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Summer 2025
Volume 34, Number 2

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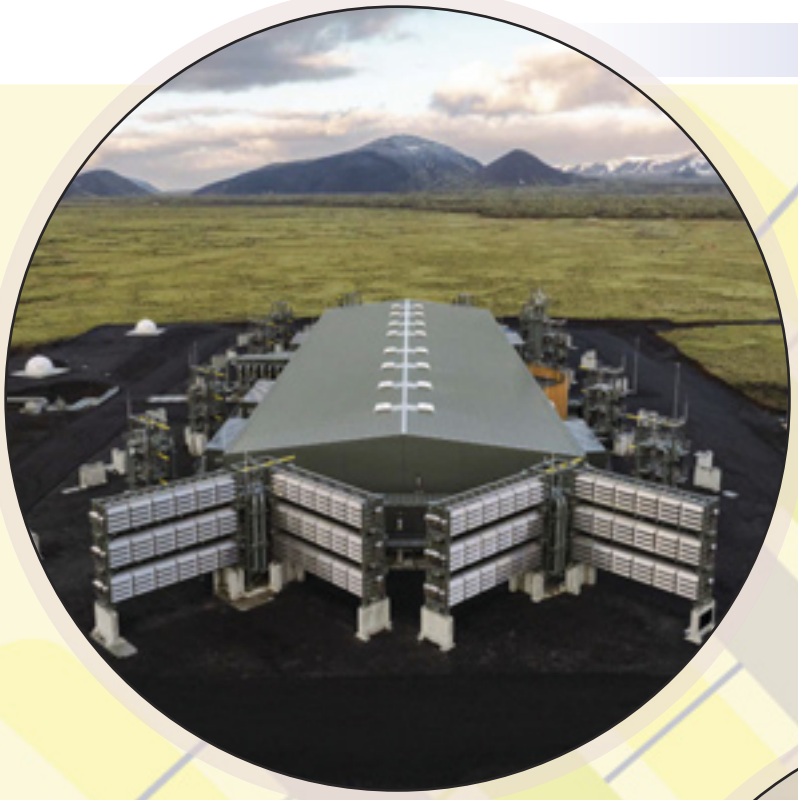

## The future of direct air-capture technologies in the USA


## Navis TubeTex and Fibroline establish transatlantic partnership

**INSIDE:**

The latest trends in the composites industry at JEC World
Knitted microtissue can accelerate wound-healing
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1. Cotton products are recyclable only in a few communities that have appropriate recycling facilities. 2. In composting tests, cotton fabric samples underwent a weight loss of approximately 50-77% after 90 days in a composting facility. *Li, Lili; Frey, Margaret; Browning, Kristie (2010). Biodegradability study on cotton and polyester fabrics. Journal of Engineered Fiber and Fabrics, 5(4), 42-53.*

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Editor: James Bakewell
Tel: +44 (3301) 335079
Email: james@boughtonmedia.com

Consulting Editor:
Nick Butler

Nonwovens Editor:
Adrian Wilson
USA correspondent:
John W. McCurry
India correspondent:
Samuel Joseph
Regular contributor:
Geoff Fisher

Display advertising sales:
David Kay/Maria Box
Tel: +44 (1273) 423512
Email: dkay@fastnet.co.uk

Published by:
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**PO Box 54,**
**WR15 8XN, UK.**

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**Boughton Technical Media Ltd,**
**PO Box 54,**
**WR15 8XN, UK.**
**Tel: +44 (3301) 335079**
**Email: accounts@boughtonmedia.com**
**https://www.technical-textiles.net**

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# In the Editor's opinion

**For an industry as reliant on global supply chains as technical textiles, the escalating trade tensions in 2025 will have come as something of a shock.**

On 2 April 2025, speaking from the Rose Garden of the White House, President Trump declared that America would impose levies of 10% on all imports and higher "reciprocal" rates – significantly higher in some cases – on goods from countries which, in his view, have treated America unfairly.

The measures represented an attempt to bring a long era of increasingly free global trade, which, Trump argued, allowed other countries to "rip off" America, to an end. "For years, hard-working American citizens were forced to sit on the sidelines as other nations got rich and powerful, much of it at our expense…now it is our turn to prosper," he said in his address, before announcing that the tariffs were a "declaration of economic independence."

The President ignored the facts that globalisation has brought unprecedented prosperity to America and that the country has been the main architect of the rules underpinning international trade.

On 9 April, President Trump postponed for 90 days many of his tariffs, after a meltdown in financial markets. The scale of the shock to global trade set off by his tariffs, however, is still unlike anything seen in history.

Quite simply, the USA's trading partners have no confidence in where they stand. Further, the USA is still in an extraordinary trade confrontation with China, the world's second-biggest economy.

The technical textiles and performance nonwovens sectors, heavily reliant on international supply chains, are still likely to experience substantial repercussions from the proposal of these tariffs. Planning is made more difficult. Uncertainty could stifle investment. The need for new suppliers or renegotiated contracts could lead to delays and increased operational costs.

Given the upheaval, the events IDEA, FiltXpo and Techtexil North America could not be more perfectly timed, and discussions regarding tariffs are likely to be plentiful and lively.

For its part, the organiser of IDEA and FiltXpo, INDA, is calling for calm. It says that it is crucial that a harmful cycle of retaliatory tariffs that could have a net negative effect on economies worldwide is avoided. With its European counterpart, EDANA, it is urging policymakers to prioritise negotiations and mutually beneficial resolutions.

"While we understand the need to address unfair trade practices, we urge regions to prioritise negotiations and seek mutually beneficial resolutions," stated Murat Dogru, General Manager at EDANA. "Escalating tariffs create uncertainty and can disrupt supply chains, ultimately harming industries and consumers."

I look forward to hearing your views on the situation in Miami and Atlanta.

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***Representatives of Navis TubeTex and Fibroline at a ribbon-cutting ceremony to open the Fibroline Innovation Lab. John McCurry reports from the event, starting on page 15.***

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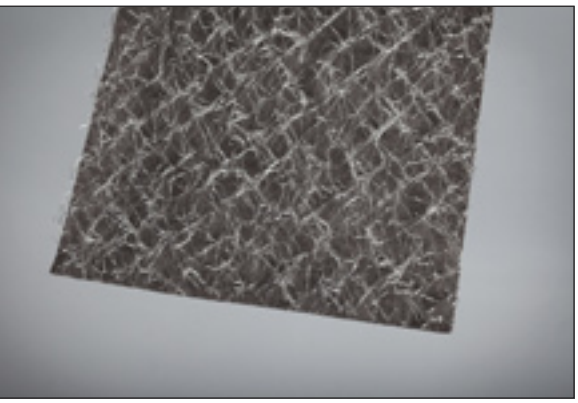
*Further information at https://www.technical-textiles.net*

# Freudenberg to highlight a diverse range of nonwovens in Miami



*Enka BioCarrier enables the production of pre-vegetated green-roof constructions and is made entirely from bio-based raw materials.*

A wide range of technical nonwovens will be presented for a variety of industries by Freudenberg Performance Materials at *IDEA* in Miami Beach, Florida, USA, on 29 April–1 May 2025.

The company, of Weinheim, Germany, will show nonwovens for the filtration, construction, energy, cleaning, composites, printing, healthcare and packaging industries.

Freudenberg Performance Materials will highlight its versatile wetlaid technology, which can be used to produce battery separators that increase the lifespan and safety of energy-storage systems, and surfacing veils that impart abrasion-resistance, corrosion-protection, smooth surfaces and enhanced mechanical strength to composites. Further, the company will show bio-based nonwovens suitable for the manufacture of biodegradable plant-propagation systems and innovations in fine-denier spunbond technology.

Freudenberg Performance Materials will also showcase products from its Enka Solutions range, which are characterised by their three-dimensional (3D) entangled polymer-filament structures. Enka BioCarrier, for instance, enables the production of pre-vegetated green-roof constructions and is made entirely from bio-based raw materials.

***Holger Steingraeber, Senior Vice President Global Marketing and Communications, Freudenberg Performance Materials Holding SE & Co KG.***
***Tel: +49 (6201) 806640.***
***Email: Holger.Steingraeber@freudenberg-pm.com***

***Katrin Böttcher, Manager Global Communications, Freudenberg Performance Materials.***
***Tel: +49 (6201) 805977.***
***Email: Katrin.Boettcher@freudenberg-pm.com;***
***https://www.freudenberg-pm.com***

# Beaulieu Fibres International to showcase sustainable fibres at IDEA

Beaulieu Fibres International of Wielsbeke, Belgium, will be exhibiting its latest sustainable fibres for high-performance nonwovens in various industries at *IDEA* in Miami Beach on 29 April-1 May 2025.

Beaulieu will be showcasing its range of polypropylene (PP) bonding fibres designed for thermoplastic composites and automotive interior fabrics. The company says that its PP fibres are engineered to enhance the mechanical, thermal and functional properties of composites, while reducing vehicle weight, and that they help car manufacturers and original equipment manufacturers (OEMs) to meet stringent performance, cost-efficiency and sustainability standards.

Beaulieu has rolled-out its range of MONO and BICO fine-to-medium count fibres, as a result of its research and development (R&D) efforts to promote staple fibres in high- efficiency filtration.

In addition to its existing portfolio of PP fibres for liquid filtration, which are compliant with US Food and Drug Administration (FDA) and European food-contact regulations, Beaulieu has launched a new bicomponent-fibre ranges in polyethylene terephthalate (PET)/polyethylene (PE), PP/PE for high-loft filtration media and fine-count mono PP fibres for triboelectric charged air filter media.

The fine-count mono PP fibres are customised according to the line specifics of the nonwoven producer and guarantee up to 20% higher filtration efficiencies for nonwovens in combination with acrylic counter fibre compared with standard PP fibres used in this application. Typical applications are air-handling units in larger buildings and residential furnaces.

Beaulieu's outdoor PP fibres for resilient, weather-resistant crop protection solutions are engineered for superior mechanical strength and resistance to environmental stress factors.

The company says that these fibres enhance durability in needlepunched fabrics, ensuring long-lasting protection in the field. Their advanced ultraviolet (UV) stabilisation prevents degradation from prolonged exposure to the sun, extending the lifespan of crop covers, while their hydrophobic properties reduce moisture-related damage and maintain breathability.

Beaulieu says that UltraBond are bonding staple fibres that eliminate the need for chemical binders. They allow the creation of 100% PP needlepunched fabrics that meet the same performance requirements as traditional constructions, while reducing end-of-life environmental impact, as they are fully recyclable.

In the hygiene sector, Beaulieu says that it is focusing on speciality bicomponent solutions designed to enhance softness, processability and sustainability in absorbent hygiene products.

Hypersoft fibres are specifically engineered for topsheet applications in direct contact with the skin and offer a 25% improvement in softness compared with standard reference fibres, while maintaining optimal processability. Meralux is a bicomponent trilobal fibre that improves nonwoven materials by providing opacity, comfort and absorption.

***Valérie Bouckaert, Beaulieu International Group.***
***Tel: +32 477 82 05 13.***
***Email: valerie.bouckaert@bintg.com;***
***https://www.bintg.com***

# Line for recycled nonwovens starts-up in Ohio, USA

An airlay line that can convert recycled fibres into nonwovens for automotive and industrial applications has been installed at Carolina Nonwovens' new plant in Fostoria, Ohio, USA. The line (neXline) has been supplied by Andritz, of Graz, Austria, and will be used to produce high-quality nonwovens from post-industrial and post-consumer waste. Carolina Nonwovens already operates an Andritz airlay line at its headquarters plant in Maiden, North Carolina, USA.

Opened at the end of 2024, the plant in Fostoria also houses facilities for logistics, engineering, quality control and product design, and associated offices. Carolina Nonwovens invested US$4 million in the site. The company offers a wide range of products, such as acoustic and thermal insulation, for the automotive, construction and appliance industries.

Carolina Nonwovens is a wholly owned subsidiary of National Spinning Co Inc of Washington, North Carolina.

***Susan Trast, Vice President Group Communications and Marketing, Andritz.***
***Email: susan.trast@andritz.com;***
***https://www.andritz.com***

***Jim Booterbaugh, President and Chief Executive Officer, National Spinning Co Inc.***
***Tel: +1 (252) 975-7111.***
***Email: jimb@natspin.com;***
***https://www.natspin.com;***
***https://www.carolinanonwovens.com***

# Ultrasonic inline welding system to be shown at IDEA

An ultrasonic system for welding the hook-fasteners used in such as diapers to nonwovens has been developed by MS Ultraschall Technologie GmbH and Binder, and will be shown at *IDEA* in Miami Beach, Florida, USA.

MS Ultraschall Technologie, of Spaichingen, Germany, says that the system eliminates the need for conventional gluing systems and creates soft, flexible fasteners. This cuts the costs of glues, the need to modify fastener tapes to ensure their compatibility with glues, the cost of storing glues and the need to clean-up glue during production.

Based in Holzgerlingen, Germany, Binder manufactures fasteners for a wide range of industries.

*IDEA* will take place on 29 April–01 May 2025.

***Bastian Beha, Group Leader, Marketing, MS Ultraschall Technologie GmbH.***
***Tel: +49 (7424) 701113.***
***Email Bastian.Beha@ms-ultrasonic.de;***
***https://www.ms-ultrasonic.de***

# Buitex invests in Andritz tearing line

*Andritz's reXline tearing line at Buitex's facility in Cours, France. The line will be used to recycle textiles so that the resulting fibres can be employed in the production of insulation for buildings.*

A tearing line that will be used to recycle textiles so that the resulting fibres can be employed in the production of insulation for buildings has been started-up at Buitex's plant in Cours, France.

The line (reXline) is the second to be supplied to Buitex by Andritz, of Graz, Austria, and is able to process up to 2.5 t of material an hour.

Founded in 1895, Buitex transforms textile waste into insulation and bedding, and became part of the Semin Group, of Lorraine, France, in 2023. Buitex operates a 20 000-$m^{-2}$ site with six production lines in Cours.

The Chief Executive Officer (CEO) of Buitex, Adam Adamowicz, says: "It is crucial for us to make the building-insulation industry more sustainable by giving new life to post-consumer clothes that would otherwise be incinerated or end-up in landfills. The European market has abundant raw materials and a strong demand for sustainable insulation products. With this new line, Andritz enables us to significantly enhance our recycling capabilities."

***Susan Trast, Vice President Group Communications and Marketing, Andritz.***
***Email: susan.trast@andritz.com;***
***https://www.andritz.com***

# European nonwovens production increases by 2.6%

In 2024, the production of nonwovens in Greater Europe increased in volume by 2.6% (to 2.9764 Mt), and by 2.9% in surface area (to 85.1 billion square metres), compared with 2023, according to the latest figures from EDANA of Brussels, Belgium.

EDANA's Market Analysis and Economic Affairs Director, Jacques Prigneaux, says: "In the aftermath of two consecutive declines of more than 5% in 2022 and 2023, the production of nonwovens in Greater Europe has reverted to its pre-pandemic level in terms of weight. At the same time, production in surface area grew faster, resulting in an average grammage of 34.9 g.$m^{-2}$, as opposed to the 37.2 g.$m^{-2}$ recorded in 2019."

The production of wetlaid nonwovens, which experienced a significant decline in 2023, demonstrated the most substantial growth in 2024. Conversely, airlaid was the only web-forming process to register a decline in 2024, yet it was also the sole process to grow in use the previous year. Spunmelt production continues to dominate in terms of surface area. Drylaid processes exhibited limited growth, attributable to the positive developments seen in the production and sales of air-through and hydroentangled materials.

The predominant end-user for nonwovens continues to be the hygiene market, accounting for 27% of deliveries, or 797.3 kt, and exhibiting a 1.7% growth in 2024. That year, the most substantial growth sectors for nonwovens were building and roofing materials (+14.2%), food and beverage applications (+13%), cotton pads (+4.9%), and personal care wipes (+4.8%).

***Jacques Prigneaux, Market Analysis & Economic Affairs Director, EDANA.***
***Tel: +32 2740 1818.***
***Email: jacques.prigneaux@edana.org;***
***https://www.edana.org/trainings/publications/statistics-nonwovens-report2023-2028***

# Healthy growth predicted for nonwoven filter media

The global market for nonwoven filter media was worth US$6.1 billion in 2024, according to a new report by market research company Smithers, of Leatherhead, UK, and Akron, Ohio, USA. The company adds that the market for nonwoven filter media will grow to be worth US$10.1 billion by 2029, growing by 10.7% a year (at constant prices), in *The Future of Nonwovens for Filtration to 2029*[(1)]. By weight, approximately 826.5 kt of nonwovens were consumed in 2024; in 2029, this figure will grow to 1.1 Mt, representing growth of 5.9% a year.

Nonwovens are made for filtration applications using three major processes: wetlaid; spunlaid; needlepunched drylaid. Unlike the broader nonwovens market, wetlaid is the leading process for the production of nonwovens for filtration applications, accounting for 47.4% of consumption in 2024. Wetlaid nonwovens will exhibit slower growth in 2025–29.

Spunlaid processes account for the second-largest share of the contemporary market at 29.6%, following the huge surge in demand for face masks during the human coronavirus (covid-19) pandemic in 2020–21, which spurred widespread investment in meltblown spunlaid lines. Post-pandemic, face masks are still being used in high numbers, but there is overcapacity, which is reducing prices and encouraging the use of meltblown nonwovens in other filtration applications.

North America is currently the largest consumer of nonwovens for filtration applications, although demand in Asia is rapidly expanding. In 2024, North America accounted for 42.8% of consumption of nonwovens for filtration applications by weight, followed by Asia (28.2%) and Europe (22.7%). Demand in Asia will continue to grow across 2025–2029, with its market share reaching 33.6% in 2029.

**See also:** [(1)] https://www.smithers.com/en-gb/services/market-reports/nonwovens/the-future-of-nonwovens-for-filtration-to-2029

***Sean Walsh, Business Development Manager, Smithers.***
***Tel: +1 (330) 762-7441, x 1134.***
***Email: swalsh@smithers.com;***
***https://www.smithers.com***

# Sandler appoints new Chief Executive Officer as it faces-up to challenges

At its meeting on 1 April 2025, the Supervisory Board of Sandler AG announced that, on 1August 2025, its current Chief Financial Officer (CFO), Philipp Ebbinghaus, will assume the role of Chief Executive Officer (CEO) of the company.

As the nephew of the current CEO, Christian Heinrich Sandler, Ebbinghaus represents the fifth generation of the family that founded and owns Sandler, of Schwarzenbach/Saale, Germany, to lead the company. After studying economics and gaining experience outside the family business, Ebbinghaus has worked at Sandler since 2013, driving strategic finance initiatives and overseeing internal projects. Christian Heinrich Sandler says: "His leadership in establishing our first production facility abroad, which opened in 2016, is particularly commendable. He was instrumental in the US site selection of Georgia, as well as the construction and expansion of the Perry facility[(1)]."

Ebbinghaus will face challenges in his new role. In 2024, high energy costs and a challenging economic environment continued to impact Sandler's businesses. The company reported revenues of €326 million for the year, in comparison with €338 million in 2023, with a workforce of 980 employees. Christian Heinrich Sandler adds: "We are not satisfied with our 2024 financial results. Although costs have decreased compared with the extraordinary energy price surge of 2023, they remain significantly high compared with international competition". Sandler's customers were cautious in their spending and their order cycles were shorter, making planning more difficult. Business in Sandler's largest segment, Hygiene/Wipes, remained subdued throughout the year, as it did in the construction and automotive industries.

Despite the challenges it faces, Sandler continues to invest in its businesses. It has allocated €25 million to a production line for technical nonwovens, which is set to start operation in the first half of 2025. Further, it has invested €5 million in its internal logistics operation, including the construction of a 150-m-long bridge connecting two factory buildings. This new infrastructure will facilitate the automated transport of finished goods to a central truck-loading area.

Ebbinghaus concludes: "The economic climate and persistently high energy costs present challenges, but we have a clear strategy to enhance efficiency and make targeted investments in our production capabilities and workforce."

**See also:** [(1)]*What IDEA 2016 exposed about the global nonwovens industry,* https://www.technical-textiles.net/node/72584

***Kristina Müller, Marketing Manager, Sandler AG.***
***Tel: +49 (9284) 60-114.***
***Fax: +49 (9284) 60-205.***
***Email: Kristina.Mueller@sandler.de;***
***http://www.sandler.de***

# Flexible, elastic knitted microtissue can accelerate wound-healing

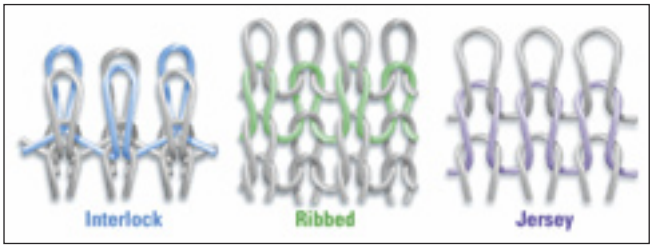
Knitted bioabsorbable fabrics that mimic the unique way that soft tissues stretch and move while nurturing growing cells are being developed for the treatment of severe and/or chronic wounds by researchers at the Massachusetts Institute of Technology (MIT) in Cambridge, USA.

Current methods for the treatment of severe or chronic injury to soft tissues, such as skin and muscle, can be costly and ineffective, and the frequency of chronic wounds in general from conditions such as diabetes and vascular disease, as well as an increasingly aging population, is expected to rise.

One promising treatment for chronic wounds involves implanting biocompatible materials seeded with living cells, called microtissue, into the wound. The materials provide a scaffolding for stem cells, or other precursor cells, to grow into the wounded tissue and aid in its repair.

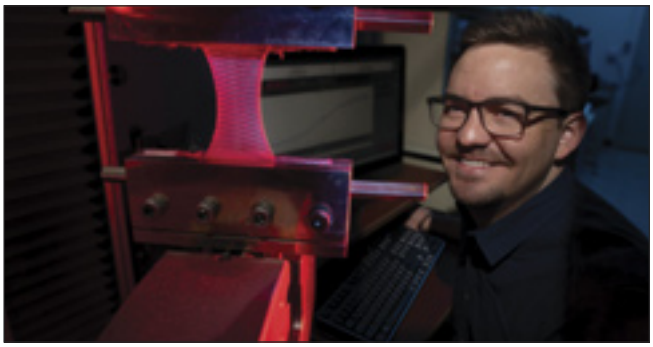
Human tissue, however, moves and stretches in a unique way that traditional soft materials struggle to replicate, and if the scaffolds stretch, they can also stretch the embedded cells, often causing those cells to die. The dead cells hinder the healing process and can also trigger an inadvertent immune response in the body.

An Instrumentation Engineer at MIT's Lincoln Laboratory, Steve Gillmer, says: "The human body has this hierarchical structure that actually uncrimps or unfolds rather than stretches. That is why, if you stretch your own skin or muscles your cells are not dying. What is actually happening is your tissues are uncrimping a little bit before they stretch."




*Shown here are the three types of knit patterns the team initially tested, which are common designs in the textile industry. Subtle design variations within each category can make the patterns uncrimp and stretch in different ways to match various human tissues.*

Gillmer is working with Professor Ming Guo from MIT's Department of Mechanical Engineering and the Laboratory's Defense Fabric Discovery Center (DFDC), to knit fabrics that can uncrimp and move just as human tissue does.



*Lincoln-Laboratory staff-member Steve Gillmer tests the elasticity of a bioabsorbable fabric in order to compare its stiffness to those of different types of human tissue.*

Guo had been developing methods for growing stem cells on electrospun nanofibres made from such as polycaprolactone, which worked well, but were difficult to fabricate at long lengths, preventing him from integrating the fibres into larger knit structures for larger-scale tissue repair. Guo adds: "[Gillmer] mentioned that Lincoln Laboratory had access to industrial knitting machines". These machines allowed him to switch focus to designing larger knits rather than individual yarns. "We immediately started to test new ideas through internal support from the Laboratory."

Gillmer and Guo worked with the DFDC to discover which knit patterns could move similarly to different types of soft tissue. They started with three basic knit constructions: interlock; rib; jersey.

A Textiles Engineer at the DFDC, Emily Holtzman, says: "For jersey, think of your T-shirt. When you stretch your shirt, the yarn loops are doing the stretching. The longer the loop length, the more stretch your fabric can accommodate. For ribbed, think of the cuff on your sweater. This fabric construction has a global stretch that allows the fabric to unfold like an accordion."

Interlock is similar to ribbed, but is knitted in a denser pattern and contains twice as much yarn per inch of fabric. By having more yarn, there is more surface area on which to embed the cells.

Another Textile Engineer on the team, Erin Doran, says: "Knit fabrics can also be designed to have specific porosities or hydraulic permeability created by the loops of the fabric and yarn sizes. These pores can help with the healing process as well."

So far, the team has embedded mouse embryonic fibroblast cells and mesenchymal stem cells within the different knit patterns to test how they behave when stretched. Each pattern had variations that affected how much the fabric could uncrimp in addition to how stiff it became after it started stretching. All showed a high rate of cell-survival.

Gillmer believes that the fabrics could mimic many different types of human soft tissue, such as cartilage and fat.

The team recently filed a provisional patent that outlines how to create these patterns and identifies the appropriate materials that should be used to make the necessary yarns. This information can be used as a toolbox to tune different knitted structures to match the mechanical properties of the injured tissue to which they are applied.

***Ming Guo, Associate Professor, Department of Mechanical Engineering, Massachusetts Institute of Technology.***
***Tel: +1 (617) 324-0136.***
***Email: guom@mit.edu; https://meche.mit.edu/people/faculty/guom@mit.edu***

# The future of direct air-capture in the USA hangs in the balance

An entirely new set of political priorities in the USA, and the effects they will have on current and future markets for nonwovens, are likely to generate lively discussions at INDA's upcoming *IDEA* and *FiltEXPO* exhibitions and conferences in Miami Beach, Florida, USA, on 29 April–1 May 2025. Here, Adrian Wilson looks at one promising future market for nonwovens, direct air-capture.

The future of what has been tipped to become the largest market for nonwoven filter media – direct air-capture (DAC) – is now very much in question. Despite significant investments in DAC technologies by the US government, the recent election of Donald Trump as the nation's President, and a related shift in attitudes toward environmental regulation and protection, have cast doubts over whether these investments will ever bear fruit. Further, the technological challenges associated with the effective implementation of DAC technologies are significant. Theses political shifts and practical challenges will likely provoke much debate in Miami Beach at the end of April, where the nonwovens industry will convene for the *IDEA* and *FiltEXPO* exhibitions and conferences.

*Climeworks started-up Mammoth, its second direct air-capture facility in Iceland and the largest to date, in May 2024 (see also, page 10).*

## Billion-dollar funding

In August 2023, the US Department of Energy (DoE) announced up to US$1.2 billion in funding to advance the development of two initial commercial-scale DAC facilities in Louisiana and Texas. These projects represented the first selections from President Biden's highly ambitious *DAC Hubs* programme, which was established to kickstart the creation of a nationwide network of large-scale carbon-removal sites to address legacy carbon-dioxide ($CO_2$) pollution and complement rapid reductions in emissions of $CO_2$ .

## Cleaning the air

The DoE estimated that reaching President Biden's goal for a net-zero-emissions economy for the USA would require up to 1.8 billion tonnes of $CO_2$ to be removed from the atmosphere and captured from emissions sources annually by 2050. Then US Secretary of Energy, Jennifer M. Granholm, said: "Cutting-back on our carbon emissions alone will not reverse the growing impacts of climate change. We also need to remove the $CO_2$ that we have already put in the atmosphere, which nearly every climate model makes clear is essential to achieving a net-zero global economy by

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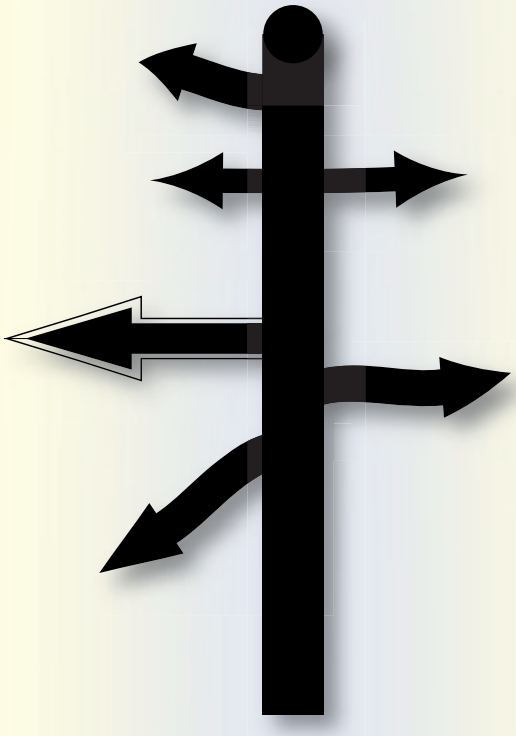
# All avenues are open



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A fully searchable interactive guide to the major worldwide companies supplying, producing and finishing technical textiles

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Published continuously since 1992, ***Technical Textiles International*** is **THE** foremost magazine dedicated to all aspects of the international technical textiles industry.

It is relied upon by senior executives and research entities for the latest on new products and processes, technologies, markets and applications for the advanced and high-performance textiles and nonwovens industry.

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Every item is written or edited by experts in the field, ensuring the readership sees TTNet as a timely, authoritative and trustworthy information source.

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## April 2025

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29 April–1 May 2025
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Lori Reynolds, Director of Events, INDA (Association of the Nonwoven Fabrics Industry);
Tel: +1 (919) 459-3716;
Fax: +1 (919) 459-3701;
lori@filtxpo.com;
https://www.filtxpo.com

### IDEA
29 April–1 May 2025
Miami Beach, Florida, USA
Misty Ayers, INDA (Association of the Nonwoven Fabrics Industry);
Tel: +1 (919) 459-3712;
Fax: +1 (919) 459-3701;
mayers@inda.org;
https://www.ideashow.org

## May 2025

### Techtextil North America
6–8 May 2025
Atlanta, Georgia, USA
Kristy Meade, Show Director, Messe Frankfurt Inc;
Tel: +1 (770) 984-8016, x 2428;
Fax: +1 (770) 984-8023;
kristy.meade@usa.messefrankfurt.com;
https://techtextil-north-america.us.messefrankfurt.com

### Texprocess Americas
6–8 May 2025
Atlanta, Georgia, USA
Kristy Meade, Show Director, Messe Frankfurt Inc;
Tel: +1 (770) 984-8016, x 2428;
Fax: +1 (770) 984-8023;
kristy.meade@usa.messefrankfurt.com;
https://texprocess-americas.us.messefrankfurt.com/atlanta/en.html

### FESPA Global Print Expo
6–9 May 2025
Berlin, Germany
Leighona Aris, FESPA;
Tel: +44 (1737) 228160
Leighona.Aris@Fespa.com;
www.fespa.com

### Outdoor by ISPO
19–21 May 2025
Munich, Germany
Sabine Wagner, ISPO;
Tel: +49 (89) 949-20802
sabine.wagner@messe-muenchen.de;
https://www.ispo.com

## July 2025

### Nanotexnology
5–12 July 2025
Thessaloniki, Greece
Stergios Logothetidis, Chair, Nanotexnology;
Tel: +30 (231) 099-8174
info@nanotexnology.com;
https://www.nanotexnology.com

### World of Wipes
21–24 July 2025
Columbus, Ohio, USA
Misty Ayers, Marketing Coordinator, INDA (Association of the Nonwoven Fabrics Industry);
Tel: +1 (919) 459-3712
mayers@inda.org;
https://www.worldofwipes.org

## August 2025

### International Conference on Composite Materials (ICCM)
4–8 August 2025
Baltimore, Maryland, USA
Kristen Scully, Administrative Assistant, University of Delaware Center for Composite Materials;
Tel: +1 (302) 831-8149;
Fax: +1 (302) 831-8525;
Kscully@udel.edu;
https://iccm23.org

### Intertextile Shanghai Home Textiles
20–22 August 2025
Shanghai, China
Rita Li, Messe Frankfurt (HK) Ltd;
Tel: +852 223-9966;
Fax: +852 2598-8771;
rita.li@hongkong.messefrankfurt.com;
https://intertextilehome.hk.messefrankfurt.com/china/en.html

## September 2025

### Dornbirn Global Fiber Congress
10–12 September 2025
Dornbirn, Austria
Dornbirn Global Fiber Congress Office;
Tel: +43 (1) 319-2909-41;
Fax: +43 (1) 319-2909-31;
office@dornbirn-gfc.com;
http://www.dornbirn-gfc.com

### International Composites Summit
17–18 September 2025
Milton Keynes, UK
Composites UK;
Tel: +44 (1442) 817502
info@fpcc-conference.com;
https://compositesuk.co.uk/events/international-composites-summit

## October 2025

### ITMA Asia + CITME
28–31 October 2025
Singapore,
Daphne Poon, ITMA Services;
Tel: +65 9478-9543
daphnepoon@itma.com;
https://www.itmaasia.com

## November 2025

### Advanced Textiles Expo
5–7 November 2025
Indianapolis, Indiana, USA
Amy Collins, Advanced Textiles Association;
Tel: +1 (651) 225-6970
amy.collins@textiles.org;
https://www.textiles.org/event/ifai-expo-2025

## April 2026

### Techtextil
21–24 April 2026
Frankfurt, Germany
Ivonne Seifert, Director Marketing Communications, Messe Frankfurt Exhibition GmbH;
Tel: +49 (69) 7575-6157;
Fax: +49 (69) 7575-6781;
ivonne.seifert@messefrankfurt.com;
https://techtextil.messefrankfurt.com

### Texprocess
21–24 April 2026
Frankfurt, Germany
Ivonne Seifert, Director Marketing Communications, Messe Frankfurt Exhibition GmbH;
Tel: +49 (69) 7575-6157;
Fax: +49 (69) 7575-6781;
ivonne.seifert@messefrankfurt.com;
https://texprocess.messefrankfurt.com

## May 2026

### INDEX 26
19–22 May 2026
Geneva, Switzerland
Magali Fakhry Dufresne, Palexpo SA;
Tel: +41 (22) 761-1061
index@palexpo.ch;
https://www.indexnonwovens.com

## September 2027

### ITMA
16–22 September 2027
Hannover, Germany
ITMA Services;
Tel: +65 6849-9368
info@itma.com;
https://itma.com

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| **Winter** | **BUYER'S GUIDE**<br>**Medical textiles**<br>**Architecture and construction**<br>**Geotextiles**<br>**Acoustic/thermal insulation** | Major events in 2026, including<br>*INDEX, Techtextil and Texprocess,*<br>*ITM, and ITMA Asia + CITME* | 31 October |

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# Advances in Textiles technology

## New textile materials & technologies

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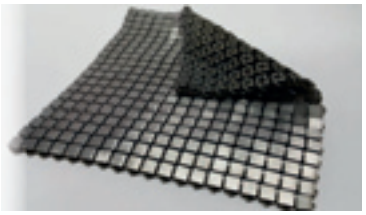
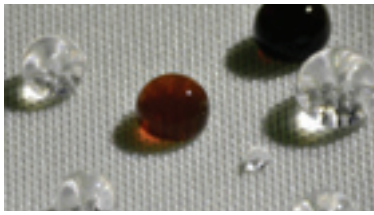

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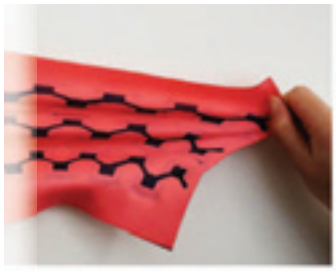


Advances in Textiles technology

February 2022

An international newsletter on textiles technology edited by: James Bakewell

Fibres, filaments and yarns

Artificial silk door-pulls feature on Mercedes-Benz concept car

Novel, sustainable door-pulls made from artificial silk fibre are being used by Mercedes-Benz of Stuttgart, Germany, in its latest concept car, the Vision EQXX.

The carmaker has designed Vision EQXX to highlight ways in which luxury vehicles can be produced using technologies that are more environmentally sustainable than conventional approaches.

The artificial silk fibre is called Biosteel and is produced by AMSilk of Planegg, Germany. The company says that the fibres are biodegradable and recyclable, and no waste is generated during their manufacture. It adds that Biosteel demonstrates mechanical properties

The door pulls for the Vision EQXX concept car from Mercedes-Benz are made from Biosteel artificial silk fibres.

Highlights this month: full contents listing on page 2...

Methods for determining the effects of strains and stresses on carbon nanotube fibres are being developed by researchers at Rice University 2

A single vented tumble dryer can discharge up to 120 million microfibres into the air each year, according to a pilot study 5

A range of durable fabrics made from pre-consumer recycled polyamide (PA) 66 fibres has been launched by Invista through its Cordura brand 3

A fibre-laying process that enables the efficient production of composite footplates and toe caps for use in footwear has been launched by Coats 7

A dual-action thermoregulating finish that reduces the temperature of surfaces to which it is applied by up to 3°C has been launched by HeiQ 4

A long, fibre-based lithium-ion battery that could be woven into fabrics is being developed by researchers at the Massachusetts Institute of Technology 10



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