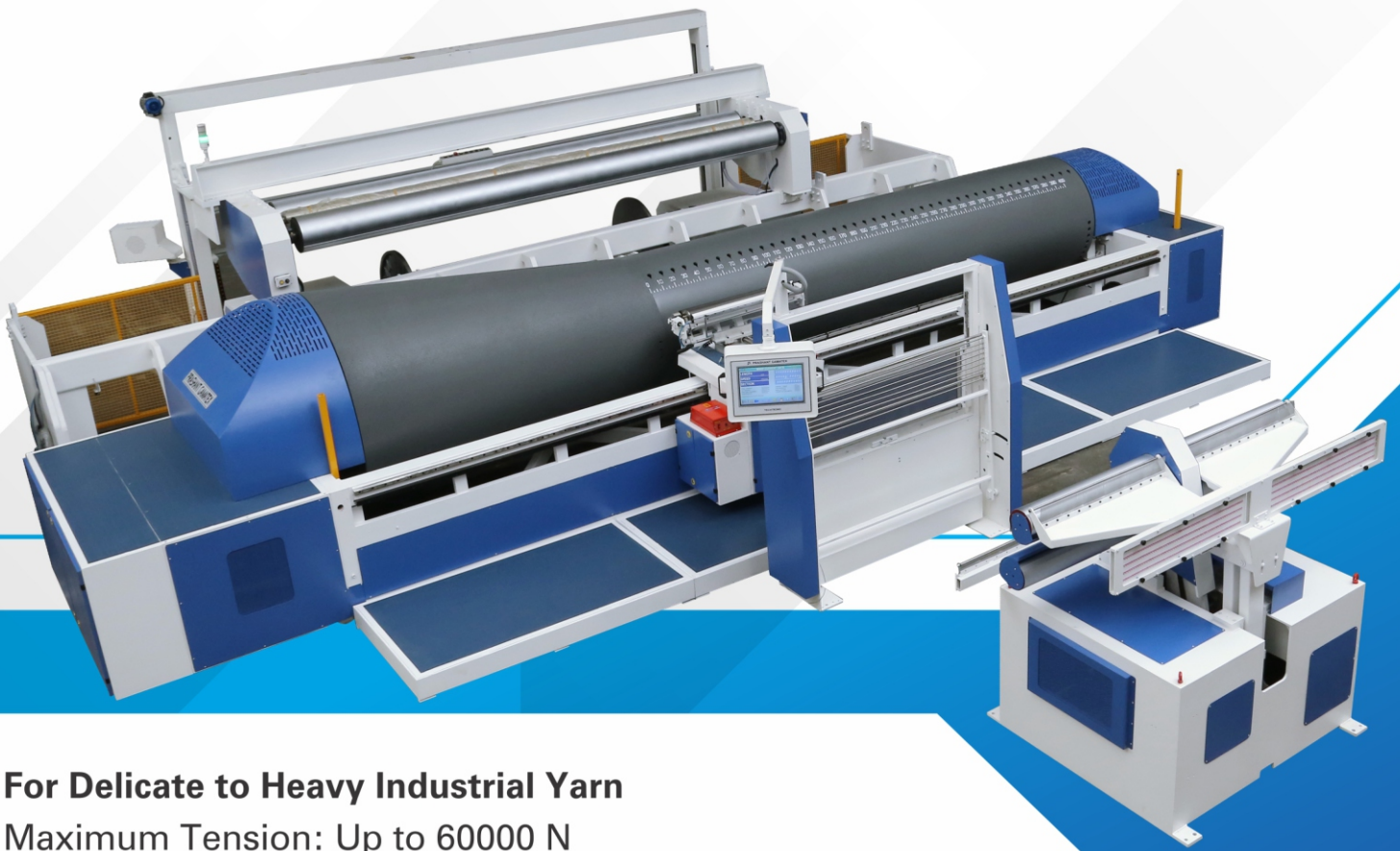
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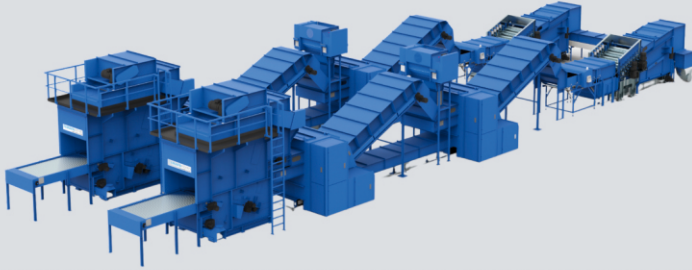


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## Textile Recycling - Sustainability in Nonwoven Production

The term „sustainability“ is used today to describe necessary savings of resources of all sorts and including technological solutions for the reduction of energy and fibre material consumption. For economic reasons, these goals have been pursued in the past already. In recent years, however, the discussion of the importance of sustainability is usually very much influenced by the ecological importance in order to stop climate change.

In the tradition of further development and innovation in the field of textile machinery for nonwoven production it becomes obvious that in the past the use of textile waste from garment clippings and the use of natural fibre were the primary fields in needling and in the production of insulation material, carpet underlay as well as upholstery for furniture and in bedding. Those applications are still important when we want to reduce virgin fibre consumption and also apply natural fibres in order to allow an environmentally friendly end-of-life for such materials.

In the past, machine development and engineering at Dilo was directly related to the use of reclaimed fibre and natural fibre for needled products and has defined technical development in the years until the mid-60s when man-made organic fibre offered many more applications for needle felts including floor coverings and technical felts.

DiloGroup has started a partnership with specialists Dell'Orco & Villani for modern tearing technology as well as with TechnoPlants as the specialist for aerodynamic web forming of waste fibre. Therefore, Dilo as general contractor provides a complete platform with solutions in the field of recycling fibre material from post-consumer and post production sources. Many different complete line solutions for clean hard waste recycling of garment clippings or nonwoven waste include all different quality and capacity features. An important role is the “controlled” tearing technology which reduces the shortening of staple lengths during tearing. Of course, a natural relation between quality and production plays a role. A tearing technology to retain staple lengths as much as possible does not allow the same throughput rates compared to a standard tearing installation.

### Demonstration and Test Centres

Dell'Orco & Villani and Technoplants offer demonstrations as well as product development with their complete installations for trials with different fibre and for different products in Florence, Ancona and Pistoia. Dilo has its demonstration facility for the card/crosslapper webforming and needling in Eberbach, Germany.

Our engineering is thus supported by four demonstration, testing and development centres for the various process stages in order to provide all necessary information before investment decisions.

DiloGroup · Im Hohenend 11 · 69412 EBERBACH  
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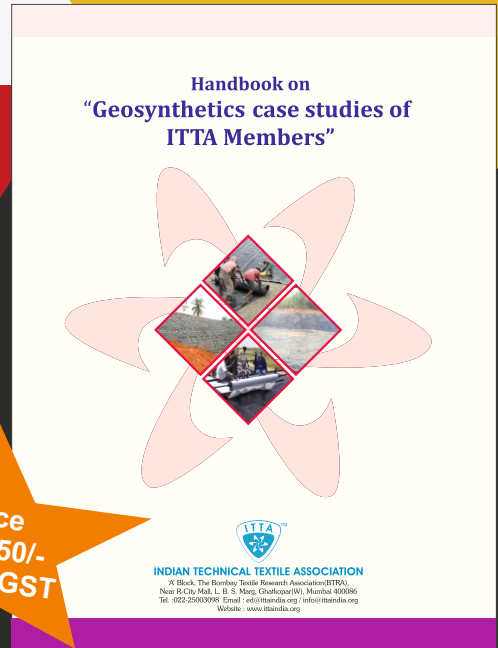
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LAKSHMIGRAHA ENTERPRISES

## ITTA Chairman greets newly appointed Minister of Textile: Shri. Giriraj Singh



The Indian Technical Textile Association (ITTA) is pleased to announce that we had a highly productive and cordial meeting with the Honorable Minister of Textiles, Shri. Giriraj Singh Ji on 13th June 2024 in New Delhi.

During the meeting, we extended our warm greetings on behalf of ITTA and provided an overview of our activities and achievements over the past decade in the field of technical textiles. We highlighted our ongoing efforts and innovations, which have significantly contributed to advancements in this sector.

Shri. Giriraj Singh Ji shared his insightful vision for the future of technical textiles, emphasizing the importance of integrating emerging technologies with cost-effective strategies to ensure widespread adoption, particularly in the areas of Agrotech, Geotech, Protective Wear, and Carbon & Glass Fibre. He underscored the need for innovative approaches that can drive mass dissemination and make a substantial impact.

Furthermore, the Honorable Minister encouraged ITTA's active participation in various governmental interventions and initiatives aimed at fostering growth and development within the industry. His support and encouragement have further strengthened our resolve to continue our mission with renewed vigor.

The meeting was also graced by the presence of Shri. Kumar Priyadarshi IAS, Private Secretary to the Honorable Minister, and Mr. Raman IAS. Their presence and contributions added significant value to the discussions.

ITTA is committed to advancing the technical textiles sector and will diligently work towards the goals outlined during this esteemed meeting. We look forward to collaborating closely with the Ministry of Textiles and other stakeholders to drive innovation and growth in the industry.

## Textile based Triboelectric Nanogenerators for Energy Harvesting

Dr. Bipin Kumar

Associate Professor, Department of Textile and Fibre Engineering, IIT Delhi

E-mail: bipin@textile.iitd.ac.in

### Introduction

E-Textiles constitute two domains- textiles and electronics, which vary in type, material, and behavior from each other. Textiles are soft, flexible, porous, and susceptible to different conditions, while in general, electronics are rigid, precise, and protected. It is always challenging to achieve material-specific properties for the wearable application while complying with the contrasting properties of electronics and textile (Das, 2015). As the demand for wearable technology grows, there is an increasing emphasis on incorporating energy harvesting technologies to ensure sustained functionality without the constant need for recharging. Among these technologies, Triboelectric Nanogenerators (TENG) have emerged as particularly popular and feasible. The TENGs use the triboelectric effect and electrostatic induction to transform mechanical energy into electricity, offering a seamless integration with the dynamic, flexible nature of textiles. This synergy not only leverages the flexible properties of textiles but also meets the stringent functional requirements of embedded electronic systems, marking a significant advancement in the field of e-textiles. The self-generation of an electrical signal without any power

supply and the response to the mechanical stimulus creates the TENG as a viable alternative for the wearable monitoring applications (Chen et al., 2017; He et al., 2017; Yi et al., 2019).

A schematic of structural arrangement and power generation mechanism for TENG is illustrated in Figure 1. There are two triboelectric layers with different electron affinity towards each other. To transfer the generated electrons, each layer is combined with the conductive electrode material on the back of the triboelectric material. The contacting face has nano or micro-scale roughness to create friction while two materials contact each other. When an external force is pressed one layer over the other, opposite charges are generated and distributed over the two triboelectric layers due to contact electrification. In this situation, a material surface with a strong electron affinity will produce a negative charge, and others will become positive. A dipole layer is formed at the interface, creating a potential difference across the two electrodes called electrostatic induction. As the distance between two layers reduces (from  $D$  to  $d$ ), electro statically induced free electrons flow across the external circuit.

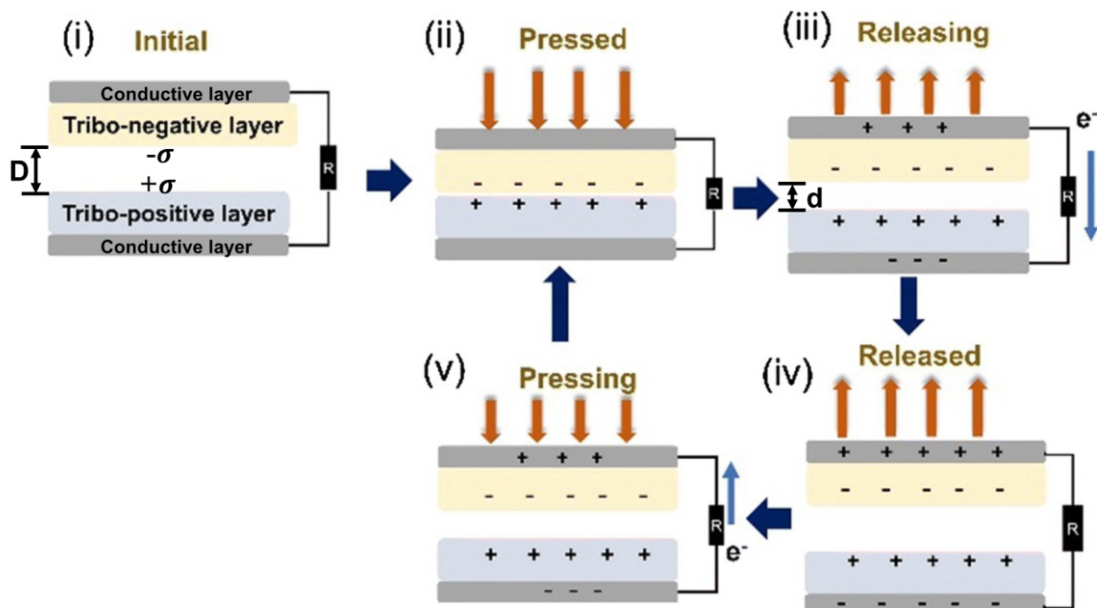


Figure 1 A schematic and working principle of triboelectric nanogenerator.

## Materials and Methods

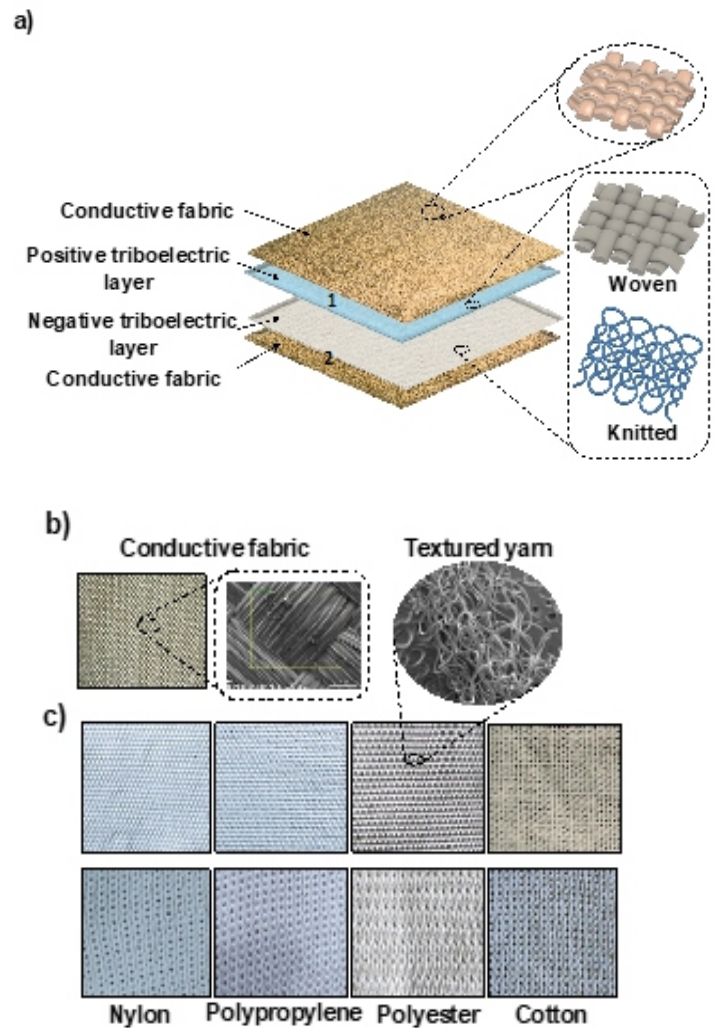
The constituent yarn for the fabric development of textile TENG are textured Nylon, Polypropylene (PP), polyester multifilament and cotton staple yarn are procured directly from the commercial marketplace. The Nylon and cotton yarn are selected to develop a positive triboelectric layer, and a negative triboelectric layer is prepared from PP and Polyester yarn. The physical characteristics of the yarns are given in Table 1 below. The charge transfer was accessed using a conductive fabric made from nickel chrome plated thin polyester fabric with a sheet resistance of less than  $1 \Omega$ .

**Table 1 Physical properties of the yarns used for developing textile generator.**

S. No.	Yarn material	Yarn type	Yarn count (Denier)	Triboelectric charge density (nC/cm <sup>2</sup> )
1.	Polyester	Texture multifilament	300	-0.109
2.	Cotton	Staple fibre yarn	270	0.011
3.	Nylon	Textured multifilament	300	0.422
4.	Polypropylene	Textured multifilament	260	-0.312

### Development of Triboelectric Nanogenerator (TENG)

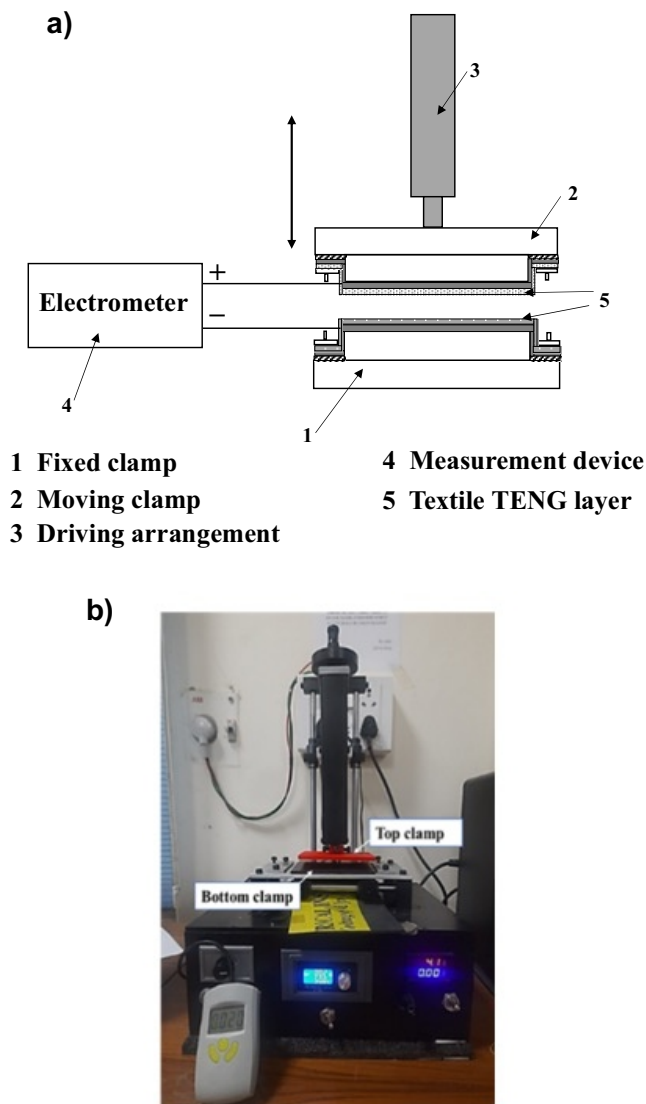
The knitted and woven fabric samples were developed using polyester, cotton, nylon, and PP yarn. A plain woven fabric on an Ashford heddle handloom and a rib knitted fabric are produced using a Shima Seiki V bed knitting machine with a machine gauge of 14 needles per inch. The TENG device constitutes a pair of a positive and negative triboelectric layers. Layer one comprises positive triboelectric and conductive fabric, while layer two has negative triboelectric fabric and conductive fabric for charge transfer (Figure 2a). The conductive fabric is sewed with each triboelectric layer using a standard sewing machine to ensure uniform contact with the triboelectric layer. A nickel chrome-plated polyester fabric is selected for charge transfer application due to its washable, flexible, and excellent conductivity properties compared to the conventional metallic electrode (Figure 2b). The triboelectric layer consists of a woven and knitted structure of different materials discussed in the material section, as illustrated in Figure 2c. The developed TENG layers one and two can be integrated into the garment to scavenge mechanical movements during walking, running, etc.



**Figure 1 A schematic and working principle of triboelectric nanogenerator.**

### Electrical measurements

A vertical C-S setup is fabricated to activate the textile TENG device and analyze the effect of different frequency, pressure, and vertical separation distance. The triboelectric performance of the textile TENG is analyzed on a  $10 \text{ cm} \times 10 \text{ cm}$  sample area in a vertical C-S mode using the IEC62830-6:2019 standard. The output current through the load resistor and open circuit voltage ( $V_{oc}$ ) is measured using the electrometer (B2985A) and digital oscilloscope (RTB2002). The Figure 3 shows images of the fabricated testing instrument for vertical contact separation mode. The setup consists of a driving arrangement, a controller, and testing clamps. The top clamp is fixed to the driving arrangement to impart vertical contact separation motion. The sample size used is  $10 \text{ cm} \times 10 \text{ cm}$ , with one layer of the fabric fixed on the bottom clamp and the other layer on the top movable clamp. The fabric is kept firm over the clamp to avoid curling and to ensure complete contact between the layers. The machine setup is enclosed in an electromagnetic shielding box with a ground connection to prevent interference during testing.

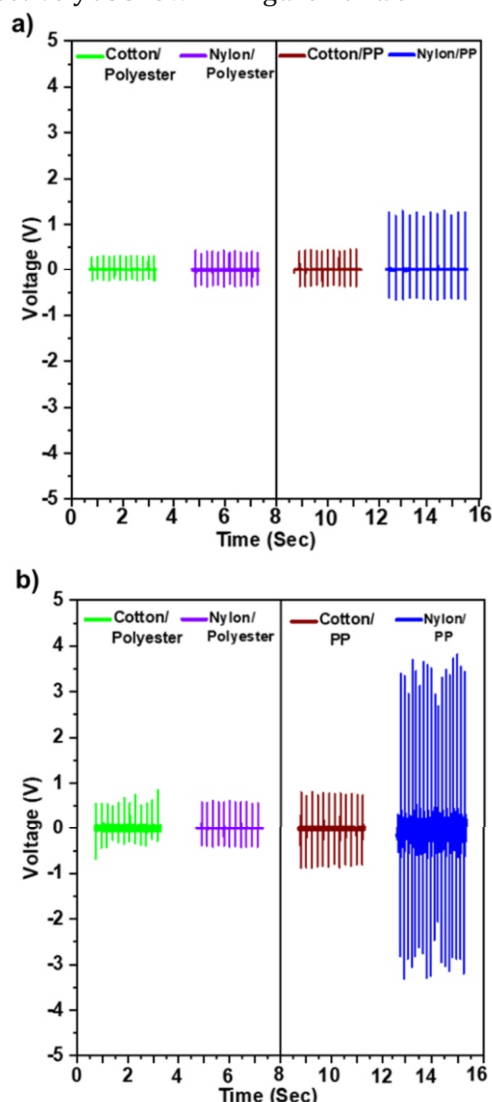


**Figure 3** The schematic depicting the test set-up of a) vertical contact separation mode and b) an image of the actual setup.

### Results and Discussion

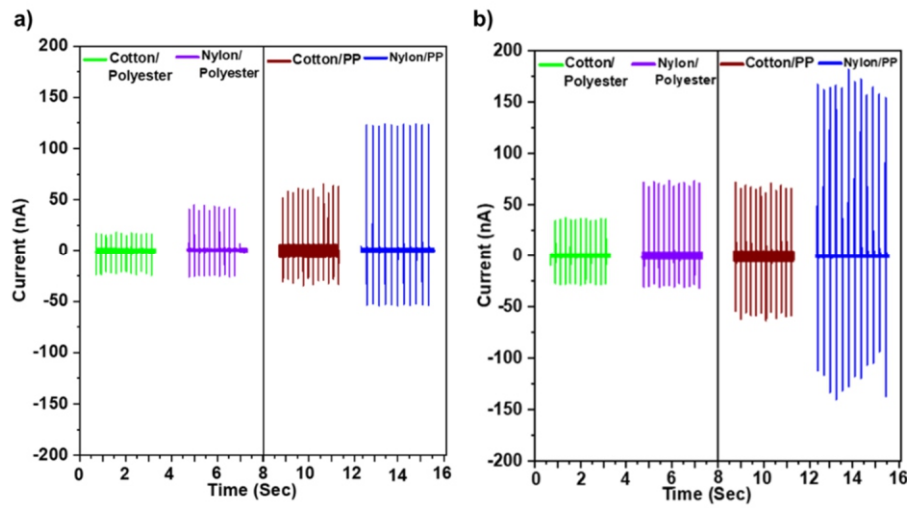
The woven and knitted TENG is analyzed for its output capability in a vertical C-S mode using a customized driving arrangement. A frequency of 1 Hz and pressure of 100 Pa are employed to trigger the  $10 \times 10 \text{ cm}^2$  sample. The maximum separation distance between the positive and negative triboelectric layers is kept at approximately 10 mm. The change in a contact area among the positive and negative triboelectric fabric under pressure results in the generation of triboelectric charges and produces a voltage signal upon releasing the pressure stimulus. When a pair of positive and negative triboelectric fabrics were assembled in the TENG, the  $V_{oc}$  were 0.52 V, 0.75 V, 0.79 V, and 2.1 V and output current of 38.91 nA, 67.051 nA, 88.65 nA, and 174.91 nA for woven cotton/polyester, nylon/polyester, cotton/PP, and nylon/PP, respectively. Whereas the knitted pair of textile

TENG has depicted the  $V_{oc}$  to 1.09 V, 0.978 V, 1.61 V and 6.60 V and output current of 63.173 nA, 100.027 nA, 125.375 nA and 288.53 nA for cotton/polyester, nylon/polyester, cotton/PP, and nylon/PP, respectively as shown in Figure 4 and 5.

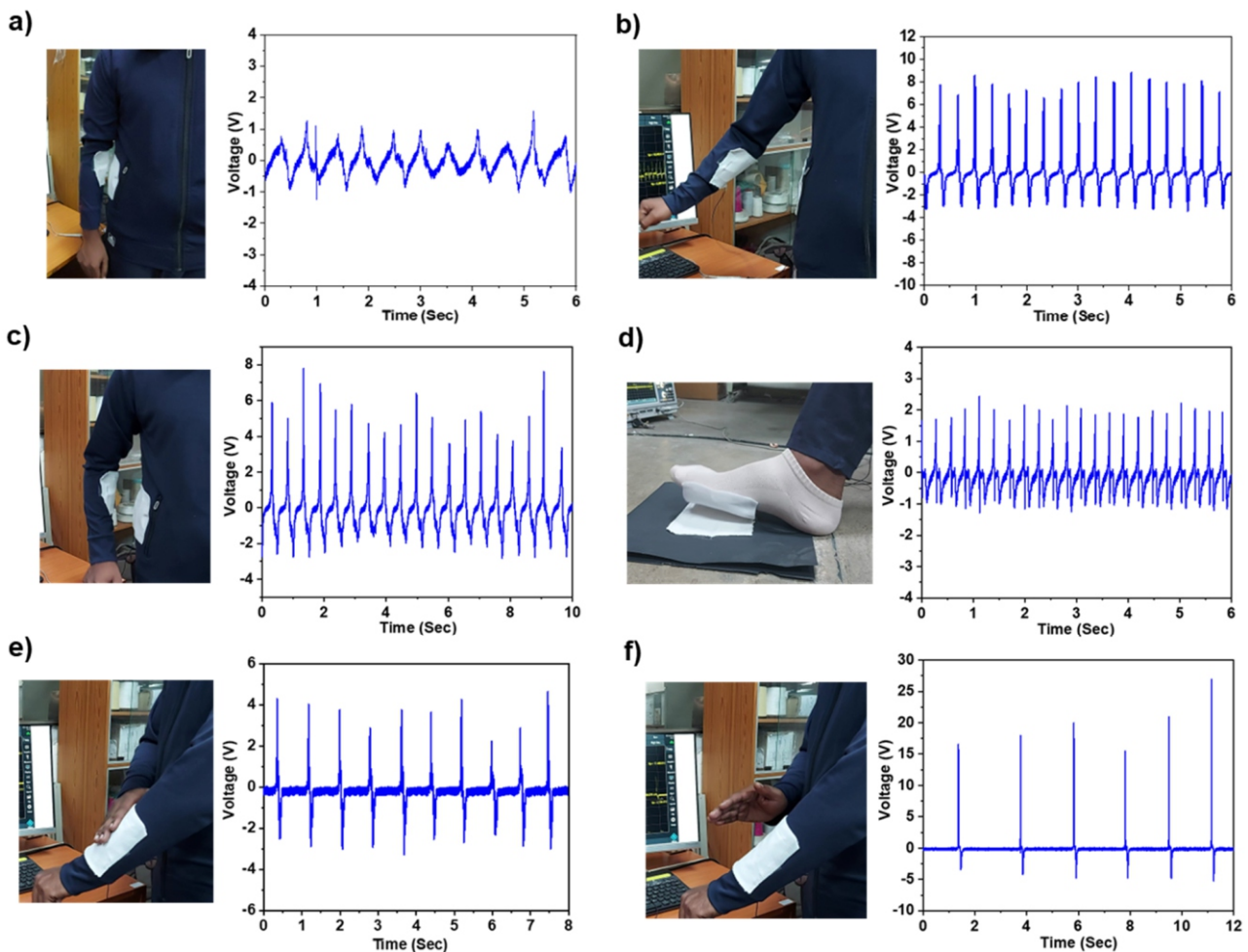


**Figure 4** The open circuit voltage comparison of a) woven and b) knitted TENG with various material combinations.

Nylon is typically positioned higher on the triboelectric series, making it more electron-donating, while polypropylene is positioned lower, making it more electron-accepting. This arrangement enhances the potential difference between them when they come into contact and then separate, thereby facilitating a greater transfer of charges. The knitted nylon/PP textile TENG has shown excellent triboelectric performance among the different textile materials. Further, the nylon/PP pair TENG was sewn on specific positions of the garment to evaluate the energy harvesting capability from various daily body movements as shown in Figure 6.



**Figure 5** The output current comparison of a) woven and b) knitted TENG with different material combinations.



**Figure 6** Demonstration of energy harvesting from a) slow walk, b) exercising, c) running, d) stepping, e) swapping on the wrist, and f) tapping on the wrist.

### Conclusion

The present research has focused on the influence of triboelectric textile material, fabric structure, contact separation frequency and pressure on the performance of the TENG. The voltage and current measurements are done to compare the textile material and fabric structure under standard atmospheric conditions. Nylon and PP have

demonstrated the highest output voltage and current among all the analysed textile materials due to their better dielectric properties and higher surface roughness. The comparison of woven and knitted structures has shown that the knitted TENG has a significant increment in the output voltage, current and power.

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## MEMBERS' FORUM

### CANDOUR TECHTEX LTD.

#### Innovative Alliances: Candour Tectex & Amba Projex UK Shaping the Textile Industry

In an ever-evolving technological landscape, textile producers are constantly seeking avenues to innovate and stay ahead of the curve. Candour Tectex Ltd (formerly known as Chandini Textiles and Engineering Ind Ltd) has emerged as a beacon of innovation, with a rich legacy in woven pile velvet weaving. Moreover, the company's recent collaboration with Amba Projex UK and Sanit Exports marks a significant milestone in its journey towards technical excellence and market leadership.

The collaboration between Candour Tectex Ltd and Amba Projex UK represents a fusion of local industry knowledge and international expertise, aimed at driving innovation, efficiency, and sustainability in textile manufacturing. The partnership has enabled Candour Tectex Ltd to enhance its capabilities in coating and lamination, offering a wide range of products tailored to meet the evolving needs of customers across various industries.

At the heart of the collaboration lies Amba Projex's state-of-the-art technology, imported from the UK, which empowers Candour Tectex Ltd to achieve superior performance and product quality. The new coating and lamination plant in Malegaon is equipped with cutting-edge machinery capable of handling various fabric types and substrates, including polyester, cotton, and their blends.

These cover four distinct categories: coated fabrics which offer spill and stain resistance, like Indoor/Outdoor, designed for durability in various environments; Home Wash curtain and roller blind fabrics for ease of maintenance with machine washability, blackouts, and FR fabrics. FR is carried out with both Halogen and Halogen-free compounds. Candour is producing the highest quality 3-pass blackout curtains and roller blinds, which are said to offer the softest weaves, textures, and patterns. They also offer 2 pass coating, which is cheaper and has features of absorbing better light, temperature, and sound. For the very economical consumption, they carry out their Single-pass coating.

Looking ahead, Candour Techtex Ltd, Amba Projex UK, and Sanit Exports are poised for a bright future, driven by a shared commitment to innovation, quality, and sustainability. As pioneers in the textile industry, they are set to redefine industry standards and contribute to India's textile manufacturing prowess on the global stage. Through strategic partnerships and technological advancements, they continue to empower the textile industry and shape the future of textiles worldwide. announce this cooperation in the best interest of our worldwide range of customers of this special field.

## TECHNO SPORTSWEAR PVT. LTD.

### India's first brand to partner with bluesign

Techno Sport one of India's best sportswear brands online based out from Tirupur, India, recently signed up with bluesign for their bluesign system partnership services. This makes them the first brand in India to sign up for bluesign. The product category varies from Men's T-shirt, Gym Vests and Jackets, to women's tights and pants to kids' shorts and trackpants. The brand ensures not only the functionality of the products but also offers a wide range of colours and styles for you to choose from.

Mr. Sunil Jhunjunwala, Managing Director, Techno Sportswear India Pvt. Ltd said "Certainly! bluesign is a gold standard for more sustainable textiles. From fiber to finished product, they collaborate with brands, manufacturers, and chemical suppliers to create safer workplaces and textile products that have a minimal impact on the environment and people" He further said "We are very excited to sign up with bluesign for their system partnership which will make our brand the first to sign in India. We feel proud to be part of their 150 global brands that are already part of bluesign system partnerships."

Mr. Sunil Jhunjunwala, further added "Joining the bluesign system empowers us to prioritize sustainability and environmental responsibility, showcasing our commitment to continuous improvement in environmental performance. By accessing the expertise of bluesign technologies, we shall benefit from their rigorous evaluation of processes and materials, ensuring compliance with stringent environmental and safety standards throughout the textile supply chain. This collaborative approach will not only streamline our operations but also drives innovation, enabling us to stay ahead while reducing our environmental footprint."

Mr. Daniel Rufenacht, CEO, Bluesign Technologies AG said "With all the global shifts going on in India with its long history in textile production now can go beyond being a price sensitive market, but rather evolving into a well reputable and responsible player in sustainable and clean textile production. We are happy to have Techno Sports on board and appreciate their decision in becoming a sustainable brand and leading this journey."

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## 1. ENGAGEMENTS WITH CENTRAL & STATE GOVERNMENTS

### 1.1. Meeting of Empowered Programme Committee (EPC) under NTTM

The 7th meeting of Empowered Programme Committee (EPC) of National Technical Textiles Mission (NTTM) under the Chairmanship of Ms. Rachna Shah, Secretary (Textiles), Minister of Textiles was held on 13.06.2024 at Udyog Bhawan, New Delhi. Dr. Anup Rakshit, ED and Shri. Anilkumar Vasupillai, AED, ITTA attended the meeting.

Following Key points were discussed and decided in the meeting--

1. 7 startup proposals under the GREAT scheme were approved wherein GOI is providing a maximum fund support of INR 50 lakhs per startup focusing on sustainability, composites, high-performance textiles, meditech, and smart textiles, driving significant advancements in these crucial areas.

2. Some of the start-ups can go a long way in driving technology-oriented manufacturing in India

are 'developing and manufacturing Braided Composites for Military applications, Radmone Integrated IFF Antenna, Surgical Stimulations models made-up of composites for training doctors, Nano-fibre infused textiles for energy generation and sensing.'

3. Grant of approx. INR 6.4 crores to IIT Guwahati was approved under 'General Guidelines for Enabling of Academic Institutes in Technical Textiles- for Private & Public Institutes' to introduce new papers/subjects in technical textiles and upgrade laboratory infrastructure in its Civil Engineering Department. By enhancing its laboratory infrastructure and expanding its capabilities in technical textiles, especially geotextiles, IIT Guwahati, a premier institute in North East Region, would be better equipped to address the unique geographical and environmental conditions of the region.

## ITTA'S ENGAGEMENT WITH BIS DEVELOPMENT OF INDIAN STANDARDS ON TECHNICAL TEXTILES

### 1. BIS SECTIONAL COMMITTEE MEETINGS -

#### 1.1 Technical Textiles for Agrotech Applications Sectional Committee, TXD 35

The 21st Meeting of Technical Textiles for Agrotech Applications Sectional Committee, TXD 35 was held through video conferencing on 03.05.2024. The meeting was attended by Dr. Anup Rakshit, Executive Director from ITTA Secretariat and ITTA Members from Garware Technical Fibres Ltd., Rishi Techtex Ltd., and Shri Ambica Polymer Pvt. Ltd.

Following points were discussed & decided in the meeting--

**1. IS Standards for Publication** - Following Indian Standards were finalized for publication- IS 17731: 2021 Agro Textiles - Laminated Woven Orchard

Protection Covers and IS 17730 (Part 1 & 2), Agrotexiles - Hail Protection Nets for Agriculture and Horticultural Purposes.

**2. Wide Circulation** - Following Draft standard will be issued under wide circulation- IS 16513:2016 Agro textiles - Insect nets for agriculture and horticulture purposes.

## 1.2 Technical Textiles for Mobiltech Applications Sectional Committee, TXD 38

The 09th Meeting of Technical Textiles for Mobiltech Applications Sectional Committee, TXD 38 was held through video conferencing on 22.05.2024. The meeting was attended by Shri. Dinesh Batra, Autotech Nonwovens Pvt. Ltd. as an alternate member and ITTA Members from Autoliv India Ltd., Kusumgar Corporates Pvt. Ltd., Sanrhea Technical Textiles Ltd., and SRF Ltd.

Highlights of the key points discussed & decided in the meeting –

**1. IS Standards for Publication** - Following Indian Standards were finalized for publication- Polyamide Tyre Cord Fabric for Automotive Tyres (First Revision of IS 11926) and Dipped Polyamide Tyre Cord Fabric for Automotive Tyres (Second Revision of IS 13137).

**2. IS Standards at Draft Preparation Stage** - Preliminary draft to be prepared on Polyester Tyre Cords, Automotive Seat Belt Webbing and Jute-based roofliner used in the automobile for acoustic purposes.

## 1.3 Textiles Protective Clothing Sectional Committee, TXD 32

The 19th Meeting of Textiles Protective Clothing Sectional Committee, TXD 32 was held through video conferencing on 21.05.2024. The meeting was attended by Dr. Anup Rakshit, Executive Director from ITTA Secretariat and ITTA Members from Aeronav Industrial Safety Appliances, Arvind Ltd., E.I. Dupont India Pvt. Ltd., Star Safety Hub, System 5S Pvt. Ltd., and Welspun India.

Following points were discussed & decided in the meeting--

**1. IS Standards for Publication** - Following Indian Standard & Draft Amendments were finalized for publication- [Doc: TXD/32/24728] ISO 16073-

3:2019 Wildland firefighting personal protective equipment Requirements and test methods part 3: Clothing & [Doc: TXD/32/24727] ISO 16073-4:2019 Part 4: Gloves, [Doc: TXD/32/24726] ISO 23616:2022 Cleaning Inspection and Repair of Firefighters Personal Protective Equipment PPE, IS 15748:2008 - Clothing to protect against heat and flame, IS 15809:2017 - High Visibility Warning Clothing and IS 16655:2017 for Clothing for use in Welding and Allied Process.

**2. Wide Circulation** - Following Draft standard will be issued under wide circulation- IS 16890 - Protective clothing for firefighters and Fire-resistant fabric.

## 2. BIS Panel Meetings -

### 2.1 Expert Panel Meeting for Constitution of New Technical Committee on Smart Textiles/ E-Textiles

The 1st Expert Panel meeting for constitution of New Technical Committee on Smart Textiles/ E-Textiles was held on 28.05.2024 through video conferencing under the convenorship of Dr. A. N. Desai, Scientific Member, SITRA Council, Coimbatore. The meeting was attended by Dr. Anup Rakshit, ED as the member of the panel.

Highlights of the key points discussed & decided in the meeting –

1. Panel scrutinized the standardization work in the field of smart/e-textile by a technical committee 'Wearable Electronic Devices and Technologies Sectional Committee, LITD 33' in BIS and at international arena by ISO TC 38/WG 32 'Smart

Textile' and IEC TC 124 'Wearable electronic devices and technologies'.

2. After detailed deliberation, the panel recommended to exclude the 'E-textile' from the scope of new technical committee as the similar subjects are being dealt by LITD 33.

3. Title, scope, chairperson, and composition of the new committee was suggested/ recommended by panel.

4. ITTA submitted the name of ITTA members for the composition of new committee with the smart textile product where new standards need to be developed.

# NEW MEMBERS



## **GOODLUCK AGRONET INDUSTRIES, DADRA AND NAGAR HAVELI**

Goodluck Agronet Industries are having Raschel knitting machine for manufacturing the warp knitted fabric since December 2018 with total production capacity of 600 MT for FY 2022-23.

## **SIRUVANI YARNS, TAMIL NADU**

Siruvani yarns is a Tamil Nadu based manufacturer of fancy yarns over 2 decades and from 2018 onwards they have ventured into manufacturing of sustainable textiles having machinery such as Blow room, Carding, Drawframe, Comber, Ring frame, Hollow Spindle Fancy Yarn Machine, TFO Twisting and Autoconer and packing, etc. They manufacture fancy yarns i.e., air texturised yarn, neppy yarn, mélange yarn, etc. for home textiles from zero counts to 60s counts - 60 MT/year (FY 2022-23), knitted & woven bonded fabrics, fire retardant yarns from 0.5s to 20s count for curtain cloth and high absorbent cotton yarns for bandages applications.

## **SHIVAM SPECIALITY YARNS, DAMAN AND DIU**

Shivam Speciality Yarns are engaged in manufacturing, exporting, and supplying an exclusive range of Synthetic Yarn Products. They have machineries such as HDPE/ PP Monofilament yarn Extruder and Monofilament Yarn Extrusion Line. Their product range includes HDPE/ PP Monofilament yarn, HDPE Monofilament Fabric, etc. They are also making monofilament yarn from reprocessed raw material, and also making HDPE Twine for fishing net, safety net, sport net in many different sizes, braided rope, monofilament fabrics like onion and garlic bag making fabrics, monofilament filter cloth with a total production capacity of 50 MT/year (FY 2022-23).

## **COATEX, COIMBATORE**

Coatex located in Coimbatore is a manufacturer and suppliers having coating lines upto 3.2 meter (3200 mm) wider width and material handling capacity of 1 million meters per month as well as lamination line upto 2400 mm wider width and material handling capacity of 1 million meters per month. They offer a wide range of coated and laminated fabrics like canvas fabric, banner fabric, fire retardant fabrics, water proof fabric, Interlining, Umbrella cloth, etc. – 100 MT/year (FY 2022-23).

## **SIMPLEX TEXTILE MILLS, MAHARASHTRA**

Simplex Textile Mills is recently engaged in manufacturing of Composite fabrics of Glass, Carbon and Aramid. Major application areas are aircraft fuselages and wings, helicopter blades, rocket casings, and payload fairings, Automotive body panels, hoods, roofs, spoilers, and structural components, etc.

## **KANSONS OVERSEAS LTD., UTTAR PRADESH**

Kansons Overseas Ltd, is a part of 30-year-old Kansons Group, which manufacture medical products under the brand - MEDIKARMA. They have machines like Cutting m/c, Heat sealing m/c, Hot Air seam Sealing m/c, Sealing m/c, ETO Sterilization m/c, End Cutting m/c, Tape Dispenser m/c and Electronic Weighting m/c. Their products are surgical gowns & drapes, surgical drape packs, HIV protection kit, PPE kit, surgical trolley covers, face mask, hospital uniforms - nurse uniforms, medical scrub suits, etc. - 6 lakh units/ year (FY 2022-23). These products conform to the high level of liquid briar protection with medical grade packing as per EN868 Standards. All products are sterilized as per ISO:11135. It is an ISO 13485:2016 Organization.

## **SHRI RADHIKA NONWOVEN PVT. LTD., RAJASTHAN**

Shri Radhika Nonwoven is a manufacturer and supplier of qualitative assortment of Nonwoven Felt, Woollen Felt, Coated Felt, Felt Rolls, Felt Bags, Needle Punch Felt, Nonwoven Carpet, Industrial Felt, Speaker Felt, FR Felt, Shoe lining Felt, Interlining Felt, Vamp lining felt, Felt Fabric, Geotextile Fabric, Landscaping Fabric, Geo Cover Fabric, Geosynthetics etc. with a production capacity of 100 ton/year. They have machinery such as cross lapper, drafter, needle looms, winder, etc.

## **LAKSHMIGRAHA ENTERPRISES, TAMIL NADU**

Lakshmigraha Group was established in 1993 and has over the years grown into a Major Channel Partner for leading companies like Reliance Industries Ltd, Tata Motors Ltd, Anshika Polysurf Ltd, Sathyam Petrochemicals Ltd, and Overseas Channel Partners like Inner Mongolia Shuangxin Environment Friendly Material Co Ltd., China, Mikem Chemical (Shandong) Co Ltd., China, TASACO Chemical Corporation, Taiwan. They trade the Raw material such as Polyester Fiber for Cement Concrete Mixtures, Polyester Yarn for Clothing Fabrics and Polyester Fibre for Home Textiles



### **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.

## About Us

Established in 1993, Lakshmigraha Group has grown into a Major Channel Partner for leading companies like Reliance Industries, Tata Motors, Satyam Petrochemicals, besides overseas associations with Mongolia Shuangxin Environment Friendly Material, Mikem Chemical (Shadong) in China and TASCOCHEMICAL CORPORATION in

Taiwan among many others. Our prime focus is on Customer Delight through prompt technical and product support by our team. We ensure top class service to our customers. Our large network expands over the entire South India with a client base of around 1000 with an annual turnover of 1000 crores.



Textiles



Petrochemicals



Automobiles

**Head office : Lakshmigraha,**  
S.F.No: 406/2, Chandra Textiles Mills Compound,  
1708, Avinashi Road (Opp to Govt Polytechnic), Civil  
Aerodrome Post, Coimbatore - 641014 | Tamilnadu, India

☎ +91 99945 00079, +91 9597017862

✉ [info@lakshmigraha.com](mailto:info@lakshmigraha.com)

**Branches and Warehouses**  
Chennai, Salem, Madurai,  
Tirupur, Coimbatore and Karur

[www.lakshmigraha.com](http://www.lakshmigraha.com)

## Textile Industry Urges Government: Allow Import of Specialized Yarns to Foster Innovation



In a bid to stimulate innovation and bolster India's competitiveness in the global textile market, industry stakeholders have called for the relaxation of regulations governing the import of specialized yarns. The proposal, presented by the Chamber of Commerce at a Textile Advisory Group meeting in New Delhi, advocates for the allowance of yarns not manufactured in sufficient quantities within India to be imported without Bureau of Indian Standards (BIS) certification. At the meeting chaired by Textile Secretary Smt. Rachna Shah, representatives from major associations encompassing man-made fabric, yarn, fiber, fabric and garment manufacturers from across the country voiced their support for the initiative.

Highlighting the crucial role of innovation in sustaining India's position in the global textile landscape, industry leaders emphasized the need for regulatory reforms to facilitate the importation of specialty yarns. The proposal specifically addresses the constraints imposed by the Quality Control Order (QCO) on man-made fiber (MMF) yarns and fibres, which inhibit the availability of certain specialty yarns essential for innovation.

By allowing the importation of MMF yarns not

readily produced in India without BIS certification, the industry aims to accelerate the pace of technological advancement and product diversification. Of particular concern is the scarcity of Industrial Denier Yarn (IDY), a key component in technical textiles, with production of IDY yarns above 3000 denier being minimal in India. The absence of these critical yarns has led to a decline in the production of technical textiles, hindering India's potential to capture a larger share of the global market.

Industry proponents argue that by granting access to MMF yarns of global quality and pricing, India stands to significantly enhance its presence in the technical textiles sector, potentially capturing 25% of the global market by 2047. The proposed regulatory changes have the potential to catalyze growth, foster innovation, and propel India's textile exports to new heights, positioning the nation as a formidable player in the global textile arena.

*[Source- <https://theblunttimes.in/textile-industry-leaders-urge-government-to-allow-mmf-yarn-imports-without-bis-certification/41879/>]*

## India's Technical Textiles market has huge potential backed by a significant growth rate of 10%: Textiles Secretary



The Ministry of Textiles in partnership with Confederation of Indian Industry (CII) and Ahmedabad Textiles Industries' Research Associations (ATIRA) organized a National

Symposium on Advancements in Composites, Speciality Fibres and Chemicals on 09.05.2024 in New Delhi.

India's Technical Textiles market has a huge potential backed by a significant growth rate of 10% and placement as the 5th largest technical textiles market in the world, said Smt. Rachna Shah, Secretary, Ministry of Textiles while addressing the symposium. She further said that composites have distinct structural and physical features, which make them suitable for specific applications across various sectors. For example, in infrastructure development, aerospace, automotive sector, Military and Defence sector, medical devices, composite materials, among others. She highlighted the significance and importance of institutional buyers, user Ministries and industries in the adoption of technical textiles and products made out of specialty fibres and composites. A collaborative approach among stakeholders including industry representatives, policymakers, researchers, and investors is imperative to address the cost implications in the field of composites and specialty fibres and work together in increasing awareness and education for wider adoption by the larger community for the growth of the sector, she added.

Dr. Vijay Kumar Saraswat, Member, NITI Aayog, highlighted that the specialty fibres are the building blocks of the advanced composites and its choice is a strategic decision on a blend of performance requirements and cost consideration. He mentioned that specialty fibres like aramids, carbon fibre, zylon, ultra-high molecular weight polyethylene (UHMWPE), glass fibre, ceramic fibre can be tailored for diverse applications and strategic needs, such as Fire-Retardant fabrics, Bullet Resistant Jackets, ropes and cables, windmills (renewable energy) and in gas and chemical filtration respectively. He highlighted the top trends in composite materials including but not limited to high performance resins and adhesives, carbon fibre-based materials light weighting advanced polymer composites, biomaterials, nanocomposites, intelligence design and manufacturing. He elucidated the advancements in material science are not just about creating stronger or lighter materials, but also about ensuring their sustainable use through material

circularity. He also stressed that the demand for bio-composites is increasing due to growth in its adoption by construction, furniture industry and increased compatibility in medical applications. He also said advanced composites and specialty fibres are continuously evolving with research, pushing the boundaries of fibre performance. Future developments will include fibres with even greater strength and stiffness, enhanced thermal properties and even self-healing capabilities. He also emphasised that although composite materials have been around for many years, the industry is still amid innovation and evolution. There is a need to adopt sustainable practices which will be a key feature of the composites industry going forward.

Shri. Rajeev Saxena, Joint Secretary, Ministry of Textiles suggested technical textiles is one of the fastest growing segments with a strong global demand. The technical textiles industry holds immense potential to drive productivity, efficiency, cost-effectiveness, and innovative solutions across engineering and general applications. He highlighted that NTTM is a flagship mission with a view to position India as the Global Leader in Technical Textiles. During his speech, Shri Saxena elucidated various guidelines under the NTTM mission related to Research & Innovation, Start-up, machinery development, internship, education and skilling. While deliberating on the importance of composites, he stated that textile composite materials are replacing the conventional materials in several fields.

Shri. Nilesh M Desai, Director, Space Applications Centre (SAC/ISRO) said that SAC is the second largest research centre of ISRO with a long association with ATIRA. He said that space and aerospace is going to be a major area for composites applications, due to its light weight and durable properties. CFRP and Asto glass fibres are majorly used nowadays in space and aerospace sector.

[Source - <https://pib.gov.in/Pressreleaseshare.aspx?PRID=2020101>]

## DPIIT promoting Manufacturing Incubators for Startups

The Department for Promotion of Industry and Internal Trade (DPIIT) is undertaking various measures to encourage the startup ecosystem and the industry at large to foster innovation in manufacturing by supporting and collaborating with startups and developing manufacturing incubators.

Rapid industrialization and manufacturing are critical engines of economic growth for nations. Advances in manufacturing and creating strong manufacturing supply chains determine the extent to which a nation can become an export-led economy and a favored trading partner globally. Developing a strong

manufacturing base is an essential activity for any nation as it promotes innovation and competitiveness, boosts employment, livelihoods and standards of living, and strengthens self-reliance and economic stability.

Landmark reforms and initiatives have enhanced India's manufacturing capabilities in recent years and India has witnessed significant diversification of its manufacturing portfolio. Through long-term initiatives to boost manufacturing, India has emerged as a dynamic hub for manufacturing, led by innovation, technology, and skilled labor.

A focus on manufacturing innovation is needed in addition to expanding production. The growth in innovation in the recent past has led to unprecedented advances in manufacturing technology and scientific breakthroughs. Startups and entrepreneurs in the nation have been playing a significant role in shifting global value chains to India by creating and innovating domestically. This growth has been accompanied by an overall boost in the quality of products being produced in the nation, improving global standing and trade relations. Such manufacturing startups and innovative ventures have also created lakhs of jobs for the nation. Through manufacturing and product startups, integration of cutting-edge technologies into manufacturing processes can further strengthen establishment of India as a hub for manufacturing innovative technology solutions.

DPIIT is also promoting manufacturing incubation through its autonomous institutes to leverage their world class facilities. Recently, National Council for Cement Building Material (NCCBM) inaugurated the National Council for Cement and Building Materials-Incubation Centre (NCB-IC) to support startups in cement and building materials industry. Similarly, Indian Rubber Manufacturers Research Association (IRMRA) is also establishing incubation centre in related product segments. DPIIT has also proactively reached out to over a hundred large corporates, industry associations & veterans, and unicorns to emphasize the importance of setting up manufacturing incubators and the benefits of active collaboration with manufacturing startups.

Manufacturing startups require support from several ecosystem stakeholders to grow and scale. Manufacturing focused incubators are one of the most important drivers of support for startups as they provide essential pilot, scaling, and manufacturing facilities that can provide plug and play options to product startups, reducing the burden of high capex investments. These incubators provide access to shared facilities for startups to support innovative product development and early-stage manufacturing,

paving the way for growth and scaling up of the ecosystem. They also act as an interface between the startups and the medium and large-scale companies providing access to pilot facilities for manufacturing, test beds, prototyping facilities design centres and facilitation for technology management, market access and risk capital.

Such incubators can be set up by a variety of entities such as corporates, academic institutes, and research institutes. Specifically for corporates, incubating and fostering manufacturing startups provide a variety of benefits and advantages in an increasingly competitive global market. Corporate incubators can allow businesses to leverage the innovative potential of startups through technology transfer from incubated startups and facilitate the co-creation of groundbreaking products. Corporates can gain competitive advantage in markets and gain new customers faster, as working with incubated startups can help corporates reduce research and development (R&D) costs and time. The R&D boost gained from working with startups and innovators can allow corporates to enhance internal teams and promote intrapreneurship, boosting overall competitiveness in the economy.

Corporates can institutionalize in-house incubators and incubation programs in several ways depending on the resources available to them. The scale and scope of the incubation activities can be customized keeping in mind the goals of the corporate. The first step would be to start with small-scale incubation programs involving small cohorts and gradually work towards setting up a separate entity in the form of a private or non-profit organization with specialized long-term programs. Corporates can determine the extent of collaboration and support they can provide to startups depending upon the resources available to them, scaling up as per needs and requirements. A strong process and framework which allows for technology transfer and technology procurement will lead to a mutually beneficial collaboration between startups and corporates.

Eligible entities can also explore availing benefits extended to incubators or incubator programs through Government initiatives like the Startup India initiative, Atal Incubation Centres (AICs), National Initiative for Developing and Harnessing Innovations (NIDHI), Technology Incubation and Development of Entrepreneurs (TIDE), Biotechnology Industry Research Assistance Council (BIRAC), and Innovations for Defence Excellence (iDEX).

**[Source- <https://pib.gov.in/PressReleasePage.aspx?PRID=2022375>]**

## Quality Control Orders for 4 different types of Woven Sacks



The Ministry of Chemicals and Fertilizers, in its ongoing commitment to quality control and public interest, has issued several Orders dated 04th June 2024 after consulting the Bureau of Indian Standards on the amendments concerning the packaging of fertilizers and cement. Following amendments, shall come into force from 6th September, 2024, aim to enhance the standards for woven sacks utilized in packaging processes --

1. Textiles - High Density Polyethylene (HDPE)/ Polypropylene (PP) Woven Sacks for Packaging Fertilizers (Quality Control) Amendment Order, 2024.
2. Textiles - High Density Polyethylene (HDPE)/ Polypropylene (PP) Woven Sacks for Packaging

of 50 kg Cement (Quality Control) Amendment Order, 2024.

3. Textiles - Polypropylene (PP) Woven, Laminated, Block Bottom Valve Sacks for Packaging of 50 kg Cement (Quality Control) Amendment Order, 2024.
4. Textiles - Polypropylene (PP)/High Density Polyethylene (HDPE) Laminated Woven Sacks for Mail Sorting, Storage, Transport and Distribution (Quality Control) Amendment Order, 2024.

**[Source-<https://taxguru.in/corporate-law/quality-control-orders-for-4-different-types-of-woven-sacks.html>]**

## DGFT enables Import Provisions for Mandatory QCO Inputs by AA Holders, EOU and SEZ



The Directorate General of Foreign Trade (DGFT) has issued Notification No. 16/2024-25 dated 06th June 2024, enabling provisions for the import of inputs subjected to mandatory Quality Control Orders (QCOs) by Advance Authorisation holders, Export Oriented Orders (EOU) and Special Economic Zones (SEZ).

DGFT makes amendment in Appendix 2Y (the list of Ministries/ Departments whose notifications on mandatory QCOs, that are exempted by the DGFT for goods to be utilized/ consumed in manufacture of export products). The updated Appendix 2Y consist of Ministry of Steel, Department for Promotion of

Industry and Internal Trade (DPIIT), Ministry of Textiles, Ministry of Mines and Department of Chemicals & Petro-chemicals (DCPC).

Additionally, the Export Obligation (EO) Period for the products of Ministry of Textiles and the DCPC is restricted to 180 days from the date of clearance of import consignments in respect of QCO exemption.

**[Source - <https://www.a2ztaxcorp.com/dgft-enables-provisions-for-import-of-inputs-that-are-subjected-to-mandatory-qcos-by-advance-authorisation-holders-eou-and-sez>]**

## Ontex Launches Stop&Lock Anti-Leak Technology



Belgium based Ontex Group, an international developer and producer of personal care solutions, announced the introduction of its innovative Stop&Lock Anti-Leak technology in baby care. The Ontex innovation entails the introduction of front and back barriers in newborn and mini sizes of baby diapers.

Ontex Stop&Lock Anti-Leak technology has been successfully introduced in selected baby diapers in North America and will be launched in June. Along with leg barriers, Stop&Lock Anti-Leak technology provides 360-degree leakage protection to contain 'poo explosions,' a common issue with newborns fed on breastmilk or formula.

Ontex front & back barriers ensure four-side leak protection from both urine and liquid stool. This feature of Ontex Stop&Lock Anti-Leak technology is designed to significantly reduce the need for frequent and complete outfit changes due to leakage incidents.

*[Source - <https://ontex.com/news/ontex-launches-stoplock-anti-leak-technology/#:~:text=The%20Ontex%20innovation%20entails%20the%20introduction%20of%20front,launched%20at%20a%20major%20European%20retailer%20in%20June.>]*

## US' Milliken & Company develops FR fabrics for NASA's Artemis missions



Global diversified manufacturing leader Milliken & Company has announced that it is working to design and manufacture flame-resistant (FR) undergarment fabrics for NASA's Artemis missions. Artemis III will be the first US crewed moon mission in more than 50 years, planned for launch no earlier than 2026.

Milliken is collaborating with global professional services firm Jacobs through the JSC Engineering, Technology & Science (JETS) II contract with NASA to develop a next-to-skin textile that will be used in the clothing worn while astronauts operate space vehicles during the lunar landing mission, the company said in a press release.

NASA is working with US industry to develop the Human Landing System (HLS) to take astronauts to the lunar surface as part of the Artemis campaign. HLS vehicles will operate in environments with increased flame-resistant requirements due to elevated oxygen levels that increase the risk of fire. Milliken was selected as the supplier to develop and manufacture flame-resistant fabrics.

The first phase of the project began in the summer of 2023 and focused on manufacturing planning and material evaluation. Milliken leveraged its FR, knitting and finishing expertise as well as its chemical analysis, material testing and its Rapid Prototype Centre

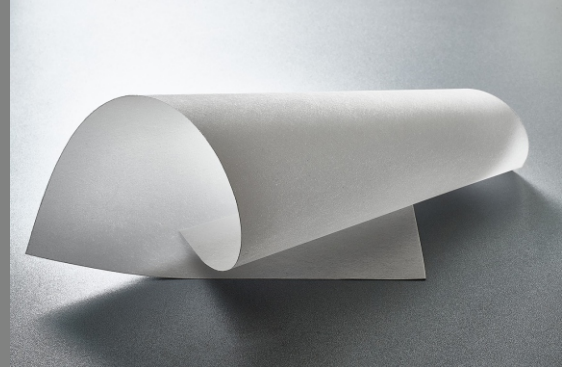
capabilities to complete a comprehensive analysis of NASA's historic materials.

"This project feels tailor-made for Milliken—it's the perfect marriage of the FR capabilities of our Westex brand and the knit fabrics expertise from our Polartec brand," said Ramesh Kesh, senior vice president of Milliken's textile business. "Combine that with our manufacturing excellence and deep bench of patented research scientists and we feel incredibly aligned to

support NASA on this development." In the project's second phase, Milliken and Jacobs are finalising prototypes and manufacturing the new textile for final delivery to NASA. This phase is expected to be complete by fall 2024.

[Source - <https://www.milliken.com/en-us/businesses/textile/news/milliken-developing-flame-resistant-fabrics-for-artemis-astronauts>]

## Fully Synthetic Wetlaid Nonwovens Line



Freudenberg Performance Materials is unveiling a new 100% synthetic wetlaid nonwoven product line made in Germany. The new materials can be manufactured from various types of polymer-based fibers, including ultra-fine micro-fibers. These unique wetlaid materials from Freudenberg are designed for use in filtration applications as well as other industrial applications. This product line rounds off the wide range of wetlaid nonwoven capabilities from the leading manufacturer of high-performance materials.

Customers in the filtration business can use Freudenberg's new fully synthetic wetlaid nonwovens in both liquid and air filtration. Applications include reverse osmosis membrane support, support for nanofibers or PTFE membranes as well as oil filtration media. The new materials are suited to use in the building & construction industry or the composites industry. For filtration applications, the new fully synthetic wetlaid nonwovens are marketed under the Filtura brand.

Freudenberg's fully synthetic wetlaid nonwovens can

be made of polyester, polyolefin, polyamide and polyvinyl alcohol (PVA), using staple fibers of up to 12mm fiber length and microfibers as fine as 0.04dtex. In terms of weight, the product range spans weights of between 8g/m<sup>2</sup> and 250g/m<sup>2</sup>. Freudenberg's flexible wetlaid manufacturing line has the capability to combine various thermal and chemical bonding technologies. The materials have high precision in weight and thickness as well as a defined pore size and high porosity.

In addition to its fully synthetic range, Freudenberg can also incorporate glass fibers, viscose and cellulose. General industry applications for Freudenberg wetlaid nonwovens are surfacing veils for glass-fiber reinforced plastics, compostable desiccant bags, battery separators, acoustics, heatshields, and apparel applications such as embroidery substrates.

[Source - [https://www.freudenberg-pm.com/Press/2024/2024-02-29\\_Fully-synthetic-wetlaid](https://www.freudenberg-pm.com/Press/2024/2024-02-29_Fully-synthetic-wetlaid)]

## Sustainable, flexible, space-saving: graywater treatment with 3D textiles

The demand for water in Germany is increasing and used water is not being utilized sufficiently. Graywater in particular, i.e. wastewater from showers, bathtubs

and washbasins, offers great potential for further use. It can be brought to service water quality on site and reused for flushing toilets or watering gardens, for

example. Thanks to flexible 3D textiles, it can even be used in almost any building to save space.

Around 50 to 80% of all domestic wastewater is graywater. Until now, large containers and tanks have been needed to reprocess it and return it to the cycle, taking up a lot of space in the building. The German Institutes of Textile and Fiber Research Denkendorf (DITF) and their project partner ARIS have developed a biological, textile-based system.

It is based on a 3D spacer fabric made of highly durable polypropylene. Its advantage is that it can be installed flat and is therefore extremely space-saving. Because of its special system geometry, it can be installed in places that would otherwise remain unused - for example in a new building under the floor of an underground garage, on a flat roof or in the garden. It

can be modularly adapted to the water requirements and structural conditions in the respective buildings. This means that the graywater treatment system could be used in densely built-up cities in particular.

The system developed by the project partners requires little maintenance and is therefore particularly cost-effective. Compared to previous solutions, it is characterized by a long lifespan. It therefore contributes to sustainable water use and makes a valuable contribution to the circular economy. ARIS plans to launch the new textile-based graywater treatment system on the market in 2024.

[Source - <https://www.ditf.de/en/index/current/press-releases/detail/sustainable-flexible-space-saving-graywater-treatment-with-3d-textiles.html>]



### **ITTA SIGNED MOU WITH SAFETY APPLIANCES MANUFACTURERS ASSOCIATION (SAMA)**

Safety Appliances Manufacturers Association (SAMA) is an Association of Occupational Safety Appliances & Services – Providers, Manufacturers, Distributors & Dealers. Enhancing safety awareness and guiding the end-user for optimum usage of Safety Appliances & services, technologies, and equipment. Organizes events & campaigns for the members that boost workplace safety awareness across industries. The objective of MOU is:-

1. To promote Technical Textiles in India and abroad.
2. It will create a common platform to share knowledge and help each other to resolve various industry issues.



### **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 and TTTA.

# EXPORT-IMPORT TREND OF TECHNICAL TEXTILE PRODUCTS OF FEBRUARY 2024

(ITTA Analysis on Ministry of Commerce and Industry Data)

The data on export and import of 247\* technical textile products/items is published as an indicator of foreign trade performance of technical textile industry in India.

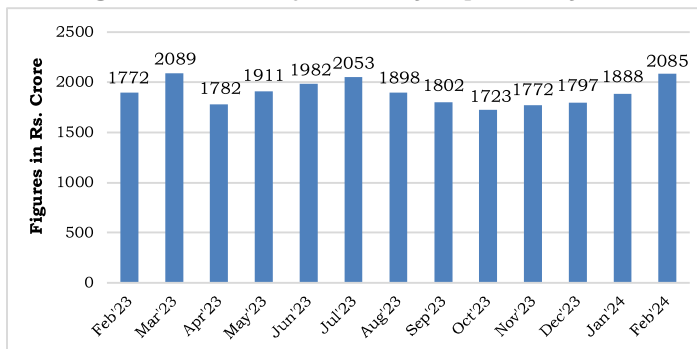
## A. EXPORT PERFORMANCE

(Value in INR Cr.)

Sr. No	Segments	Feb 2023	Feb 2024	% Growth	Apr'22-Feb'23	Apr'23-Feb'24	% Growth
1	Agrotech	72	94	30%	766	831	8%
2	Buildtech	94	88	-6%	845	968	15%
3	Clothtech	21	21	0%	274	260	-5%
4	Geotech	128	195	52%	1288	1903	48%
5	Hometech	17	13	-24%	213	128	-40%
6	Indutech	199	223	12%	2361	2551	8%
7	Meditech	197	223	14%	2447	2597	6%
8	Mobiltech	226	284	25%	2268	2847	25%
9	Packtech	515	624	21%	6966	6430	-8%
10	Protech	44	49	12%	668	662	-1%
11	Sportech	104	101	-3%	1025	1074	5%
12	Nonwovens	86	122	42%	1039	1299	25%
13	Speciality Fibres	35	24	-31%	349	400	14%
14	Composites	15	24	66%	159	242	52%
<b>GRAND TOTAL</b>		<b>1753</b>	<b>2085</b>	<b>19%</b>	<b>20668</b>	<b>22192</b>	<b>7%</b>

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

Figure 1 - Monthly Trend of Export Performance



The figures show that the export is steadily growing from November 2023 to February 2024. The following items are the top contributor.

### Top Ten Exported Products in Month of Feb' 24 -

SR. NO.	HSN CODES	PRODUCT NAMES	VALUES (IN CR.)
1	63053200	Flexible Intermediate Bulk Containers (FIBC)	529
2	59039090	Other fabric plated, laminated, coated, impregnated with other plastics	126
3	56074900	Other cordage of Polyethylene/ Polypropylene	75
4	84212300	Oil or petrol-filters for internal combustion engines	68
5	56031200	Nonwovens of MMF: Weighing > 25 gsm but not > 70 gsm	60
6	87089500	Safety airbags with inflater system	58
7	40093100	Tubes, Pipes and Hoses of Vulcanised Rubber Reinforced/ Otherwise combined only with Textile Materials without fittings	48
8	59029010	Other Tyre cord fabric impregnated with rubber	48
9	56012110	Absorbent Cotton Wool	46
10	53101013	Jute Hessian Fabrics	45

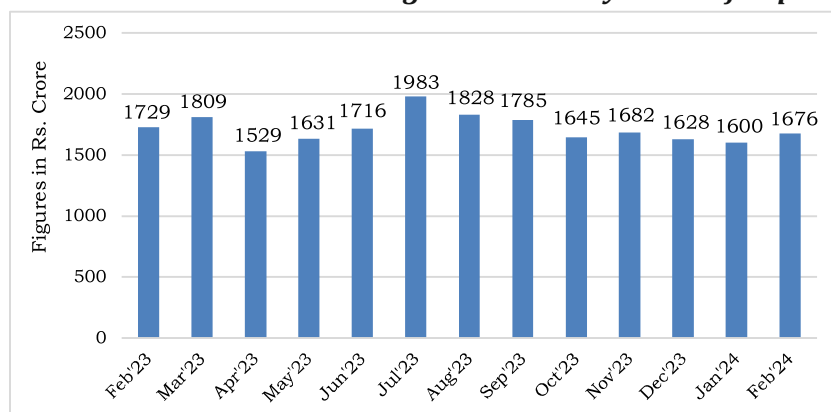
## B. IMPORT PERFORMANCE

(Value in INR Cr.)

Sr. No	Segments	Feb 2023	Feb 2024	% Growth	Apr'22-Feb'23	Apr'23-Feb'24	% Growth
1	Agrotech	19	33	79%	360	416	16%
2	Buildtech	166	170	2%	2062	1854	-10%
3	Clothtech	23	17	-26%	304	219	-28%
4	Geotech	109	129	19%	1272	1326	4%
5	Homotech	29	34	16%	360	344	-4%
6	Indutech	271	268	-1%	3112	2928	-6%
7	Meditech	122	114	-7%	1384	1251	-10%
8	Mobiltech	380	453	19%	5395	5351	-1%
9	Packtech	59	58	-2%	587	759	29%
10	Protech	41	52	28%	570	553	-3%
11	Sportech	62	56	-8%	546	549	1%
12	Nonwovens	95	122	28%	1327	1271	-4%
13	Speciality Fibres	172	149	-14%	2030	1762	-13%
14	Composites	20	21	4%	171	207	21%
	<b>GRAND TOTAL</b>	<b>1568</b>	<b>1676</b>	<b>7%</b>	<b>19480</b>	<b>18790</b>	<b>-4%</b>

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

Figure 2 - Monthly Trend of Import Performance



India's import of TT products has registered a decrease from November 2023 to January 2024, then the import had shown a marginally increase in month of February 2024.

Top Ten Imported Products in Month of Feb' 24 -

SR. NO.	HSN CODES	PRODUCT NAMES	VALUES (IN CR.)
1	87089500	Safety airbags with inflater system	163
2	59039090	Other fabric plated, laminated, coated & impregnated with other Plastics	95
3	84212300	Oil or petrol-filters for internal combustion engines	78
4	59031090	Other Fabrics impregnated, laminated, plated, and coated with PVC	77
5	59032090	Other fabrics impregnated, laminated, plated, and coated with Polyurethane	66
6	70191200	Glass Rovings	54
7	68151100	Carbon fibres	53
8	54021990	Other high tenacity yarn of Nylon or other Polyester (Less than 840 Denier)	46
9	70191100	Chopped Strands of Glass fibres of a length not more than 50 mm	42
10	59021090	Other Tyre cord fabric of nylon or other polyamides	39

**\*NOTE -**

1. 12 HSN Codes from the 207 list have been removed from the CUSTOMS TARIFF OF INDIA-2022 effective from 01.05.2022.

# UPCOMING EVENTS

DATES	EVENTS NAME	PLACE	WEBSITE
<b>DOMESTIC EVENTS</b>			
13-14 June 2024	<b>RESPACK 2024 (3<sup>rd</sup> International Conference on Responsible Packaging)</b>	Mumbai, India	<a href="https://f-ips.org/respack-2024-registration/">https://f-ips.org/respack-2024-registration/</a>
27-28 June 2024	<b>OSH INDIA SOUTH</b>	Bangalore, India	<a href="https://www.oshindia.com/south-india/">https://www.oshindia.com/south-india/</a>
02-05 July 2024	<b>HGH INDIA 2024 (15<sup>th</sup> Edition of Home Décor, Gifts &amp; Houseware)</b>	Mumbai, India	<a href="https://hghindia.com/">https://hghindia.com/</a>
22-24 August 2024	<b>10<sup>TH</sup> EDITION NONWOVEN TECH ASIA (Exclusive Exhibition on Nonwoven &amp; Hygiene Technology)</b>	Mumbai, India	<a href="https://nonwoventechasia.com/">https://nonwoventechasia.com/</a>
29-31 August 2024	<b>SPORT INDIA 2024 - 12<sup>th</sup> India International Sporting Goods Show</b>	New Delhi, India	<a href="https://iisgs.com/">https://iisgs.com/</a>
21-23 November 2024	<b>OSH INDIA</b>	Mumbai, India	<a href="https://www.oshindia.com/mumbai/">https://www.oshindia.com/mumbai/</a>
21-23 February 2025	<b>GTTES 2025 (3<sup>rd</sup> Global Textile Technology &amp; Engineering Show)</b>	Mumbai, India	<a href="https://www.india-itme.com/exhibitions/gttes/india-ex.php">https://www.india-itme.com/exhibitions/gttes/india-ex.php</a>
24-25 April 2025	<b>OSH INDIA NORTH</b>	New Delhi, India	<a href="https://www.oshindia.com/oshgurukulconference/">https://www.oshindia.com/oshgurukulconference/</a>
19-21 November 2025	<b>TECHTEXTIL INDIA 2025</b>	Mumbai, India	<a href="https://techtexsil-india.in.messefrankfurt.com/mumbai/en.html">https://techtexsil-india.in.messefrankfurt.com/mumbai/en.html</a>
<b>INTERNATIONAL EVENTS</b>			
April 28-May 1 2024	<b>GEOAMERICAS 2024 (5<sup>th</sup> Pan-American Conference on Geosynthetics)</b>	Toronto, Canada	<a href="https://www.geoamericas2024.org/">https://www.geoamericas2024.org/</a>
09-11 May 2024	<b>7<sup>TH</sup> AGRO BANGLADESH INTERNATIONAL EXPO 2024</b>	Dhaka, Bangladesh	<a href="https://www.cems-agroexpo.com/">https://www.cems-agroexpo.com/</a>
22-24 May 2024	<b>ANEX 2024 (Asia Nonwovens Exhibition and Conference)</b>	Taipei, Taiwan	<a href="https://www.anex2024.com/">https://www.anex2024.com/</a>
03-05 June 2024	<b>OUTDOOR BY ISPO 2024</b>	Munich, Germany	<a href="https://www.ispo.com/en/munich">https://www.ispo.com/en/munich</a>
04-08 June 2024	<b>ITM 2024 (International Textile Machinery Exhibition)</b>	Istanbul, Turkey	<a href="https://www.itmexhibition.com/itm2024">https://www.itmexhibition.com/itm2024</a>
17-20 June 2024	<b>WORLD OF WIPES 2024 (WOW) (International Conference)</b>	Minneapolis, USA	<a href="https://www.worldofwipes.org">https://www.worldofwipes.org</a>
29 June-06 July 2024	<b>NANOTECHNOLOGY 2024 (International Conferences &amp; Exhibition on Nanotechnologies, Organic Electronics &amp; Nanomedicine)</b>	Thessaloniki, Greece	<a href="https://www.nanotechnology.com">https://www.nanotechnology.com</a>
14-16 August 2024	<b>INTERTEXTILE SHANGHAI HOME TEXTILES AUTUMN EDITION</b>	Shanghai, China	<a href="https://intertextile-shanghai-hometextiles-autumn.hk.messefrankfurt.com/shanghai/en.html">https://intertextile-shanghai-hometextiles-autumn.hk.messefrankfurt.com/shanghai/en.html</a>
20-22 August 2024	<b>TECHTEXTIL NORTH AMERICA</b>	North Carolina, USA	<a href="https://techtexsil-north-america.us.messefrankfurt.com">https://techtexsil-north-america.us.messefrankfurt.com</a>
21-24 August 2024	<b>ICACM 2024 (7<sup>th</sup> International Conference on Advanced Composite Materials)</b>	Tokyo, Japan	<a href="http://icacm.org/">http://icacm.org/</a>
04-05 September 2024	<b>INTERNATIONAL COMPOSITES SUMMIT (ICS)</b>	Milton Keynes, UK	<a href="https://www.internationalcompositessummit.com/">https://www.internationalcompositessummit.com/</a>
19-21 September 2024	<b>CINTE TECHTEXTIL CHINA</b>	Shanghai, China	<a href="https://cinte-techtexsil-china.hk.messefrankfurt.com/shanghai/en.html#">https://cinte-techtexsil-china.hk.messefrankfurt.com/shanghai/en.html#</a>
24-26 September 2024	<b>OUTLOOK 2024</b>	Rome, Italy	<a href="https://www.edana.org/events/outlook/outlook-2024">https://www.edana.org/events/outlook/outlook-2024</a>

DATES	EVENTS NAME	PLACE	WEBSITE
23-26 September 2024	<b>EMERGING TECHNOLOGIES CONFERENCE</b>	Anaheim, CA	<a href="https://advancedtextilesexpo.com/">https://advancedtextilesexpo.com/</a>
24-26 September 2024	<b>ADVANCED TEXTILES EXPO 2024</b>	California, USA	<a href="https://advancedtextilesexpo.com/">https://advancedtextilesexpo.com/</a>
01-02 October 2024	<b>RISE 2024 (Research, Innovation and Science for Engineered Fabrics Conference)</b>	North Carolina, USA	<a href="https://www.riseconf.net/">https://www.riseconf.net/</a>
14-18 October 2024	<b>ITMA ASIA + CITME</b>	Shanghai, China	<a href="https://www.itmaasia.com/shanghai2024/index.html">https://www.itmaasia.com/shanghai2024/index.html</a>
05-07 November 2024	<b>WATERPROOF MEMBRANES 2024</b>	Düsseldorf, Germany	<a href="https://www.ami-events.com/event/F622673A-3032-468C-8AB8-E031E9536242/summary">https://www.ami-events.com/event/F622673A-3032-468C-8AB8-E031E9536242/summary</a>
12-14 November 2024	<b>FILTECH 2024 (The Filtration Event)</b>	Cologne, Germany	<a href="https://filtech.de/">https://filtech.de/</a>
18-21 November 2024	<b>HYGIENIX 2024 (The Premier Event for Absorbent Hygiene &amp; Personal Care Products)</b>	Nashville, USA	<a href="https://www.hygienix.org">https://www.hygienix.org</a>
05-06 December 2024	<b>SMART TEXTILES AND EMERGING TECHNOLOGIES (STET) - INTERNATIONAL CONFERENCE - 2024</b>	Virtual	<a href="https://texmatresearch.com/stet2024/">https://texmatresearch.com/stet2024/</a>
11-13 December 2024	<b>10<sup>TH</sup> FILTRATION &amp; SEPARATION ASIA (FSA) + 13<sup>TH</sup> CHINA INTERNATIONAL FILTRATION &amp; SEPARATION EXHIBITION</b>	Shanghai, China	<a href="https://www.fsa-expo.com/">https://www.fsa-expo.com/</a>
26-28 February 2025	<b>VIETNAM INTERNATIONAL TRADE FAIR FOR APPAREL, TEXTILES AND TEXTILE TECHNOLOGIES (VIATT)</b>	Ho Chi Minh City, Vietnam	<a href="https://viatt.hk.messefrankfurt.com/hochiminhcity/en.html">https://viatt.hk.messefrankfurt.com/hochiminhcity/en.html</a>
12-14 March 2025	<b>GENTEXH 2025 (GLOBAL EXHIBITION ON NONWOVEN &amp; HYGIENE TECHNOLOGY)</b>	Ho Chi Minh City, Vietnam	<a href="https://gentexh.com/">https://gentexh.com/</a>
29 April-01 May 2025	<b>IDEA 2025</b>	Florida, USA	<a href="https://www.ideashow.org/">https://www.ideashow.org/</a>
29 April-01 May 2025	<b>FILTXPO™ 2025 (International Filtration/ Separation Exhibition &amp; Technical Conference)</b>	Florida, USA	<a href="https://www.filtxpo.com/">https://www.filtxpo.com/</a>
21-24 July 2025	<b>WORLD OF WIPES 2025 (WOW) (International Conference)</b>	Columbus, USA	<a href="https://www.worldofwipes.org/">https://www.worldofwipes.org/</a>
04-07 November 2025	<b>A+A 2025</b>	Düsseldorf, Germany	<a href="https://www.aplus-online.com/">https://www.aplus-online.com/</a>
19-22 May 2026	<b>INDEX 2026 (Nonwoven Exhibition)</b>	Palexpo, Geneva	<a href="https://www.indexnonwovens.com/en/">https://www.indexnonwovens.com/en/</a>